

U.S. Department of the Interior  
Bureau of Land Management  
Colorado State Office



# **GLENWOOD SPRINGS FIELD OFFICE**

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## **Record of Decision for the Approval of Portions of the Roan Plateau Resource Management Plan Amendment and Environmental Impact Statement**



**June 2007**



**United States Department of the Interior  
Bureau of Land Management  
Colorado State Office  
Glenwood Springs Field Office**

**Record of Decision  
for the Approval of Portions of the  
Roan Plateau  
Resource Management Plan Amendment  
and  
Environmental Impact Statement**

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## ACRONYMS

ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
APLIC	Avian Power Line Interaction Committee
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BMP	best management practice
CDNR	Colorado Department of Natural Resources
CDOW	Colorado Division of Wildlife
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COA	Condition of Approval
COGA	Colorado Oil and Gas Association
CSU	Controlled Surface Use
DOE	U.S. Department of Energy
EIS	Environmental Impact Statement
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
ESI	Ecological Site Inventory
FLPMA	Federal Land Policy Management Act of 1976
FMZ	Fire Management Zone
GAP	Geographic Area Proposal
GSFO	Glenwood Springs Field Office
I	Interstate
IBLA	Interior Board of Land Appeals
LN	Lease Notice
NEPA	National Environmental Policy Act
NGD	No Ground Disturbance
NHPA	National Historic Preservation Act
NOSR	Naval Oil Shale Reserve
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
OHV	off-highway vehicle
ORV	Outstandingly Remarkable Value
PEIS	Programmatic Environmental Impact Statement
PFC	Proper Functioning Condition
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROD	Record of Decision
SH	State Highway
SSR	Site-Specific Relocation
TL	Timing Limitation
TMA	Travel Management Area
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WMA	Watershed Management Area
WSA	Wilderness Study Area

WSR  
WSRA

Wild and Scenic River  
Wild and Scenic Rivers Act



## **1. INTRODUCTION**

This Record of Decision (ROD) by the Bureau of Land Management (BLM) documents BLM's decision to amend the Glenwood Springs Resource Management Plan (RMP) (BLM 1988) for BLM-administered lands and resources in the Roan Plateau Planning Area. The Planning Area includes Naval Oil Shale Reserves (NOSRs) Numbered 1 and 3. The Roan Plateau Resource Management Plan Amendment (RMPA) also amends the White River Resource Area RMP (BLM 1996). This ROD does not include management decisions for approximately 21,034 acres of Federal surface estate being considered for designation as Areas of Critical Environmental Concern (ACECs). Management decisions for these lands will be documented in a separate ROD.

The Proposed RMPA/Final Environmental Impact Statement (EIS) and this ROD have been developed in accordance with Public Law 105-85 (the "Transfer Act"), the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy Management Act of 1976 (FLPMA). The Transfer Act transferred management of NOSRs 1 and 3 from the Department of Energy to the BLM in 1997. The transfer legislation instructed BLM to develop a multiple-use management plan for the area and enter into leases for exploration, development, and production of petroleum (other than in the form of oil shale) on these transferred lands "as soon as practicable." This RMPA is based on elements analyzed in Alternatives II and III of the Draft RMPA/Draft EIS, Cooperating Agency input, changes made developing the Proposed RMPA/Final EIS in response to public comment, and changes made in response to protests received on the Proposed RMPA/Final EIS. Alternative III was the Preferred Alternative in the Draft RMPA/Draft EIS, which was released on November 19, 2004. The Proposed RMPA/Final EIS was released on September 7, 2006.

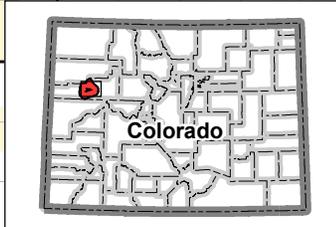
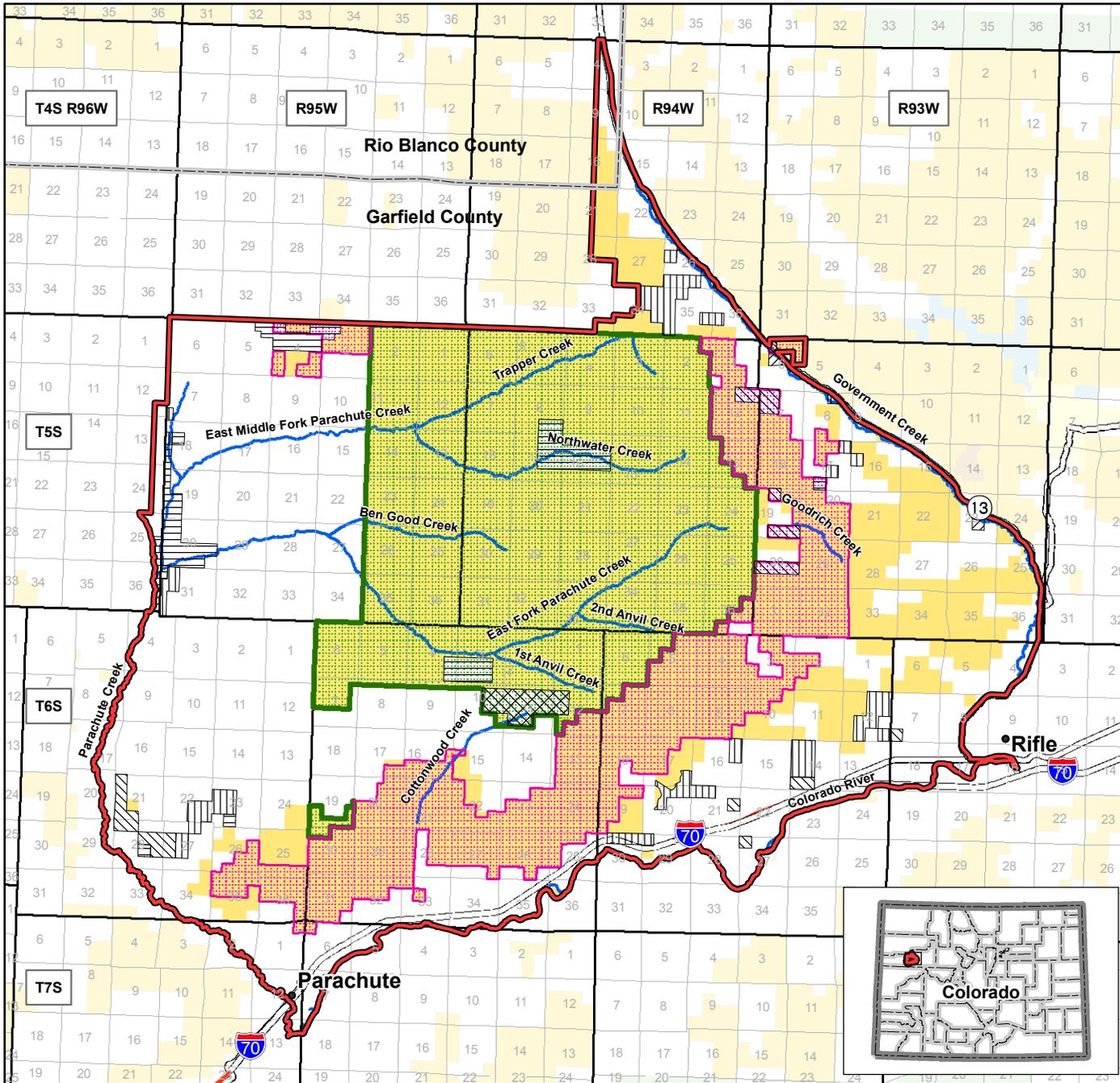
The Planning Area is located primarily in western Garfield County, with a small portion in southern Rio Blanco County. It lies generally north of Interstate 70 (I-70) between the towns of Rifle and Parachute and consists of three visually, geologically, and ecologically distinct areas: (1) semi-desert habitats at lower elevations, (2) relatively moist montane and subalpine habitats at higher elevations, and (3) a band of high and mostly unbroken cliffs separating these areas. The Planning Area drains westward to Parachute Creek, eastward to Government Creek, or southward to the Colorado River.

The Planning Area shown on Map 1 includes 73,602 acres of Federal lands of which all but 6,668 acres are also Federal surface. This ROD documents the BLM's decisions on the management of 52,568 acres (see Map 2), including 24,990 acres of NOSRs 1 and 3 that were not previously available for oil and gas leasing and development. Within the Planning Area, approximately 21,034 acres of Federal surface estate were considered for designation as ACECs in the Proposed RMPA/Final EIS; these lands are excluded from all decisions in this ROD because of a protest issue related to ACECs (decisions for these lands will be made in a separate ROD). Decisions made in this ROD apply only to the BLM-administered lands, which include Federal surface estate, subsurface mineral estate, or both. They do not apply to surface or subsurface mineral estate over which the BLM has no jurisdiction.

Some of the NOSR and other Federal lands in the Planning Area have already been leased and are undergoing oil and gas development. Stipulations included in this ROD will not apply to existing leases because of contractual rights.

# Map 1 Roan Plateau Planning Area

- Cities
- Planning Area Boundary
- Perennial Streams
- Township and Range
- Sections
- BLM NOSR1
- BLM NOSR2
- Private Surface/Federal Subsurface**
- Coal
- All Minerals
- Oil and Gas
- Oil, Gas and Coal
- Other
- County Boundary
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



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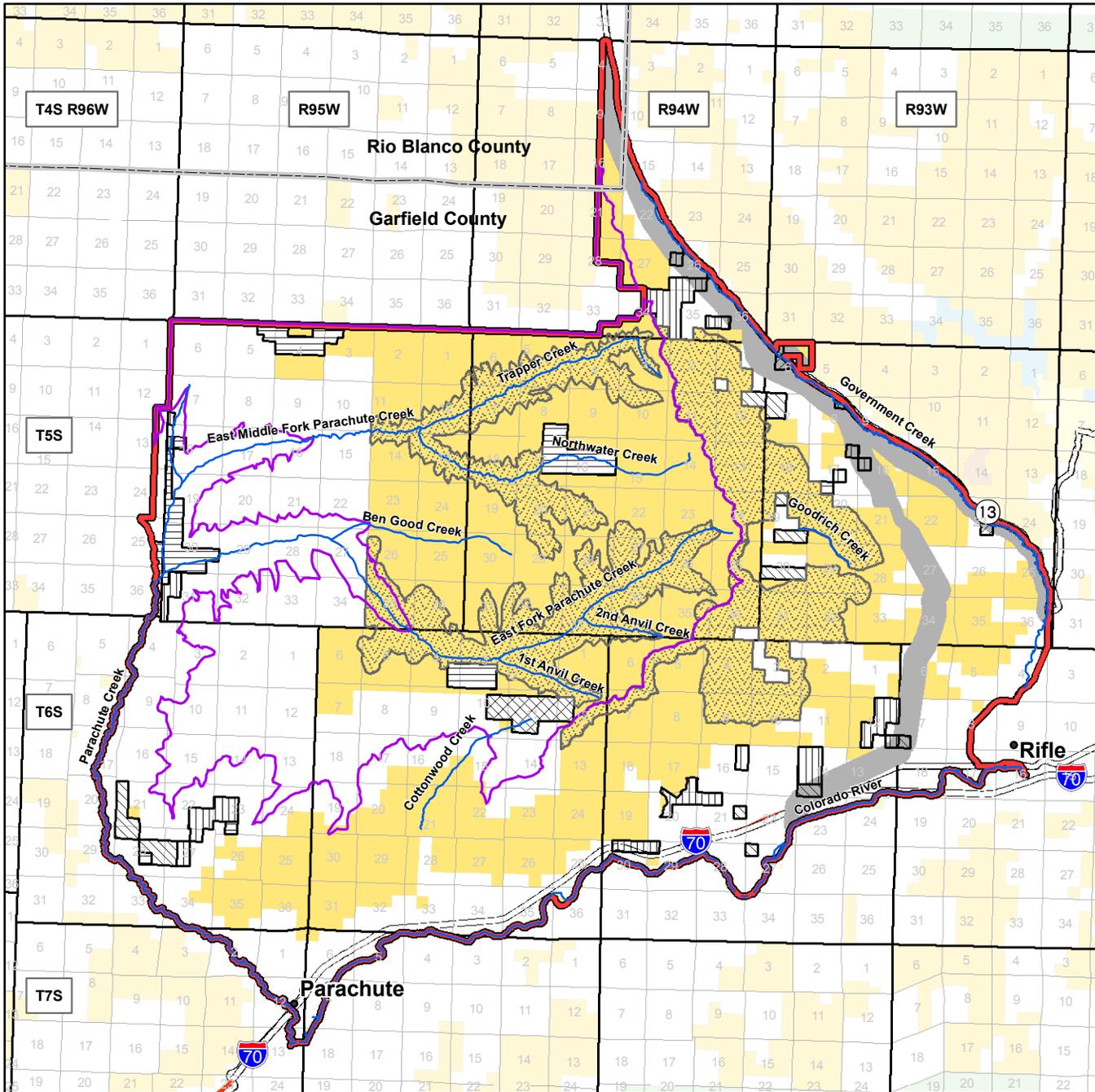
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# Map 2 Record of Decision Area

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Perennial Streams
  - rim
  - ▨ Area's not included in the Record of Decision
  - Utility Corridor
  - ▭ Planning Area Boundary
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



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Glenwood Springs Field Office**

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## **2. RESULTS OF PROTEST REVIEW**

- The BLM received 42 protest letters during the 30-day protest period for the Proposed RMPA/Final EIS. Of this number, two form letters were submitted by 33 protestors. Ten unique protest letters were received from the following: Colorado Oil and Gas Association (COGA);
- National Wildlife Foundation/Colorado Wildlife Federation;
- U.S. Congresswoman, the Honorable Diana DeGette;
- EnCana Oil and Gas (USA) Inc.;
- Colorado Trout Unlimited;
- Colorado Mule Deer Association;
- Western Resources Advocates;
- Vaughan F. Kendall;
- Rock the Earth; and
- The Conservation Groups (Colorado Environmental Coalition, Colorado Mountain Club, Center for Native Ecosystems, Environment Colorado, Natural Resources Defense Council, Sierra Club, The Wilderness Society, Western Colorado Congress, and Wilderness Workshop.

### **2.1 Protest Concerns**

The BLM addressed the protests without making significant changes to the Proposed RMPA/Final EIS in this ROD. One protest issue relating to ACECs is being resolved. The main protest issues pertained to oil and gas leasing and development, wildlife and fisheries mitigation, wilderness character, NEPA adequacy, recreation, ACECs, the application of best management practices (BMPs), water resources, and air quality. Several minor modifications or clarifications made subsequent to these protests are described in Section 3.4.

## **3. DECISIONS BEFORE THE BLM**

The decision before the BLM in this ROD is whether to approve, disapprove, or approve with modifications the Proposed RMPA for the Roan Plateau public lands, excluding those lands under consideration for ACEC designation as described above.

### **3.1 What the RMPA Provides**

Land use plan decisions in this ROD include goals, objectives, and management actions for Federal lands inside the Planning Area (excluding those areas under consideration as proposed ACECs). The primary management decisions in the RMPA are to:

- Manage resources to protect and enhance natural resources (specifically native vegetative communities, fish and wildlife, and cultural, geological, paleontological, and visual resources) and recreation opportunities;
- Allow for oil and gas leasing of 52,568 acres of the BLM lands in the Planning Area (does not include areas under consideration as proposed ACECs). Subsequent development will be subject to statute, regulations, and stipulations contained in the leases, and other restrictions as contained in the RMPA;

- Identify one Watershed Management Area (WMA) (see Map 3);
- Identify one area to be managed as an off-highway vehicle (OHV) Riding Area; and
- Protect streams found to be eligible for a Wild and Scenic Rivers (WSRs) suitability study, until such time a suitability study is conducted. Except for those areas under consideration as proposed ACECs, this ROD serves as the final decision establishing the land use plan decisions detailed in the RMPA and is effective on the signature date. No further administrative remedies are available for these land use planning decisions. The implementation decision for Travel Management may be appealed as described in Section 3.2.1.

### **3.2 What the RMPA Does Not Provide**

This RMPA does not contain decisions for the BLM lands outside the Planning Area, or on State-owned lands, private surface estate overlying Federal mineral estate, or other private lands inside the Planning Area. Additionally, many decisions are not appropriate at this level of planning and are not included in the ROD. Examples include statutory requirements, national policy, funding levels, and budget allocations. This ROD does not contain implementation decisions except for Travel Management, as described in Section 6.2.2, Transportation.

Travel management decisions on individual routes are the only implementation decisions made in this ROD. Implementation decisions are final approval decisions allowing actions to proceed. These decisions are implemented through permits, leases, and site-specific authorizing actions accompanied by site-specific analysis and appropriate NEPA documentation. Implementation decisions are not subject to protest but may be appealed. Implementation decisions (other than Travel Management) may be considered in future activity planning or site-specific analyses. This ROD also does not include management decisions for approximately 21,034 acres of Federal surface estate that are being considering for designation as ACECs (these decisions will be considered in a separate ROD).

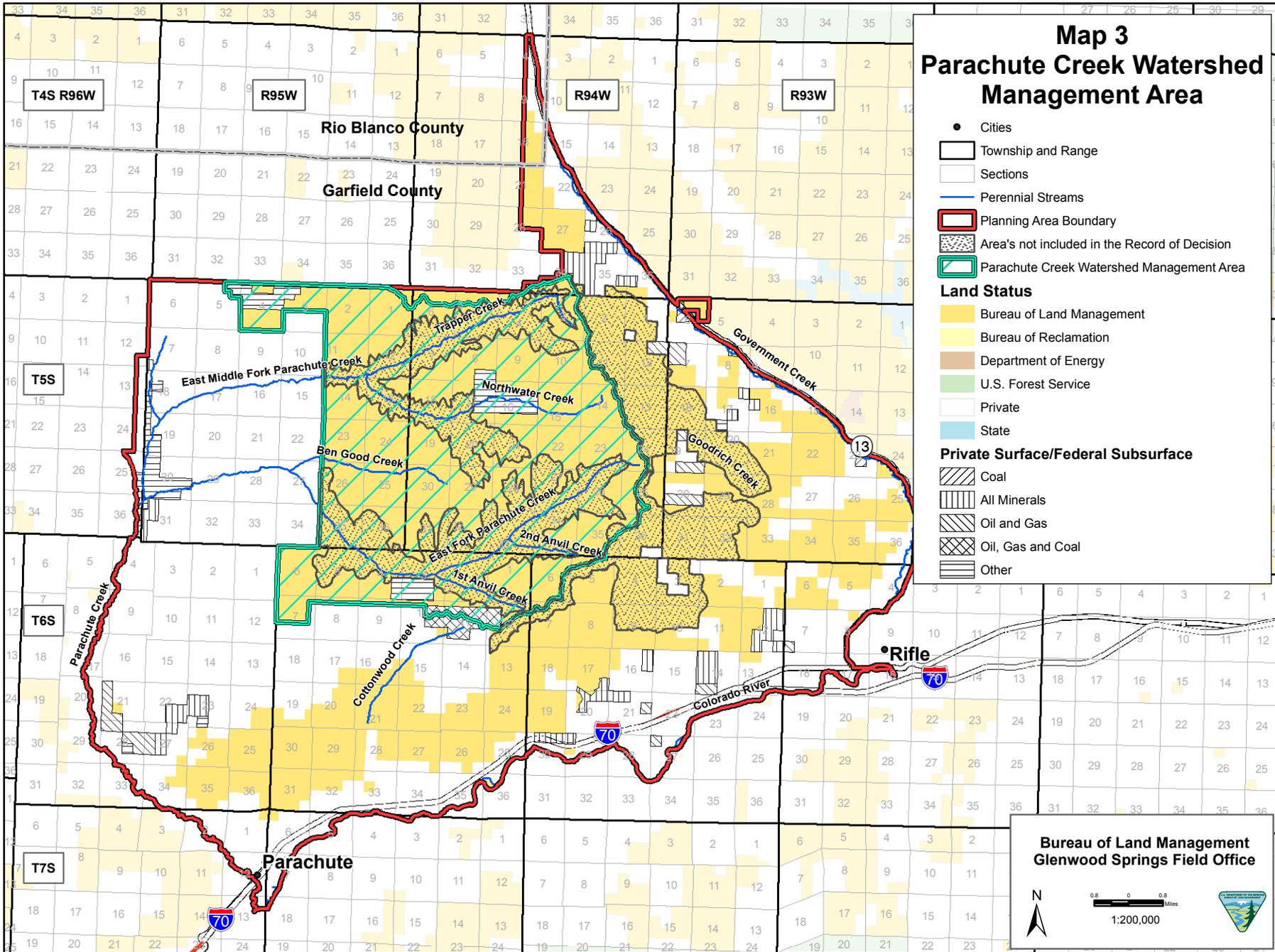
#### **3.2.1 Appeal Procedures for Travel Management Implementation Decisions**

Implementation decisions for Travel Management are not subject to protest under the planning regulations but are subject to various administrative remedies, primarily appeals to the Interior Board of Land Appeals (IBLA) under 43 Code of Federal Regulations (CFR) § 4.411. An appeal is an opportunity for a qualified party to obtain a review of a BLM decision by an independent board of administrative law judges within the U.S. Department of the Interior's Office of Hearings and Appeals. The IBLA determines whether the BLM followed applicable laws and regulations, adhered to established policies and procedures, and considered relevant information in reaching an implementation decision.

A notice (i.e., Notice of Appeal) must be filed with the IBLA to appeal a Travel Management implementation decision from this plan. Address appeals to the Glenwood Springs Field Office of the Bureau of Land Management, 50629 Highways 6 & 24, Glenwood Springs, Colorado, 81601 within 30 days after the date of the publication of availability for this ROD in the Federal Register. The Notice of Appeal must identify that the Roan Plateau Travel Management decisions are being appealed and may also include a statement of the reasons for the appeal. If the Notice of Appeal does not include a statement of reasons, the statement must be filed with the IBLA within 30 days after the Notice of Appeal is filed.

# Map 3 Parachute Creek Watershed Management Area

- Cities
  - Township and Range
  - Sections
  - Perennial Streams
  - ▭ Planning Area Boundary
  - ▨ Area's not included in the Record of Decision
  - ▭ Parachute Creek Watershed Management Area
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other



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The statement of reasons must be mailed to:

Interior Board of Land Appeals  
Office of Hearings and Appeals  
801 North Quincy Street  
Arlington, VA 22203

Failure to file the statement of reasons within the time required will result in summary dismissal of the appeal.

Within 15 days after each document is filed, a copy of the Notice of Appeal, the statement of reasons, and any applicable written arguments or briefs must be sent to:

Office of the Regional Solicitor  
Rocky Mountain Region  
U.S. Department of the Interior  
755 Parfet Street, Suite 151  
Lakewood, CO 80215

Service of the documents to the Solicitor must be accomplished through personal delivery, or by sending the document(s) by registered or certified mail, return receipt requested. Within 15 days of service of the document to the Solicitor proof of that service must be provided to the IBLA at the address above.

### **3.2.2 Petition for Stay**

Petitions for stay must be filed in the office of the authorized officer at the time the petition is filed and must show sufficient justification based on the following standards (43 CFR 4.21):

- The relative harm to the parties if the stay is granted or denied;
- The likelihood of the appellant's success on the merits;
- The likelihood of immediate and irreparable harm if the stay is not granted; and
- Whether granting the stay is in the public interest.

### **3.3 Notice of Modifications**

As a result of protests on the Proposed RMPA/Final EIS and internal BLM review, several minor modifications were made to the proposed decisions in the Proposed RMPA/Final EIS. Sections that were modified include Section 4.2.2.2, Appendix A, and Appendix F. The BLM does not consider these modifications to be significant changes. They are briefly described below.

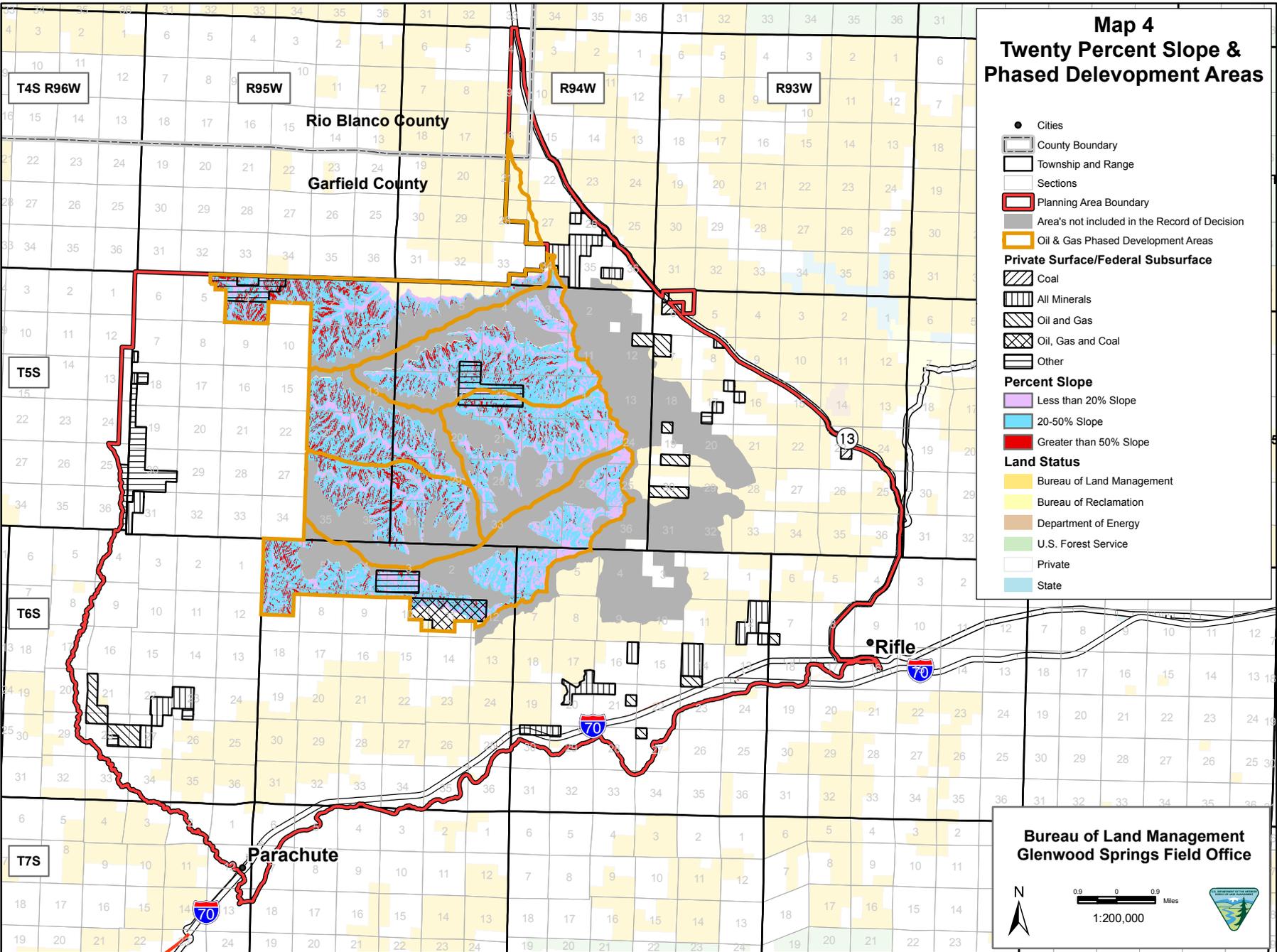
#### **3.3.1 Section 4.3.2.2 of the Proposed RMPA/Final EIS**

A map showing the location of areas with slopes less than 20 percent has been included in this ROD to identify potential areas of development (see Map 4). This is particularly pertinent to the discussion found in Section 4.3.2.2 of the Proposed RMPA/Final EIS.

#### **3.3.2 Appendix A**

Appendix A, Best Management Practices (BMPs) and Mitigation Measures, was modified from Appendix I of the Proposed RMPA/Final EIS to clarify the types of BMPs that may be adopted as Conditions of Approval (COAs) during the oil and gas permitting process or applied during the authorization process for other resource uses.

# Map 4 Twenty Percent Slope & Phased Development Areas



- Cities
- ▭ County Boundary
- ▭ Township and Range
- ▭ Sections
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Oil & Gas Phased Development Areas
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▭ Other
- Percent Slope**
- ▭ Less than 20% Slope
- ▭ 20-50% Slope
- ▭ Greater than 50% Slope
- Land Status**
- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State

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### **3.3.3 Appendix F**

Appendix F, Stipulations, is modified from Appendix C of the Proposed RMPA/Final EIS, to better reflect current BLM guidance and to clarify specific stipulations (see Section 3.4, Clarifications). Three notable modifications were made to Appendix F:

- As a result of consultation with the USFWS, additional protections have been included in Appendix F for bald eagles (see GS-NSO-ROAN-26) and the Mexican spotted owl (see GS-NSO-ROAN-24).
- The standards for Site-Specific Relocation (SSR)/Controlled Surface Use (CSU) stipulations have been amended to more accurately reflect the BLM's guidance for such stipulations. As amended, the standards for SSR/CSU stipulations are more consistent with the BLM's regulations on stipulations that allow but control surface uses. This includes relocation of proposed operations and/or modification of the design of facilities (43 CFR § 3101.1-2).
- Endangered Species Act (ESA) consultation was added to Lease Notices (LNs).

### **3.4 Clarifications**

Clarifications and minor corrections were made to the Proposed RMPA/Final EIS and are reflected in the ROD and attached appendices A through G. Of particular note are the clarifications made to Appendix F, containing stipulations. Specifically, clarifications pertain to No Ground Disturbance (NGD)/No Surface Occupancy (NSO) restrictions, limitations on surface disturbance in the WMA, and allowed production activities. The following points of clarifications are provided in this ROD:

- The BLM intends to limit surface-disturbing activities in a sequential area-by-area manner and not limit exploration activities in such a way (clarified in GS-CSU-ROAN-13, 2.3).
- Surface-disturbing activities associated with development will be limited to one geographic area at a time although actual production (i.e., flow of gas) from multiple areas at any given time is both anticipated and allowed (clarified in Section 6.2.6, Oil and Gas, Management Action OG-1c, in GS-CSU-ROAN-13, 2.3).
- The BLM will require that the 5-year interim criteria must be met in order for areas to be released from the total maximum disturbance requirement for the unit (clarified in GS-CSU-ROAN-13, 2.5).
- Wording has been added more accurately reflect the requirements of 43 CFR § 3101.1-4 in the description of exemptions, modifications, and waivers (clarified in the Introduction to Appendix F).
- Clarification was added to explain how exploratory activities relate to the reclamation standards (clarified in GS-CSU-ROAN-13, 2.4).
- This ROD was revised to more clearly indicate which disturbances will be counted toward the "total unreclaimed surface disturbance" (clarified in GS-CSU-ROAN-13, 2.4).
- Until a well is abandoned, the lessee/unit operator will be allowed to re-enter areas that have received interim reclamation subject to the one percent disturbance limit, although this will be subject to phasing and sequencing by area (clarified in GS-CSU-ROAN-13, 2.3).
- Additional surface disturbance related to development and production activities would be included in the 350-acre surface disturbance limitation, with exceptions, as noted on page 2-9 (clarified in GS-CSU-ROAN-13, 2.4).

- “Utility corridors” include pipelines (clarified in GS-CSU-ROAN-13, 2.4.1 and 2.10).
- Surface and groundwater monitoring will be conducted to the extent needed to preclude resource damage or document compliance with the mitigation standard (clarified in GS-CSU-ROAN-13, 4).
- For areas below the rim, overall surface space location densities are expected to average approximately one surface location per 160 acres, when areas with NSO and other restrictive requirements are considered, and distances between the pads below the rim may vary (clarified in Section 6.2.6, Oil and Gas, Management Action OG-4).
- Geographic Area Proposals (GAPs) include appropriate monitoring and methodologies to ensure compliance with identified standards (clarified in Section 6.2.6, Oil and Gas, Management Action OG-9, and in GS-CSU-ROAN-13, 1).
- The terms wildlife security and wildlife security areas were used interchangeably in the Proposed RMPA/Final EIS. In the ROD, the term wildlife security area is used.

Included in the stipulations is a description of standards applied to short-term activities (where reclamation occurs within two years of initiation). The following description is provided in Appendix F for each stipulation:

- Short-term activities (i.e., reclaimed within two years of initiation) may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.

#### **4. OVERVIEW OF THE ALTERNATIVES CONSIDERED**

Five alternatives, including a No Action Alternative, were analyzed in detail and presented in the Draft RMPA/Draft EIS (BLM 2004). The Proposed Plan and select comparisons between the Proposed Plan and No Action and Preferred Alternatives are presented in the Proposed RMPA/Final EIS (BLM 2006). The five alternatives, described in the Draft RMPA/Draft EIS were developed to represent a reasonable range of land uses and management actions for the Planning Area.

##### **4.1 Alternative I (No Action Alternative)**

Alternative I (the No Action Alternative) represented the continuation of current management. Alternative I would have preserved present management practices in accordance with the Glenwood Springs RMP (as amended) (BLM 1999) and existing laws, regulation, and policy. Current land uses in the Planning Area would have continued and resource management would not have changed. This alternative would not have allowed oil and gas leasing on top of the plateau (NOSR 1) and would have used current restrictions for oil and gas development within the rest of the Planning Area.

##### **4.2 Alternative II (Environmentally Preferable Alternative)**

Alternative II of the Draft RMPA/Draft EIS is identified as the most environmentally preferable alternative. This alternative placed the greatest emphasis on protective restrictions and management actions aimed at preserving or improving sensitive resource values, while accommodating some oil and gas development atop the plateau, as well as in areas below the rim. The authority of the Department of the Interior to designate Wilderness Study Areas (WSAs) expired no later than October 21, 1993 as noted in BLM Instruction Memorandum WO 2003-274.

While no WSAs would have been designated, three areas having characteristics associated with wilderness, encompassing a combined area of 21,382 acres, would have been managed to protect and maintain characteristics associated with wilderness: the Northeast Cliffs, Southeast Cliffs, and East Fork Parachute Creek units. Alternative II would have also protected 7,883 acres of streams and stream corridors found to be eligible for WSR designation until a suitability decision is made.

Alternative II would have allowed the least amount of oil and gas development among the alternatives except for No Action (Alternative I), due in part to closure of 29 percent of the Planning Area to oil and gas leasing. Furthermore, Alternative II included large areas with NGD/NSO restrictions and would have implemented a number of management actions and restrictions to protect and enhance certain resources and the natural processes on which they depend. These management actions and restrictions reflected the emphasis in Alternative II on conservation of the visual, natural, wilderness, geological, and ecological qualities of the Planning Area while allowing oil and gas leasing and development in some areas where previously precluded.

### **4.3 Alternative III**

The BLM designated Alternative III as the Preferred Alternative in the Draft RMPA/Draft EIS. This Alternative emphasized multiple resource use in the Planning Area. Ecological values would have been protected through the development of management prescriptions intended to limit surface disturbance, implement active management, and mitigate effects of resource development. This Alternative supported intensive management actions to meet Colorado Standards for Public Land Health on a landscape basis. A WMA would have been designated for the entire portion of the Parachute Creek drainage atop the plateau to protect water quality, as well as aquatic biota and other adjacent resources. A combined 7,883 acres of streams and stream corridors found to be eligible as WSRs would have been managed to maintain that eligibility until a suitability decision is made.

A unique feature of Alternative III was that although all of the BLM lands were to be open to oil and gas leasing, lands above the rim would have been leased only after a specified threshold of development below the rim had been reached. The threshold for leasing above the rim was defined as the point at which 80 percent of anticipated wells below the rim during the 20-year life of the Plan were effectively completed to total depth and a production test performed.

### **4.4 Alternative IV**

Alternative IV, like Alternative III, emphasized multiple resource use in the Planning Area. The most important ecological values were to be protected with the development of management prescriptions that limited surface disturbance, implemented active management, and mitigated effects of resource development. This alternative supported intensive management actions to meet Colorado Standards for Public Land Health on a landscape basis. A combined 7,883 acres of streams and stream corridors found to be eligible as WSRs would have been managed to maintain that eligibility until a suitability decision is made. No areas would have been closed to oil and gas leasing.

### **4.5 Alternative V**

Alternative V would have accommodated energy and other nonrenewable resource development throughout the Planning Area. This alternative would have allowed ecological values and biological diversity to be modified by ground-disturbing activities related to resource development. Key resources would have been protected on a site-specific basis through active management and mitigation to meet legal requirements and Colorado Standards for Public Land Health. The alternative assumed the WSR-eligible streams and stream corridors would not have

been designated as WSRs and the associated protection would therefore not have been applied. However, long-term ground-disturbing activities would have been prohibited if the 7,883 acres have been deemed suitable, with the corridors managed under NGD/NSO restrictions until a suitability decision is made.

## **5. MANAGEMENT CONSIDERATIONS IN SELECTING THE APPROVED PLAN**

The BLM is required to manage public lands for multiple-use in accordance with FLPMA. The diversity of stakeholder concerns surrounding this plan resulted in support and opposition to components of all alternatives. The RMPA presented in this ROD contains no significant changes to the Proposed RMPA/Final EIS (other than the deferral of decisions for lands being considered as proposed ACECs). However, the RMPA contains modifications and clarifications are described in Sections 3.3 and 3.4.

In developing the Proposed RMPA/Final EIS, the BLM intended to increase the amount of environmental protection compared to the Preferred Alternative of the Draft RMPA/Draft EIS. The BLM developed the RMPA in response to public comments and through consultation and coordination efforts with state, county, and local government entities. The RMPA incorporates revisions and refinements resulting from this consultation and coordination process, including with Cooperating Agencies, following the public comment period for the Draft RMPA/Draft EIS.

This ROD is constructed primarily from components excerpted from the five previous alternatives (particularly Alternatives II and III) and includes some additional measures to further reduce environmental impacts. One of the most important of these is the BLM's adoption of measures proposed by the Colorado Department of Natural Resources (CDNR) to reduce impacts of oil and gas development atop the plateau. These measures were proposed during the consultation and coordination process and received various levels of support from the other Cooperating Agencies.

## **6. PLAN ELEMENTS**

The overall purpose is to emphasize balance in managing for a variety of multiple resource uses incorporating outcome-based adaptive management, to protect key biological and aesthetic resources while developing oil and gas resources in a systematic, clustered, and staged manner. The RMPA emphasizes natural resource values through application of protective surface-use restrictions and stipulations, directed management actions, and administrative actions.

The RMPA includes a variety of management activities intended to maintain, enhance, and monitor resource conditions. It employs the following stipulations, which apply to all resource management activities (the percentage of total BLM lands considered in this ROD are shown in parentheses):

- NGD/NSO – 17,736 acres (34 percent);
- SSR/CSU – 48,009 (91 percent) – Includes 17,517 acres that overlap with NGD/NSO areas;
- Timing Limitations (TLs) – 29,460 acres (56 percent) – includes 12,153 acres that overlap with NGD/NSO areas and 23,910 acres that overlap with SSR/CSU areas; and
- Standard Restrictions – 683 acres (one percent).

The RMPA allows oil and gas leasing of 100 percent of the Federal mineral estate lands within the Planning Area being considered in this ROD. Various constraints on long-term ground-disturbing activities, however, limit the area available for these uses to 34,832 acres, or 66 percent of the Federal lands considered in this ROD. Other key elements of the RMPA include

the requirement for phased and clustered development of oil and gas resources on top of the plateau, with a focus on allowing development only along ridges and existing roads, and limiting the acreage of disturbed land permissible at any one time. The RMPA relies heavily on the use of directional drilling to optimize recovery of oil and gas resources while significantly reducing associated ground disturbance. For areas at lower elevations below the rim, the BLM will manage to maximize clustered development. However, more flexibility is allowed in the lower areas because of the proximity and irregular boundaries of private lands, currently leased Federal lands, and currently unleased Federal lands subject to future leasing. Oil and gas leasing is discussed in Section 6.2.6 of this ROD.

The 1984 Glenwood Springs Resource Area RMP and 1997 White River Resource Area RMP were amended on February 12, 1997, adopting the Colorado Standards for Public Land Health. The Colorado Standards for Public Land Health describe the conditions needed to sustain public land health, and apply to all program uses in the Roan Plateau Planning Area.

The decisions contained in this ROD are listed in Sections 6.1, 6.2, and 6.3 by resource, resource use, and special designation, respectively. Management direction in this ROD has been segregated into three major classifications for each of the resources, resource uses, and special designations: General Management Decisions, Management Actions, and Stipulations as follows.

- General Management Decisions provide broad goals and objectives for each of the resources, resource uses, and special designations.
- Management Actions listed in this ROD describe the actions to be taken in order to attain these broader goals and objectives, subject to valid existing rights. Management Actions include restrictions that will be applied to protect the respective resources, resource uses, or special designations. Where applicable, measurable standards are identified as part of the Management Actions.
- Stipulations list and describe the specific mitigating measures to be administered to protect, enhance, and/or maintain resource values or uses. Appendix F lists and describes the specific substantial restrictions and associated standards, which have been identified in order to allow environmentally responsible oil and gas leasing and development along with other resource management activities. Other important restrictions not suitable for inclusion as lease stipulations have been identified as management actions.

In the following sections, stipulations are numbered and identified as shown in the following example: GS-NSO-ROAN-24 (Glenwood Springs – No Surface Occupancy – Roan Plateau Planning Area – Number of Stipulation). Stipulations, as numbered, can be found in Appendix F and correspond to the abbreviations used in the Colorado BLM’s oil and gas database. The term No Ground Disturbance (NGD) applies to all activities but oil and gas leasing and permitting, while the term No Surface Occupancy (NSO) applies to only oil and gas leasing and permitting. Similarly, the term Site-Specific Relocation (SSR) applies to all activities but oil and gas leasing and permitting, while the term Controlled Surface Use (CSU) applies to only oil and gas leasing and permitting. Timing Limitations (TL) apply to all activities. Lease Notices (LN) apply only to oil and gas leasing and permitting, however, similar requirements would be applied during permit or application approval for other activities.

All General Management Decisions, Management Actions, and Stipulations apply to all management and use activities. Provisions for exceptions, modifications, and waivers to stipulations for oil and gas leasing, other land uses, and other management actions are described in Appendix F. Specific stipulations are referenced under the sections in which they are most applicable.

## **6.1 Resources**

Resource goals, objectives, and management actions for the Roan Plateau Planning Area, excluding approximately 21,034 acres of Federal surface estate that are being considered for designation as ACECs, are described in the following sections.

### **6.1.1 Geology (G)**

#### **General Management Decisions**

**Goal G-1:** Protect and preserve Geological Heritage Resources.

**Objective G-1:** Protect and preserve the existing scientific and historic geological values associated with the Anvil Points Claystone Cave and karst system.

#### **Management Actions**

**G-1:** Restrict activities that could cause direct or indirect impacts, such as structural collapse or dewatering, through the application of a NGD/NSO restriction. Utilize public education opportunities as appropriate to help achieve goals.

#### **Stipulations**

- *NGD/NSO*

**GS-NSO-ROAN-21. Anvil Points Claystone Cave:** See Appendix F

### **6.1.2 Paleontology (P)**

#### **General Management Decisions**

**Goal P-1:** Protect and preserve paleontological resources.

**Objective P-1:** Protect Sharrard Park's scientifically significant Eocene fossil mammal localities from surface disturbing activities, and recover such resources and associated data through an authorization process.

#### **Management Actions**

**P-1:** Apply a SSR/CSU restriction to protect the paleontological resources in Sharrard Park.

**P-2:** Require survey and mitigation prior to any surface-disturbing activities in Condition 1 and Condition 2 areas.

#### **Stipulations**

- *SSR/CSU*

**GS-CSU-ROAN-18. Sharrard Park Paleontological Resources:** See Appendix F

### **6.1.3 Soil (S)**

#### **General Management Decisions**

**Goal S-1:** Maintain watershed soil stability and productivity.

**Objective S-1:** Manage to meet Colorado Standards for Public Land Health for soils on a watershed scale, and support other resource needs.

#### **Management Actions**

**S-1:** Maintain site stability and site productivity on steep slopes and erosive soils throughout the Planning Area by applying NGD/NSO and SSR/CSU restriction, COAs, BMPs, and other site-specific mitigation (see Appendices A and F).

**S-2:** Apply COAs, BMPs, and other site-specific mitigation to minimize erosion, encourage rapid reclamation, retain soils using stormwater mitigation structures, maintain soil stability, and support other resources (including fisheries habitat).

#### **Stipulations**

- ***NGD/NSO***

- **GS-NSO-ROAN-22. Steep Slopes Greater Than 50 Percent:** See Appendix F

- ***SSR/CSU***

- **GS-CSU-ROAN-04. Erosive Soils and Slopes Greater Than 30 Percent:** See Appendix F

#### **6.1.4 Water (W)**

##### **General Management Decisions**

**Goal W-1:** Meet all state and federal water quality standards, and support water quantity and quality needs of other resources.

**Objective W-1:** Ensure authorized activities comply with all applicable water quality standards, including the Colorado Standards for Public Land Health, and that objectives associated with management of the Parachute Creek WMA are achieved.

##### **Management Actions**

**W-1:** Establish baseline water quality data and monitoring program for drainages prior to allowing surface-disturbing activities. Assess disturbance-related water quality changes, identifying and implementing mitigation measures as needed to meet water quality standards; also implement those actions associated with the Parachute Creek WMA (see Section 6.3.2).

##### **Stipulations**

See Section 6.3.2, Watershed Management Area.

### **6.1.5 Ecological Values (EV)**

#### **General Management Decisions**

**Goal EV-1:** Protect key ecological values and natural processes.

**Objective EV-2:** Provide protection for candidate and sensitive species in addition to supporting important ecological processes, consistent with the Colorado Public Land Health Standards.

#### **Management Actions**

**EV-1:** Apply NGD/NSO and SSR/CSU restrictions, and COAs and BMPs to provide protections and to minimize impacts to an acceptable level and support sustainable ecosystem processes, as noted for other resources.

**EV-2:** Design and implement COAs, BMPs, other mitigation, and monitoring on a site-specific basis to mitigate the effects of surface disturbance.

**EV-3:** Manage resources within the Parachute Creek WMA as described in Section 6.3.2.

#### **Stipulations**

See Sections 6.1 and 6.3.2.

## **6.1.6 Climate and Air Quality (CA)**

### **General Management Decisions**

**Goal CA-1:** Meet all federal and state air quality standards and regulations.

**Objective CA-1:** Document that permitted activities meet all applicable regulations and standards, and mitigation is implemented as needed to reduce emissions so as not to contribute to site-specific or regional air quality emission problems.

### **Management Actions**

**CA-1:** Implement monitoring and mitigation measures as needed to reduce emissions to meet federal, state, and local air quality standards and regulations, both on a site-specific and cumulative basis.

### **Stipulations**

There are no specific climate or air quality stipulations.

### **6.1.7 Vegetation, Weeds, and Riparian/Wetland Communities (VWR)**

#### **General Management Decisions**

**Goal VWR-1:** Manage vegetation resources in a long-term sustainable manner, protecting the soil, hydrologic, and watershed conditions that support them.

**Objective VWR-1.1:** Enhance the health, productivity, and ecological condition of native and other desirable plant communities, including the integrity of native stands of aspen, mountain shrubs, grasslands, and conifers. Actions should be in accordance with the Colorado Standards for Public Land Health.

**Objective VWR-1.2:** Optimize forage production, given other uses and objectives.

**Goal VWR-2:** Ensure healthy and vigorous riparian plant communities.

**Objective VWR-2:** Surpass minimum Proper Functioning Condition (PFC) standards and provide high-quality fisheries habitat atop the plateau.

**Goal VWR-3:** Maintain healthy native vegetation free of noxious weeds and exotic (introduced) species on Federal lands within the Planning Area.

**Objective VWR-3.1:** Promote natural processes and healthy native plant communities to deter noxious weeds, while minimizing and, to the extent practicable, eradicating noxious weed and undesirable exotic species on Federal lands within the Planning Area.

**Objective VWR-3.2:** Use only native plant species for revegetation (preferably locally adapted), unless in areas with a high risk of being dominated by cheat grass (*Anisantha tectorum*) or other undesirable species under conditions where only non-native species have been proven effective (as consistent with BLM Manual 1745 or Handbook 1742-1).

**Objective VWR-3.3:** Design activities to maintain or improve ecological conditions.

#### **Management Actions**

**VWR-1:** Apply NGD/NSO restriction to protect riparian and wetland habitat.

**VWR-2:** Apply SSR/CSU restriction to protect riparian and wetland habitat.

**VWR-3:** Develop and implement economically feasible grazing systems and range improvements.

**VWR-4:** Defer grazing use for two growing seasons on disturbed areas larger than 0.5 acre (e.g., a fire event, reclamation of disturbed lands, or vegetation treatment), or until site-specific analysis and monitoring data indicate that vegetation cover, species composition, and litter accumulation are adequate to support and protect watershed values and meet vegetation objectives.

**VWR-5:** Establish vegetative site potential using Ecological Site Inventories (ESIs) based on Natural Resources Conservation Service (NRCS) procedures and standards (or a comparable methodology) incorporating soil and vegetation data, for at least the 10 most extensive vegetation communities in the Planning Area to aid in the development of site-specific reclamation standards.

**VWR-6:** Develop desired future vegetation condition objectives that support quantitative assessment of revegetation success, and adaptive management decisions for other resources.

**VWR-7:** Use range, fuels and fire, and vegetation management activities that protect and/or enhance the health and productivity of native and other desirable plant communities and wildlife habitat.

**VWR-8:** Establish condition ratings based on ESIs (or equivalent assessments of potential natural vegetation based on site and soil characteristics and conditions). Manage to improve riparian-related fisheries habitat atop the plateau based on potential site findings.

**VWR-9:** Avoid or mitigate activities that could cause a downward trend in the condition of riparian resources or functioning condition.

**VWR-10:** Initiate activity plans that identify habitat improvement projects to achieve desired conditions.

**VWR-11:** Close, reclaim, or relocate routes that are negatively impacting the stream and/or riparian zones.

**VWR-12:** Locate new routes outside riparian zones to reduce or eliminate negative impacts.

**VWR-13:** Initiate riparian restoration projects within those systems that have been identified as not functioning, or functioning at risk, with a downward or static trend, and in those reaches of streams where fisheries habitat can be enhanced.

**VWR-14:** Implement grazing management (Appendix B) on riparian/wetland areas that will result in achieving PFC and late-seral stage plant community development and improve fisheries habitat.

**VWR-15:** Implement an integrated weed management program, which includes a weed management plan, pre-disturbance weed mapping, and mechanical, biological, and chemical control techniques.

**VWR-16:** Require the use of weed free hay and feed for livestock.

**VWR-17:** Require weed control actions for all disturbances, including those less than one acre. To the extent practicable, eradicate all noxious weeds and minimize the occurrence of exotic species.

**VWR-18:** Require prompt reclamation with native species of all disturbed areas. Standards for reclamation are found in Appendix C.

**VWR-19:** Require reclamation practices, BMPs, and performance-based success criteria as COAs (see Section 6.2.6) on all surface-disturbing project proposals to reestablish and maintain native species (Appendix A).

**VWR-20:** Require reclamation plans, reclamation monitoring plans, and weed management plans for all disturbances larger than one acre in size. Reclamation plans will contain specifics including, but not limited to, elevation, precipitation-dependent seed mixes, topsoil management, site preparation, and so forth, as approved by the BLM (Appendix C). Weed management plans will emphasize and detail prevention, inventory, detection, eradication and monitoring efforts, corrective measures, and other weed control actions.

**VWR-21:** Require a minimum of annual monitoring/reporting, as determined by the BLM, of reclamation status and success for all disturbances larger than one acre in size until such time as reclamation meets 5-year reclamation standards or until defined revegetation success criteria are achieved (Appendix C).

**VWR-22:** Incorporate vegetation management objectives for the most extensive vegetation communities into activity siting decisions, project proposals, mitigation requirements for permits, and COA decisions (see Table 2.4 of the RMPA).

**VWR-23:** Require weed-free seed for reclamation activities.

**Stipulations**

- ***NGD/NSO***

- **GS-NSO-ROAN-23. Riparian and Wetland Habitat:** See Appendix F

- ***SSR/CSU***

- **GS-CSU-ROAN-07. Riparian and Wetland Habitat:** See Appendix F

## **6.1.8 Terrestrial and Aquatic Wildlife (TAW)**

### **General Management Decisions**

**Goal TAW-1:** Protect important wildlife habitats atop the plateau and below the rim.

**Objective TAW-1:** Protect wildlife security areas, habitat connectivity, habitat-carrying capacity, and winter range.

**Goal TAW-2:** Protect raptor nests and nesting raptors from human disturbances. Avoid the construction of facilities hazardous to raptors.

**Objective TAW-2:** Comply with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Avoid destruction or abandonment of the nests, or reduction in nesting productivity.

**Goal TAW-3:** Maintain and enhance habitats important to Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) and other native fish.

**Objective TAW-3:** Maintain or improve water quality, natural stream flow, and stream ecological function throughout the Parachute Creek WMA by preventing or minimizing direct, indirect, or cumulative adverse impacts to Colorado River cutthroat trout or their habitat.

### **General Management Actions**

**TAW-1:** Apply NGD/NSO restriction to wildlife security areas below the rim, and SSR/CSU restrictions to security areas atop the plateau.

**TAW-2:** Apply NSO and TL restrictions to nest sites. Consistent with BLM policy and after coordination with the USFWS, the cliff-nesting complex for peregrine falcon on the cliffs and wildlife security areas above the rim is protected with SSR/CSU rather than NGD/NSO restrictions, because the peregrine falcon is now a sensitive species rather than threatened or endangered.

**TAW-3:** Implement wildlife TLs, including one to protect 27,753 acres of big game winter range from December 1 through April 30 below the rim.

**TAW-4:** Maintain or enhance habitats capable of sustaining existing or increasing populations of wildlife within the constraints of other resource management objectives and activities.

**TAW-5:** Minimize loss of habitat connectivity and displacement of wildlife through design and siting of allowed activities.

**TAW-6:** Maintain or enhance big game habitat through vegetation management, to improve habitat quantity and quality.

**TAW-7:** Enforce travel restrictions as identified in Section 6.2.2.

**TAW-8:** Cluster disturbances to limit fragmentation, or loss of roadless wildlife habitat, below the rim.

**TAW-9:** Collect baseline data to assess current local hydrological and ecological conditions prior to conducting surface disturbance in the Parachute Creek WMA (Map 4).

**TAW-10:** Continue water quality monitoring throughout development of surface-disturbing activities until reclamation is complete.

**TAW-11:** Require clustered and sequenced development of oil and gas resources atop the plateau; ensure the location of drilling pads is not closer than 2,640 feet, and on slopes of 20 percent (Map 4) or less along ridge tops; limit direct surface disturbance not yet meeting

reclamation standards to less than one percent of the land area (350 acres), with exceptions as noted in Appendix F, GS-CSU-ROAN-13, 2.4.2; and require successful reclamation (five-year standard) prior to development of next phased development area (Map 4).

**TAW-12:** Encourage off-site mitigation across the landscape, in consultation with Colorado Division of Wildlife (CDOW), to offset impacts to wildlife habitat.

**TAW-13:** Require project-specific design and mitigation (see Appendix A) such that proposed actions and site locations will prevent or minimize the following: (1) reductions in natural stream flow, (2) additional sedimentation or other degradation of water quality, and (3) adverse impacts to stream ecological function, for reaches containing cutthroat trout habitat and reaches upstream from occupied habitat.

**Stipulations**

▪ ***NGD/NSO***

**GS-NSO-ROAN-23. Riparian and Wetland Habitat:** See Appendix F

**GS-NSO-ROAN-24. Threatened, Endangered, or Candidate Species Habitat:** See Appendix F

**GS-NSO-ROAN-25. Raptor Nest Sites:** See Appendix F

**GS-NSO-ROAN-26. Bald Eagle Nest, Winter Roost Sites, and Winter Roost Sites:** See Appendix F

**GS-NSO-ROAN-27. Wildlife Security Areas Below the Rim:** See Appendix F

**GS-NSO-ROAN-28. High-Value Special Status Fish Species Habitat:** See Appendix F

**GS-NSO-ROAN-29. Colorado River Corridor:** See Appendix F

▪ ***SSR/CSU***

**GS-CSU-ROAN-07. Riparian and Wetland Habitat:** See Appendix F

**GS-CSU-ROAN-08. Peregrine Falcon Cliff-Nesting Complex:** See Appendix F

**GS-CSU-ROAN-09. Wildlife Security Areas Atop the Plateau:** See Appendix F

**GS-CSU-ROAN-10. Big Game Migration Corridors:** See Appendix F

**GS-CSU-ROAN-11. Sensitive Bat Species Habitat:** See Appendix F

▪ ***TL***

**GS-TL-ROAN-13. Big Game Winter Range:** See Appendix F

**GS-TL-ROAN-14. Raptor Nest Sites:** See Appendix F

**GS-TL-ROAN-15. Bald Eagle Nest or Winter Roost Sites:** See Appendix F

**GS-TL-ROAN-16. Peregrine Falcon Cliff- Nesting Complex:** See Appendix F

**GS-TL-ROAN-17. Waterfowl and Shorebird Nesting Areas:** See Appendix F

## **6.1.9 Special Status Plants and Significant Plant Communities (SSP)**

### **General Management Decisions**

**Goal SSP-1:** Prevent the need for listing of proposed, candidate, and sensitive species under the ESA and improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted. Promote recovery of special status species plants that may become listed.

**Objective SSP-1:** Manage listed, proposed, or candidate threatened or endangered species to comply with the provisions of the ESA and promote their recovery. Manage BLM sensitive and significant plant communities, consistent with the Colorado Standards for Public Land Health and with the BLM policy on Special Status Species Management (BLM Manual 6840). Special status plants include the following: DeBeque milkvetch (*Astragalus debequaeus*), DeBeque phacelia (*Phacelia submutica*), hanging garden sullivantia (*Sullivantia hapemanii*), Parachute penstemon (*Penstemon debilis*), Piceance bladderpod (*Lesquerella parviflora*), Roan Cliffs blazingstar (*Mentzelia rhizomata*), sun-loving meadowrue (*Thalictrum heliophilum*), and Utah fescue (*Argillochloa dasyclada*).

### **Management Actions**

**SSP-1:** Apply NGD/NSO restrictions for any population of candidate threatened or endangered species.

**SSP-2:** Protect sensitive species and significant plant communities through the application of a SSR/CSU restriction.

**SSP-3:** Prevent disruption, alteration, or interruption of surface and subsurface water flows that support rare and/or significant natural plant communities within the Parachute Creek WMA. Implement WMA management prescriptions (see Section 6.3.2).

**SSP-4:** Take action to protect against invasion and establishment of noxious weeds or other aggressive exotic plants.

**SSP-5:** Enforce closures of select routes to protect special status species and significant plant communities (Section 6.2.2).

**SSP-6:** Prohibit collection of rare plants or plant parts, except for scientific research.

### **Stipulations**

- ***NGD/NSO***

- **GS-NSO-ROAN-24. Threatened, Endangered, or Candidate Species Habitat:**

- See Appendix F

- ***SSR/CSU***

- **GS-CSU-ROAN-12. Habitat for Special Status Plant Species Populations and Significant Plant Communities:** See Appendix F

## **6.1.10 Special Status Fish and Wildlife (SSFW)**

### **General Management Decisions**

**Goal SSFW-1:** Protect, preserve, restore, recover, and enhance special status fish and wildlife species and their habitats.

**Objective SSFW-1:** Protect supporting habitat, ecosystem integrity and function; maintain or improve water quality and stream flow; and manage in accordance with the Conservation Agreement and Strategy for the Colorado River cutthroat trout and recovery plans for Big River Fishes (Colorado pikeminnow [*Ptychocheilus lucius*], razorback sucker [*Xyrauchen texanus*], bonytail chub [*Gila elegans*], and humpback chub [*Gila cypha*]), and the bald eagle (*Haliaeetus leucocephalus*). Protect the habitat for the Townsend's big-eared bat (*Corynorhinus townsendii pallescens*) that inhabits the Anvil Points Claystone Cave. This includes preventing or minimizing direct, indirect, or cumulative adverse impacts to these species' habitats.

### **Management Actions**

**SSFW-1:** Apply a NGD/NSO restriction to areas adjacent to streams containing Colorado River cutthroat trout.

**SSFW-2:** Apply a SSR/CSU restriction to the watershed within the Parachute Creek WMA. A detailed description of management actions within the WMA is contained in Section 6.3.2. Actions will include collection of baseline data to assess current local hydrological and ecological conditions and requiring project-specific design and mitigation to prevent or minimize reductions in natural stream flow; additional sedimentation or other degradation of water quality; or adverse impacts to stream ecological function for reaches containing cutthroat trout habitat, and reaches upstream from occupied habitat. Culverts and other stream crossings must be designed to permit the passage of fish.

**SSFW-3:** Manage special status fish and wildlife consistent with the Colorado Standards for Public Land Health and the BLM direction for the management of special status species in BLM Manual 6840.

**SSFW-4:** Implement appropriate actions as soon as practicable, not later than the start of the next grazing year if livestock grazing management practices or utilization levels are found to be substantial factors in stream bank damage along any occupied cutthroat trout streams.

**SSFW-5:** Apply a NGD/NSO restriction to avoid a 0.25-mile buffer around Mexican spotted owl (*Strix occidentalis*) nest sites year-round, with seasonal avoidance of active nests and a 0.5-mile buffer from February 1 through August 15, if any are found in the area.

**SSFW-6:** Apply a SSR/CSU restriction to protect the habitat of the Townsend's big-eared bat that inhabits the Anvil Points Claystone Cave.

**SSFW-7:** Consider activities designed to provide long-term habitat improvement or protection, such as culvert or bridge installation or bank stabilization.

### **Stipulations**

- **NGD/NSO**

- **GS-NSO-ROAN-29. Colorado River Corridor:** See Appendix F

- **GS-NSO-ROAN-28. High-Value Special Status Fish Species Habitat:** See Appendix F

- *SSR/CSU*

**GS-CSU-ROAN-13. Parachute Creek High-Value Watershed and Watershed Management Area (WMA):** See Appendix F

### **6.1.11 Visual Resources (V)**

#### **General Management Decisions**

**Goal V-1:** Protect and maintain visual and aesthetic qualities in sensitive areas while allowing for changes to visual quality in less sensitive areas.

**Objective V-1:** Manage changes in the landscape to maintain and protect visual qualities as identified by Visual Resource Management (VRM) Class designations.

#### **Management Actions**

**V-1:** Apply a NGD/NSO restriction on slopes steeper than 30 percent, visible from and within 5 miles of I-70 to retain the existing character of the landscape and to maintain VRM Class II.

**V-2:** Apply a SSR/CSU restriction to retain the existing character of the landscape on all lands designated as VRM Class II.

**V-3:** Apply a SSR/CSU restriction to retain the existing character of the landscape on all lands designated as VRM Class III above the rim.

**V-4:** Manage lands below the rim adjacent to State Highway (SH) 13 and urban areas as VRM Class IV, which allow for major modifications to the existing landscape character.

**V-5:** Do not apply restrictions to the existing utility corridor based on VRM.

**V-6:** Manage areas previously managed as VRM Class V under the VRM Class directly adjacent to the area. (VRM Class V is no longer considered valid.) VRM Classes are illustrated on Map 5 and comprise the follows areas (acres):

- Class II: 20,639
- Class III: 23,659
- Class IV: 8,270

#### **Stipulations**

- ***NGD/NSO***

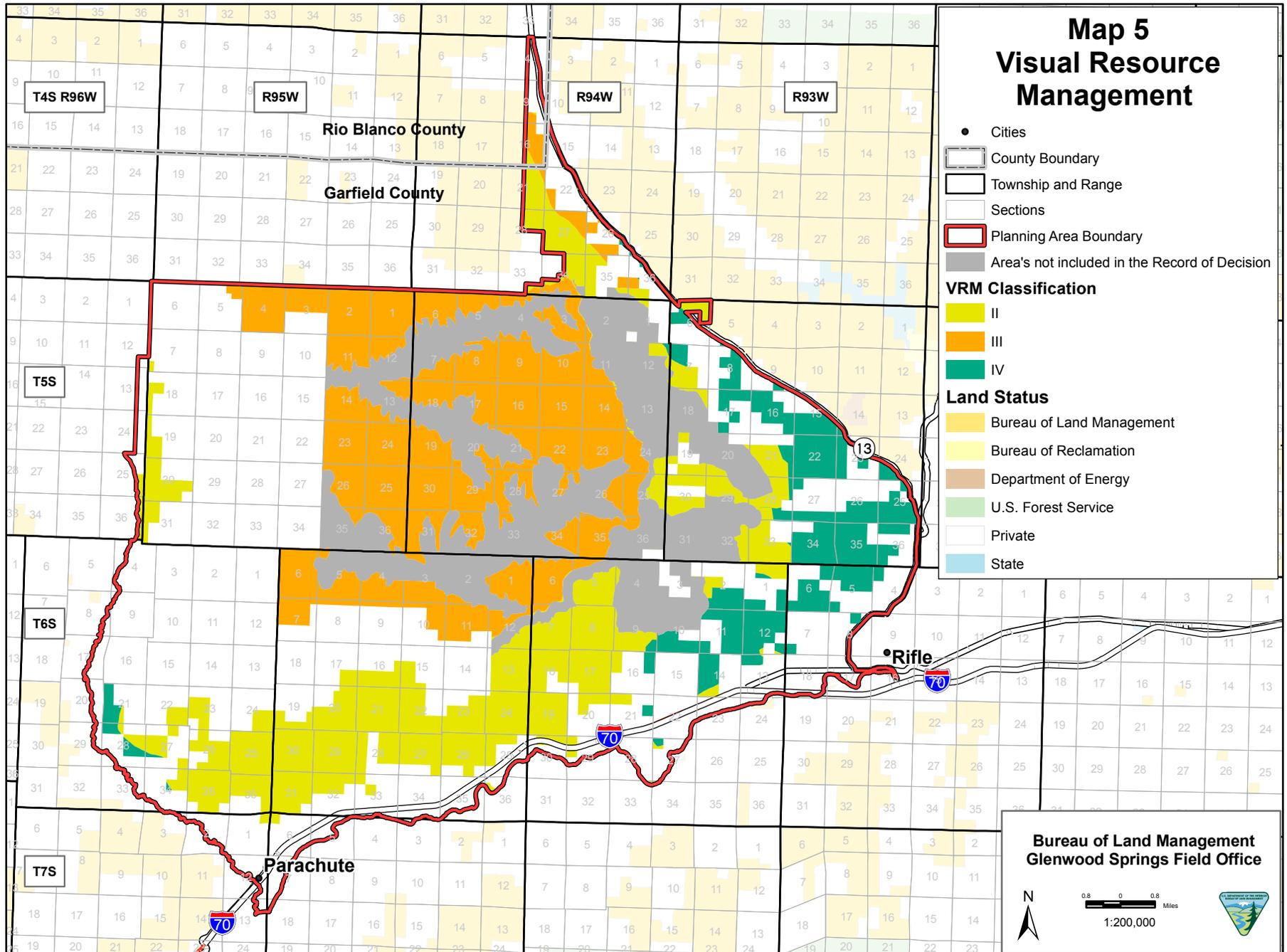
- GS-NSO-ROAN-30. I-70 Viewshed (VRM Class II):** See Appendix F

- ***SSR/CSU***

- GS-CSU-ROAN-14. VRM Class II Areas Below the Rim:** See Appendix F

- GS-CSU-ROAN-15. VRM Class III Areas Atop the Plateau:** See Appendix F

# Map 5 Visual Resource Management



Bureau of Land Management  
Glenwood Springs Field Office



0.8 0 0.8 Miles  
1:200,000



## **6.2 Resource Uses**

### **6.2.1 Cultural Resources (CR)**

#### **General Management Decisions**

**Goal CR-1:** Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations.

**Objective CR-1.1:** Comply with the National Historic Preservation Act (NHPA), National Programmatic Agreement/State Protocol, WO-IB-2002-101, and other applicable laws, regulations, and policies.

**Objective CR-1.2:** Reduce imminent threats from natural or human-caused deterioration or potential conflict with other uses by identifying priority geographic areas for new field inventory based on a probability of unrecorded significant resources (Archaeological Resources Protection Act [ARPA] Sec. 14[a]; NHPA Sec. 106, 110).

#### **Management Actions**

With regard to the following actions, monitoring refers to having a qualified archaeologist on site during construction/maintenance activities as determined by the Cultural Resource Specialist; testing refers to evaluative testing and excavation of a site to determine National Register of Historic Places (NRHP) eligibility; and data recovery refers to large-scale excavation of the site for mitigation purposes.

**CR-1:** Conduct Class III – 100 Percent Inventory of all sites in the high-sensitivity zone that have not been surveyed.

**CR-2:** Monitor all inventoried sites in the high-sensitivity zone.

**CR-3:** Avoid disturbance of or test all sites in the high-sensitivity zone that need data collection.

**CR-4:** Avoid disturbance of or implement a data recovery plan for sites in the high-sensitivity zone that are NRHP eligible.

**CR-5:** Monitor sites atop the plateau in the high-sensitivity zone that are not NRHP eligible.

**CR-6:** Conduct no further work at sites below the rim in the high-sensitivity zone that are not NRHP eligible.

**CR-7:** Conduct Class III – 100 Percent Inventory of all sites atop the plateau in the moderate-sensitivity zone that have not been surveyed.

**CR-8:** Conduct Class II – Reconnaissance of all sites below the rim in the moderate-sensitivity zone that have not been surveyed.

**CR-9:** Monitor all inventoried sites atop the plateau in the moderate-sensitivity zone.

**CR-10:** Conduct no further work at inventoried sites below the rim in the moderate-sensitivity zone.

**CR-11:** Avoid disturbance of or test all sites in the moderate-sensitivity zone that need data collection.

**CR-12:** Avoid disturbance of or implement a data recovery plan for sites in the moderate-sensitivity zone that are NRHP eligible.

**CR-13:** Monitor sites atop the plateau in the moderate-sensitivity zone that are not NRHP eligible.

**CR-14:** Conduct no further work at sites below the rim in the moderate-sensitivity zone that are not NRHP eligible.

**CR-15:** Conduct Class I – Records Search of all sites in the low-sensitivity zone that have not been surveyed.

**CR-16:** Conduct no further work at inventoried sites in the low-sensitivity zone.

**CR-17:** Avoid disturbance of or test all sites in the low-sensitivity zone that need data collection.

**CR-18:** Avoid disturbance of or implement a data recovery plan for sites in the low-sensitivity zone that are NRHP eligible.

**CR-19:** Conduct no further work at sites above and below the rim in the low-sensitivity zone that are not NRHP eligible.

**CR-20:** For all authorizations for land and resource use, comply with Section 106 of the NHPA, consistent with and subject to the objectives established in the RMPA for the proactive use of cultural properties in the public interest (NHPA Sec. 106, 101[d][6], 110[a][2][E]; BLM-ACHP-NCSHPO Programmatic Agreement of March 1997, or subsequent agreements).

**CR-21:** Do not authorize proposed activities until compliance with Section 106 of the NHPA has been completed and documented, including, where applicable, consultation with the State Historic Preservation Officer and Indian tribes.

**CR-22:** Conduct Native American consultation for identification and protection of culturally sensitive properties and use areas under all alternatives.

**Stipulations**

There are no specific Cultural Resource stipulations.

## **6.2.2 Transportation (T)**

### **General Management Decisions**

**Goal T-1:** Address other modes of travel not covered by OHV area designations in the Travel Management Area (TMA).

**Objective T-1:** Identify appropriate modes of travel within the TMAs that are consistent with the goals and objectives for other resources atop the plateau, and to accommodate recreational demand in Hubbard Mesa.

**Goal T-2:** Provide for protection of fragile resources and at the same time provide for motorized recreational opportunities.

**Objective T-2:** Provide for motorized recreational opportunities in the Hubbard Mesa TMA, while managing for other activities and values on other portions of the Planning Area.

**Goal T-3:** Provide a network of roads and trails open to administrative, recreational, and permitted uses that accommodates environmental and resource concerns.

**Objective T-3:** Manage routes as open if they provide recreational opportunities, and needed administrative access (including permitted uses), are not redundant with other routes, and do not pose a potential risk to other resources. On some routes, restrict use to administrative purposes to avoid or minimize conflicts. Close routes that are redundant, conflict with management objectives, or pose threats to the various resources present, and are not needed for administrative purposes.

**Goal T-4:** Do not degrade, and where practicable, enhance the present visual quality and character associated with the portion of the JQS Road administered by the BLM, consistent with VRM goals and objectives.

**Objective T-4:** Maintain the portion of the JQS Road administered by the BLM in its present condition and allow for present uses.

### **Management Actions**

**T-1:** Delineate, classify, and manage 50,108 acres as the Roan Plateau TMA to:

- a. Allow nonmechanized (i.e., foot, ski, horse, and stock) travel cross-country year-round (See Map 6).
- b. Limit mechanized (wheeled conveyance) and motorized travel to designated routes year-round. Designated routes will be signed and identified on maps available on site or at the Glenwood Springs Field Office (GSFO). This provision excludes vehicles for emergency, official, and authorized use.
- c. When necessary limit mechanized and motorized travel to prevent resource damage, minimize recreation conflicts, or provide for public safety. This may include seasonal closures or restrictions on vehicle types and numbers.
- d. Allow snowmobiles to travel cross-country on top of the Roan Plateau when at least 12 inches of snow is on the ground (43 CFR § 8342.1).

**T-2:** Delineate, classify, and manage 2,460 acres as the Hubbard Mesa TMA and OHV Riding Area as open to nonmotorized, mechanized, and motorized cross-country travel (See Map 6).

## Map 6 Roan Plateau Travel Management Areas

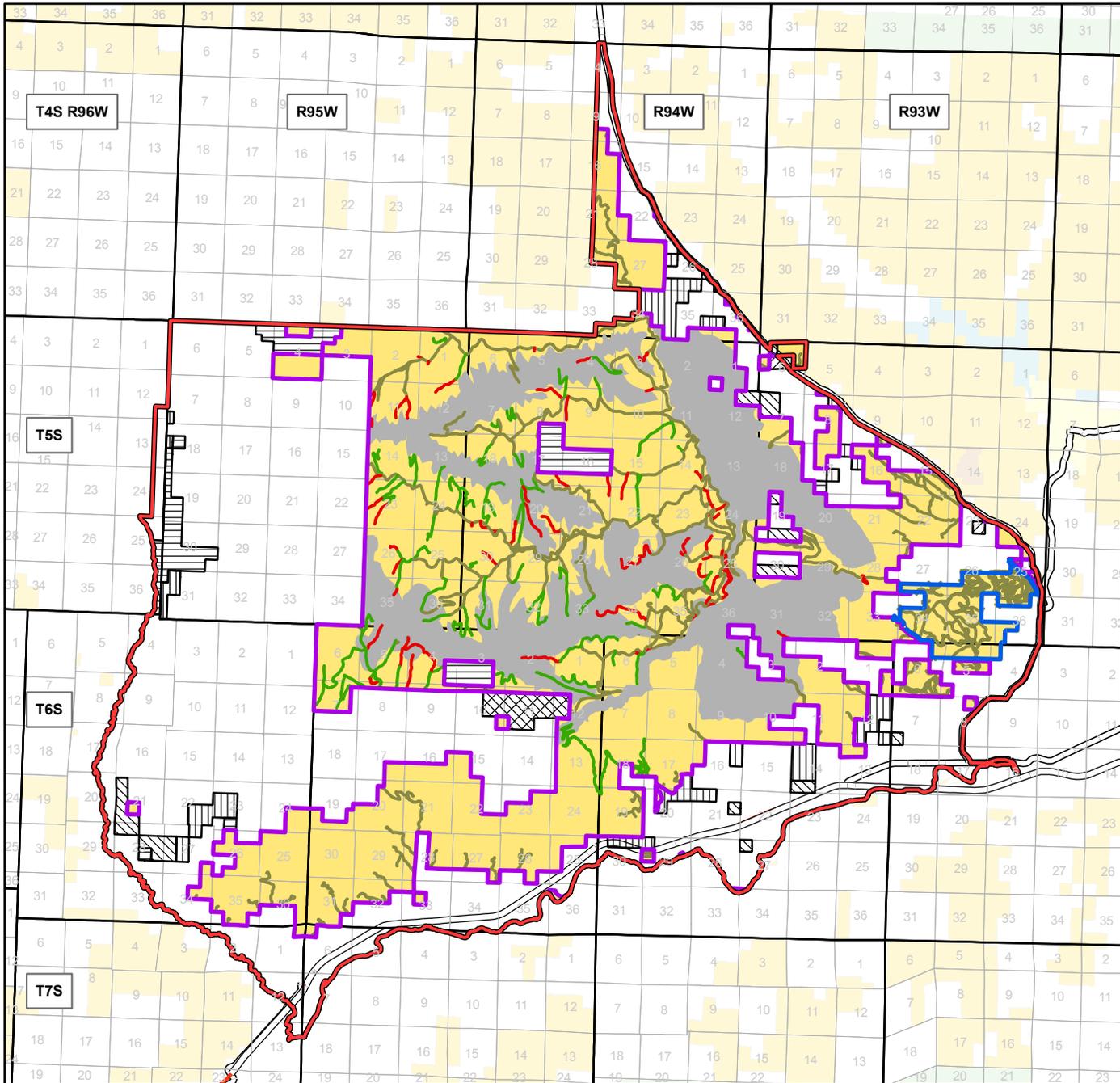
- Township and Range
- Sections
- Planning Area Boundary
- Area's not included in the Record of Decision
- Roan Plateau Travel Management Area
- Hubbard Mesa Travel Management Area
- Private Surface/Federal Subsurface**
- Coal
- All Minerals
- Oil and Gas
- Oil, Gas and Coal
- Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State
- Transportation**
- Administrative Access
- Closed
- Open
- County Roads & Private Roads not Shown

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However, specific areas or routes may be closed or limited to prevent resource damage, minimize recreation conflicts, or provide for public safety.

**T-3:** Manage the portion of the JQS Road administered by the BLM to allow only for historical and recreational use in approximately its current condition. Use of the road for industrial or other long/heavy equipment will not be allowed due to steep grades and switchbacks. Improvements to accommodate such use will not be permitted.

**T-4:** Limit new routes associated with oil and gas or other development as administrative access only, unless specific objectives for other resources (e.g., recreational travel routes or access to recreational sites) warrant other designations as determined by the BLM on a case-by-case basis.

**T-5:** Locate new routes outside riparian zones to reduce or eliminate negative impacts

**T-6:** Apply a SSR/CSU restriction in the Hubbard Mesa OHV Riding Area, restricting surface-disturbing activities to preclude and manage conflicts between these activities (such as oil and gas development) and recreational OHV use.

### **Stipulations**

- **SSR/CSU**

**GS-CSU-ROAN-16. Hubbard Mesa OHV Riding Area:** See Appendix F

### **Travel Management Implementation Decisions (IT)**

The following route-specific implementation decisions are shown on Map 6:

**IT-1:** Manage routes atop the Plateau to not exceed approximately 132.8 miles of open and administrative routes; exceptions will be considered on a case-by-case basis to avoid sensitive resources, reduce visual impacts, and minimize direct habitat loss.

**IT-2:** Manage approximately 174.2 miles of existing routes (85.5 miles atop the plateau, 88.7 miles below the rim) as open to motorized and mechanized use on designated routes.

**IT-3:** Manage approximately 63.1 miles of existing routes (47.3 miles atop the plateau, 15.8 miles below the rim) as open to administrative use only.

**IT-4:** Close and rehabilitate 21.5 miles of existing routes (21 miles atop the plateau, 0.5 miles below the rim).

**IT-5:** Manage routes in the Hubbard Mesa OHV Riding Area as open to the public for motorized use.

### **6.2.3 Lands and Realty (LR)**

#### **General Management Decisions**

**Goal LR-1:** Provide for compatible land use authorizations within the framework of law and regulation. Provide for land tenure adjustments and sales to benefit the public interest and facilitate effective land management.

**Objective LR-1:** Meet agency and public rights-of-way, utility, land exchange, land tenure adjustments, and consolidation of ownership needs, when in the public interest, and within the constraints for other resources.

#### **Management Actions**

**LR-1:** Acquire inholdings and other lands with important resource values as opportunities allow.

**LR-2:** Retain lands atop of the plateau, and acquire in-holdings atop the plateau. Below the rim consider lands on a case-by-case basis for exchange.

**LR-3:** Ensure use authorizations will conform to all protective measures.

**LR-4:** Allow for potential disposal or exchange of approximately 40 acres adjacent to the existing gun range, along with approximately 80 acres in other isolated parcels.

**LR-5:** Make available lands for communication and other facilities (such as wind power generation) subject to other management constraints.

**LR-6:** Allow development in existing rights-of-way along SH 13 and I-70.

**LR-7:** Allow utility corridors within 50 feet of the BLM-designated and administrative travel routes except where such placement will negatively impact other important resource values (e.g., wildlife security areas or occupied habitat for special status plants or significant plant communities), or where technical and/or safety concerns exist. In such areas (typically with SSR/CSU restrictions), utilities are placed within the existing roadway or realigned to avoid important resource values.

**LR-8:** Construct new powerlines to meet Avian Power Line Interaction Committee suggested practices (APLIC 2006).

**LR-9:** Pursue revocation of the current Oil Shale Withdrawal affecting the transferred lands.

#### **Stipulations**

There are no specific lands and realty stipulations.

## **6.2.4 Recreation (REC)**

### **General Management Decisions**

**Goal REC-1:** Manage the entire Planning Area as the Roan Plateau Extensive Recreation Management Area (ERMA).

**Objective REC-1:** Ensure that custodial outcomes for the purpose of addressing identified stewardship needs associated with recreation-tourism activity participation include:

- Visitor Health and Safety – Ensure that participants in dispersed recreational activities have a low potential for serious accidents (less than two accidents per year that require hospitalization) due to human-created conditions and no (zero) exposure to hazardous health conditions.
- Use and User Conflicts – Educate recreational users about gas production and the phasing of development in order to limit incidents of conflict that impede gas production to three or less per year.
- Resource Protection – Create an increased awareness, understanding, and a sense of stewardship in recreational activity participants so their conduct safeguards natural resource values and overall land health.

### **Management Actions**

**REC-1:** Manage activities to include custodial recreation management actions only.

**REC-2:** Marketing/Interpretation – Mitigate conflicts through visitor outreach efforts.

**REC-3:** Monitoring – Monitor conflicts with other uses (i.e., oil and gas production, grazing) and private lands (BLM staff).

**REC-4:** Administration – Mitigate conflicts by using any of the following: recreation use restrictions, realignments, signage, and/or closures.

**REC-5:** Allow permitted special events that are consistent with other management objectives for other resources and uses.

### **Stipulations**

There are no specific recreation restrictions or stipulations.

## **6.2.5 Grazing and Rangeland (GR)**

### **General Management Decisions**

**Goal GR-1:** Provide livestock forage while maintaining or enhancing healthy landscapes.

**Objective GR-1:** Ensure grazing management conforms to the BLM grazing regulations (43 CFR § 4180) and the BLM's Colorado Standards for Public Land Health and Guidelines for Livestock Management.

### **Management Actions**

**GR-1:** Regularly monitor rangeland health and evaluate existing grazing management practices.

**GR-2:** Continue to implement the BLM GSFO Resource Monitoring Plan (Appendix D) and current Allotment Management Plans (AMPs) in conjunction with the Colorado Standards for Public Land Health and Guidelines for Livestock Management to assess overall rangeland health.

**GR-3:** Develop, implement, monitor, and review AMPs on a regularly scheduled basis with grazing permittees with priority for allotments determined not to be meeting Colorado Standards for Public Land Health. Apply guidelines and BMPs to rest and defer grazing of riparian areas (Appendix B).

**GR-4:** Ensure that Colorado Standards for Public Land Health are being met through land health surveys, and application of the GSFO Resource Monitoring Plan (Appendix D). Use a combination of administrative solutions (season of use revisions, livestock exclusion, and stocking level adjustments) and rangeland projects (fences, ponds, and so forth) to direct livestock use to meet resource objectives and Colorado Standards for Public Land Health, following the latest version of the BLM Technical Reference 1734-6 or equivalent documents.

**GR-5:** Abandon and rehabilitate rangeland projects that do not function to maintain resource values and meet management objectives.

**GR-6:** Identify criteria for determining the beginning and end of droughts (or droughty periods whether officially declared or not) on the basis of scientifically credible methods, data, and BLM policy (e.g., Palmer Drought Severity Index, Crop Moisture Index, and soil moisture).

**GR-7:** Initiate proactive management (i.e., season of use adjustments, reduced stocking levels, or complete rest) to mitigate the drought effects upon a determination by the Field Manager that a drought has begun.

**GR-8:** Initiate gradual restocking and season adjustments upon a determination by the Field Manager that a drought has ended.

### **Stipulations**

There are no specific grazing or rangeland management stipulations.

## **6.2.6 Oil and Gas (OG)**

### **General Management Decisions**

For additional decisions associated with exploration and development of oil and gas, see Section 6.2.2, Transportation, and Appendix F.

**Goal OG-1:** Allow the environmentally responsible development of oil and gas resources in the Planning Area.

**Objective OG-1.1:** Make oil and gas resources available for development to meet national, regional, and local needs.

**Objective OG-1.2:** Ensure that oil and gas development is carried out in a manner that is consistent with the goals and objectives for natural and cultural resources in the Planning Area.

**Goal OG-2:** Make lands available as appropriate for oil and gas leasing in an environmentally sound manner, under multiple-use mandates.

**Objective OG-2:** Conduct oil and gas leasing on leasable lands in accordance with the Mineral Leasing Act and the Federal Onshore Oil and Gas Reform Act of 1987 (Reform Act) and applicable regulations under 43 CFR § 3100, and in accordance with the decisions made through application of FLPMA and other laws applicable to public lands. Regulations governing onshore oil and gas operations can be found at 43 CFR § 3160.

### **Management Actions**

**OG-1:** Require 100-percent participation in one Federal Unit (with one operator) for all leases issued for, or accessed from, the top of the plateau to allow for development in a phased progression across this area, subject to reclamation requirements and disturbance limits (see GS-CSU-ROAN-13). Before any on-the-ground lease operations are considered for approval by the BLM on top of the plateau the lessees will be required by lease stipulation to join a federal unitization agreement approved by the BLM. The unitization agreement will be noncontracting. The agreement will allow the BLM to directly control and manage the timing, location, and type of all operations occurring on the entire top of the plateau. In effect, all leases will act administratively as a single lease and the BLM will work with just one operator for the life of all oil and gas operations occurring on the top of the plateau. The federal unitization agreement will (among other things) identify the operator and provisions allocating benefits of gas and/or production to all of the leases. Total unreclaimed surface disturbance will be limited to 350 acres atop the plateau (with exceptions as noted in Appendix F, GS-CSU-ROAN-13, 2.4.2) at any one time, and subject to the following:

- a. Exploratory wells will be permitted as needed to plan future drilling operations.
- b. Phased development will be accomplished by sequencing development operations along ridgetops on slopes less than 20 percent, within the six geographic areas (Map 4).
- c. Surface-disturbing activities associated with development and production will be limited to one geographic area; however, actual production (i.e., flow of gas) from multiple areas at any given time is both anticipated and allowed.
- d. Prior to initiating development operations in a new area, five-year interim reclamation standards must be met throughout 90 percent of the previously disturbed area as determined by the BLM.

**OG-2:** Require use of directional drilling and multiple well pads on top of the plateau to reduce the surface-disturbance footprint and landscape fragmentation. Within areas where surface

disturbance is allowed, pads atop the plateau will be separated by a minimum distance of approximately 2,640 feet.

**OG-3:** Continue to lease lands below the rim as individual tracts but unitize on a voluntary basis (consistent with 43 CFR § 3105, 3180) or through forced pooling orders (consistent with lease terms and regulations) because oil and gas development is already underway in the Production Area and adjacent private lands. Do not include the area below the rim in noncontracting unit.

**OG-4:** Encourage clustering below the rim for future development of currently leased lands, and require it for new leases in order to substantially reduce ground-disturbing activities and habitat fragmentation. This management action includes taking those measures as the BLM may deem necessary so that well pad surface locations average an approximate density of not greater than one well pad per 160 acres within the Planning Area below the rim. In assessing implementation of this management action, the BLM will include all BLM-administered lands that lie within the Planning Area that are below the rim, including those lands with NGD/NSO, SSR/CSU, and TL restrictions.

**OG-5:** Construct new powerlines to meet Avian Power Line Interaction Committee suggested practices (APLIC 2006).

**OG-6:** Leasing and Permitting – Make lands available for oil and gas leasing and development, including associated actions and facilities such as upgrading existing roads and constructing well sites, new roads, pipelines, and compressor stations. Where practicable, consolidate natural gas production facilities, pipelines, and staging areas along roadways to minimize disturbance.

**OG-7:** Exploration and Development Activities – Subject approximately 51,885 acres to protective stipulations (Appendix F). Furthermore, develop COAs as needed through the permitting process for all public lands using BMPs (Appendix A) and other mitigation measures to minimize surface disturbance and associated impacts.

**OG-8:** Lease Notice – Meet management goals, objectives, and standards through the use of the following or comparable measures:

- a. BMPs that may be implemented as COAs (Appendix A).
- b. Disturbed Site Reclamation Standards, Monitoring and Success Criteria (Appendix C).
- c. Implementation of innovative reclamation and performance-based monitoring.

**OG-9:** Lease Notice – Prior to exploration and/or lease development within the Planning Area, submit a GAP identifying projected activity (including well locations, pipeline, facilities, and mitigation) during the subsequent two to five year period and appropriate monitoring and methodologies to ensure compliance with the BLM-identified standards. The BLM will use this information to analyze the proposal and to prepare appropriate NEPA documentation.

### **Stipulations**

Closed to oil and gas leasing: 0 acres

Deferred to oil and gas leasing: 0 acres

- **NGD/NSO**

NSO stipulations for the following resources:

**GS-NSO-ROAN-21. Anvil Points Claystone Cave:** See Appendix F

**GS-NSO-ROAN-22. Steep Slopes Greater Than 50 Percent:** See Appendix F

**GS-NSO-ROAN-23. Riparian and Wetland Habitat:** See Appendix F

**GS-NSO-ROAN-24. Threatened, Endangered, or Candidate Species Habitat (ESA Candidate Species):** See Appendix F

**GS-NSO-ROAN-25. Raptor Nest Sites:** See Appendix F

**GS-NSO-ROAN-26. Bald Eagle Nest, Winter Roost Sites, and Winter Roost Sites:** See Appendix F

**GS-NSO-ROAN-27. Wildlife Security Areas Below the Rim:** See Appendix F

**GS-NSO-ROAN-28. High-Value Special Status Fish Species Habitat:** See Appendix F

**GS-NSO-ROAN-29. Colorado River Corridor:** See Appendix F

**GS-NSO-ROAN-30. I-70 Viewshed (VRM Class II):** See Appendix F

▪ ***SSR/CSU***

CSU stipulations for the following resources:

**GS-CSU-ROAN-04. Erosive Soils and Steep Slopes (Greater Than 30 Percent):** See Appendix F

**GS-CSU-ROAN-07. Riparian and Wetland Habitat:** See Appendix F

**GS-CSU-ROAN-08. Peregrine Falcon Cliff-Nesting Complex:** See Appendix F

**GS-CSU-ROAN-09. Wildlife Security Areas Atop the Plateau:** See Appendix F

**GS-CSU-ROAN-10. Big Game Migration Corridors:** See Appendix F

**GS-CSU-ROAN-11. Sensitive Bat Species Habitat:** See Appendix F

**GS-CSU-ROAN-12. Habitat for Special Status Plant Species Populations and Significant Plant Communities:** See Appendix F

**GS-CSU-ROAN-13. Parachute Creek High Value Watershed and Watershed Management Area:** See Appendix F

**GS-CSU-ROAN-14. VRM Class II Areas Below the Rim:** See Appendix F

**GS-CSU-ROAN-15. VRM Class III Areas Atop the Plateau:** See Appendix F

**GS-CSU-ROAN-16. Hubbard Mesa OHV Riding Area:** See Appendix F

**GS-CSU-ROAN-17. Wild and Scenic River Eligibility Corridor:** See Appendix F

**GS-CSU-ROAN-18. Sharrard Park Paleontological Resources:** See Appendix F

▪ ***TL***

TL stipulations for the following resources:

**GS-TL-ROAN-13. Big Game Winter Range:** See Appendix F

**GS-TL-ROAN-14. Raptor Nest Sites:** See Appendix F

**GS-TL-ROAN-15. Bald Eagle Nest or Winter Roost Sites:** See Appendix F

**GS-TL-ROAN-16. Peregrine Falcon Cliff-Nesting Complex:** See Appendix F

**GS-TL-ROAN-17. Waterfowl and Shorebird Nesting Areas:** See Appendix F

- ***Standard Stipulations***

Standard terms and conditions including mitigation measures will be in the form of COAs and developed through site-specific impact analysis.

- ***LN***

**GS-LN-ROAN-14. Geographic Area Proposal (GAP):** See Appendix F

**GS-LN-ROAN-34. ESA Consultation:** See Appendix F

## **6.2.7 Other Minerals**

### **Oil Shale**

The Planning Area contains areas of oil shale resources originally identified through an inventory of the Green River Formation in Utah, Wyoming, and Colorado. There are at present no regulations in place for leasing oil shale, nor any existing oil shale leases. When this RMPA effort was initiated in 2001, there was no reasonable foreseeable development expectation for oil shale over the life of the plan. The mineral report identified this resource, but did not foresee any future leasing or development due to the lack of regulations as well as prevailing and anticipated economic factors. Since the start of this RMPA, Congress enacted the Energy Policy Act of 2005. Section 369 of the Energy Policy Act requires the Secretary of Interior to “complete a programmatic environmental impact statement for a commercial leasing program for oil shale and tar sands resources on public lands, with an emphasis on the most geologically prospective lands within each of the States of Colorado, Utah, and Wyoming.” On December 13, 2005, the BLM published a Notice of Intent in the Federal Register initiating a Programmatic Environmental Impact Statement (PEIS) to support a commercial oil shale and tar sands leasing program on federal lands in these three states. In light of legislative requirements, all decisions related to oil shale leasing in this RMPA are being deferred to the ongoing PEIS on Oil Shale and Tar Sands Leasing. The ROD for the final PEIS will amend the Glenwood Springs and White River RMPs, and decisions for the Planning Area. The ROD for the PEIS will decide whether or not to allow leasing of oil shale on federal lands, and will also identify any constraints under which leasing, if allowed, could occur. Future development would be addressed in site-specific project level NEPA analysis.

### **Coal Leasing and Development (CL)**

#### **General Management Decisions**

**Goal CL-1:** Provide opportunities for coal leasing and development.

**Objective CL-1:** Allow environmentally responsible development of coal resources as future economic conditions allow.

#### **Management Actions**

**CL-1:** Make the area available for coal leasing.

**CL-2:** Apply all environmental protection requirements of the various resources described in the plan and contained in the various stipulations.

### **Locatable Minerals (LM)**

#### **General Management Decisions**

**Goal LM-1:** Make lands available for mining claim location.

**Objective LM-1:** Allow mineral exploration and development activities.

#### **Management Actions**

**LM-1:** Make all lands available for mining claim location. The Naval Oil Shale Withdrawal affecting the transferred lands is proposed for revocation.

**LM-2:** Subject exploration/development activities to 43 CFR 3809 but not the NGD/NSO or SSR/CSU restrictions identified in the RMPA. Rights granted under the mining law cannot be modified by NGD/NSO or SSR/CSU restrictions.

**Salable Minerals (SM)**

**General Management Decisions**

**Goal SM-1:** Allow for limited sales of mineral materials.

**Objective SM-2:** Permit mineral material sales on a case-by-case basis in an environmentally responsible manner.

**Management Actions**

**SM-1:** Allow for mineral material sales on a case-by-case basis.

**SM-2:** Apply NGD/NSO and SSR/CSU constraints, and apply appropriate site-specific mitigation (see Section 6.2.6).

**Stipulations**

There are no specific restrictions or stipulations.

**6.2.8 Forest Products (FP)**

**General Management Decisions**

**Goal FP-1:** Maintain and promote forest health consistent with other resource objectives.

**Management Actions**

There are no forest product management actions.

**Stipulations**

There are no specific restrictions or stipulations for forest product resource uses.

## **6.2.9 Fire (F)**

### **General Management Decisions**

**Goal F-1:** Provide appropriate management response.

**Objective F-1:** Base response actions on the GSFO Fire Management Plan and Fire Management Zone (FMZ) classification considering firefighter and public safety, and social, economic, and environmental values.

### **Management Actions**

**F-1:** Implement FMZs for the Planning Area as shown on Map 7 and described as follows:

B-140-02 (southern side of plateau). Wildland fire is not desired and will be aggressively suppressed.

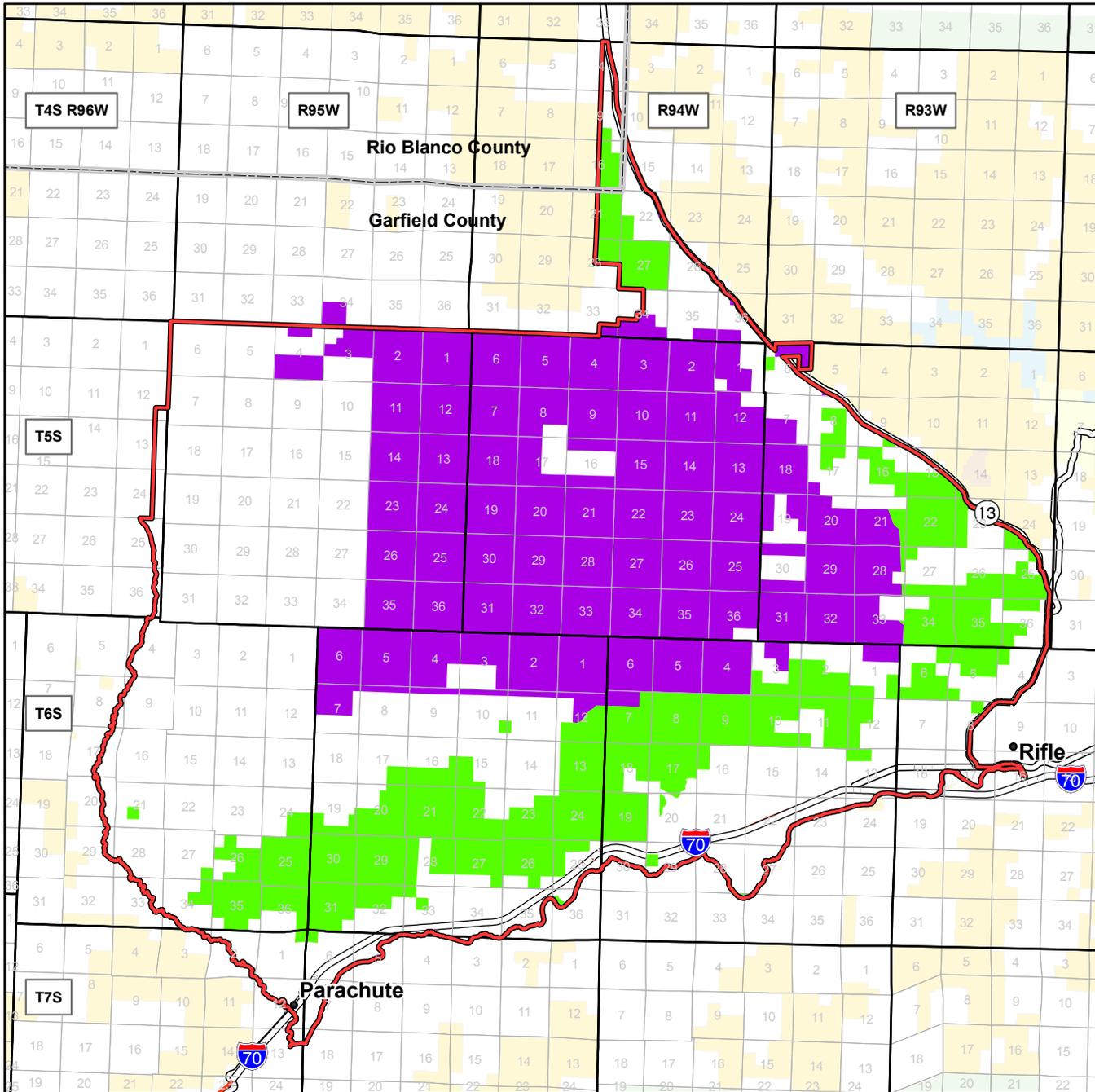
C-140-02 (northeast and southeast cliffs and top of plateau). Wildland fire is desired in this area, but with a moderate level of suppression because of ecological, social, or political constraints.

### **Stipulations**

There are no specific fire restrictions or stipulations.

# Map 7 Roan Plateau Fire Management Zones

- Cities
  - ▭ County Boundary
  - ▭ Township and Range
  - ▭ Sections
  - ▭ Planning Area Boundary
- Fire Management Zones**
- B
  - C
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



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## **6.2.10 Hazardous Materials (HM)**

### **General Management Decisions**

**Goal HM-1:** Remove environmental hazards at the former Anvil Points Facility.

**Objective HM-1:** Remove environmental hazards at the former Anvil Points Facility while complying, to the extent feasible, with the environmental mitigation outlined in this plan.

### **Management Actions**

**HM-1:** Conduct a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Removal Action at the former Anvil Points Facility. The BLM is developing plans to remove hazards, reclaim, and rehabilitate spent oil shale and DOE facilities at the Anvil Points Facility.

**HM-2:** Exempt all removal, restoration, and reclamation activities associated with the Anvil Points Facility from the requirements of this RMPA. A NGD/NSO stipulation has been applied to the spent shale repository via a separate CERCLA action and a perpetual right-of-way issued to the United States. Removal activities will incorporate the various design features to the extent practicable in order to minimize impacts to a variety of resources.

### **Stipulations**

There are no hazardous material restrictions or stipulations.

### **6.3 Special Designations**

#### **6.3.1 Areas of Critical Environmental Concern**

There are no ACECs being designated in this ROD. Refer to Section 2.1 regarding protest concerns.

### **6.3.2 Watershed Management Areas (WMAs)**

The area atop the plateau, excluding a minor portion draining northward into the Piceance Creek basin, is designated as the Parachute Creek WMA. (See GS-CSU-ROAN-13 and map in Appendix F).

#### **General Management Decisions**

**Goal WMA-1:** Maintain or improve Colorado River cutthroat trout habitat. This is accomplished by habitat improvement and by preventing or minimizing impacts to ecological function throughout the WMA.

**Objective WMA-1:** Maintain or improve water quality, natural stream flow, and stream ecological function throughout the WMA by preventing or minimizing direct, indirect, or cumulative adverse impacts to Colorado River cutthroat trout or their habitat.

**Goal WMA-2:** Maintain or improve special status plant populations, significant plant communities, and their habitat.

**Objective WMA-2:** Maintain or improve ecological integrity and function including surface and subsurface water flows that support rare and/or significant natural plant communities.

**Goal WMA-3:** Maintain the hydrologic regime and ecological integrity/function that provide existing habitat for special status plant populations and significant plant communities in the WMA.

**Objective WMA-3:** Prevent disruption, alteration, or interruption of surface and subsurface water flows that support rare and/or significant natural plant communities, and protect against invasion of noxious weeds or other aggressive exotic plants.

**Goal WMA-4:** Ensure protection of overall hydrologic function, ecosystem stability, functionality of wildlife habitat and botanical habitats, and enhancement of fisheries habitat.

**Objective WMA-4:** Provide resource protections through actions that minimize disturbance and habitat fragmentation, and protect key habitats from disturbance.

#### **Management Actions**

**WMA-1:** Designate the entire area atop the plateau, excluding a minor portion draining northward into the Piceance Creek basin, as the Parachute Creek WMA (see Map 3).

**WMA-2:** Fisheries – Collect baseline data to assess current local hydrological and ecological conditions prior to conducting surface disturbance in the WMA.

**WMA-3:** Fisheries – Require project-specific design and mitigation such that proposed actions and site locations will prevent or minimize reductions in natural stream flow, additional sedimentation or other degradation of water quality, or adverse impacts to stream ecological function for reaches containing cutthroat trout habitat and reaches upstream from occupied habitat. Required design components will include construction design, implementation of BMPs, mitigation, reclamation, revegetation, monitoring (to guide adaptive management), and erosion control. Project design will establish baseline environmental conditions and monitor post-development conditions and other results as available, and require monitoring of mitigation components sufficient to demonstrate effectiveness.

**WMA-4:** Fisheries – Relocate activities as necessary to minimize negative impacts to water quality and stream ecological function.

**WMA-5:** Fisheries – Recognize valid existing water rights.

**WMA-6:** Fisheries – Consider activities designed to provide long-term habitat improvement or protection, such as culvert or bridge installation or bank stabilization actions.

**WMA-7:** Botanical Resources – Collect baseline data of current local hydrological conditions as well as current ecological conditions in terms of indicator values for Colorado Standards for Public Land Health #3, Plant and Animal Communities, and #4 Special Status Species, prior to conducting surface disturbance.

**WMA-8:** Botanical Resources – Require project-specific design and mitigation such that proposed actions and site locations will prevent or minimize reduction of natural stream flows, degradation of water quality, or loss of stream ecological function. Required design components will include construction design, implementation of BMPs, mitigation, reclamation, revegetation, monitoring (to guide adaptive management), and erosion control.

**WMA-9:** Botanical Resources – Consider exceptions for short-duration, one-time events designed to enhance ecological function to provide long-term habitat protection, such as culvert or bridge installation or bank stabilization actions.

**WMA-10:** Botanical Resources – Relocate activities as necessary to minimize negative impacts to the hydrologic regime and ecological integrity/function that provide existing habitat for special status plant populations and significant plant communities, and the habitat that supports them.

**WMA-11:** Botanical Resources – Assess all activities for potential impacts that may change or reduce local surface or subsurface flow volumes directly, indirectly, or cumulatively to existing conditions and other human impacts or otherwise cause degradation of indicators for Colorado Standards for Public Land Health #3, Plant and Animal Communities and #4, Special Status Species.

**WMA-12:** Botanical Resources – Require project-specific design and mitigation plans prior to approval of proposed actions that may affect habitat for existing rare plant populations and significant plant communities.

**WMA-13:** Botanical Resources – Incorporate baseline and other relevant study results, as available, in the project design and require monitoring of mitigation components sufficient to demonstrate effectiveness under similar ecological conditions. Required design components will include construction design, implementation of BMPs, mitigation, reclamation, revegetation, monitoring (to guide adaptive management), and erosion control.

**WMA-14:** Botanical Resources – Review project-specific design plans submitted by the proponent before approving an exception.

**WMA-15:** Botanical Resources – Design projects such that proposed actions and site locations will not contribute to reduction of natural stream flows or other degradation of water quality or stream ecological function.

**WMA-16:** Municipal Water Quality – Collect baseline data of local hydrological conditions prior to conducting surface disturbance, or new surface-disturbing activities. Data parameters will include physical, chemical, and biological characteristics.

**WMA-17:** Municipal Water Quality – Require project-specific design and mitigation such that actions do not measurably decrease water quality (including physical, chemical, or biological characteristics) at any collection or diversion point utilized by the Town of Parachute for municipal purposes.

**WMA-18:** Municipal Water Quality – Monitor and evaluate mitigation efforts on a regular basis for ground-disturbing activities that occur, either separately or in combination with other activities, within a disturbance area greater than 5 acres.

**WMA-19:** Municipal Water Quality – Design, construct, and locate operations to minimize the footprint of surface disturbance, erosion, and other negative impacts on the water supply.

**WMA-20:** Municipal Water Quality – Minimize the footprint from oil and gas activities and preclude location of activities on slopes greater than 20 percent. Apply a SSR/CSU restriction with standards that will require a minimum distance of 2,640 feet between well pads unless topographic constraints require a closer location, which will result in fewer cumulative impacts to important wildlife, aquatic, visual, and soil resources.

**WMA-21:** Municipal Water Quality – Ensure that an engineered transportation system is a component of any proposed unit development plan or GAP.

**WMA-22:** Municipal Water Quality – Design any activities, facilities (including wells, pads, and roads), or site locations to prevent or minimize adverse impacts to natural stream flow volume or other degradation of water quality or stream ecological function. Required design components will include construction design, implementation of BMPs, mitigation, reclamation, revegetation, monitoring (to guide adaptive management), and erosion control.

**WMA-23:** Municipal Water Quality – Incorporate baseline and other relevant study results into the project design and require monitoring mitigation components sufficient to demonstrate effectiveness. Apply requirements as recommended by State of Colorado practices.

**WMA-24:** Municipal Water Quality – Relocate activities as necessary to minimize negative impacts to quality and quantity of the current and future water supply of the Town of Parachute.

**WMA-25:** Hydrologic Function and Ecosystem Stability – Apply the resource protections including NSO, CSU, TL lease restrictions, and COAs current at the time of permitting (see Section 6.2.6).

**Stipulations**

▪ ***SSR/CSU***

**GS-CSU-ROAN-13. Parachute Creek High-Value Watershed and WMA:** See Appendix F

### **6.3.3 Areas Having Characteristics Associated With Wilderness (WC)**

The authority of the Department of the Interior to designate WSAs expired no later than October 21, 1993 as noted in BLM Instruction Memorandum WO 2003-274. Although the RMPA does have areas that contain characteristics associated with wilderness, the decision is to not specifically manage those areas to protect and maintain those characteristics. NGD/NSO designations along drainages and the location of well pads on ridge tops, however, will help preserve some of the existing characteristics associated with wilderness in the Planning Area.

#### **General Management Decisions**

**Goal WC-1:** Manage no areas specifically to maintain characteristics associated with wilderness. However, protections for various resources may have the effect of maintaining some characteristics associated with wilderness (e.g., roadlessness and naturalness) within NGD/NSO allocations.

#### **Management Actions**

There are no management actions for areas having characteristics associated with wilderness.

#### **Stipulations**

There are no specific restrictions or stipulations for areas having characteristics associated with wilderness

### **6.3.4 Wild and Scenic Rivers (WSR)**

Stream segments found eligible for designation as WSRs and associated corridors are protected by a SSR/CSU restriction until a suitability determination is made.

#### **General Management Decisions**

**Goal WSR-1:** Protect rivers and corridors within the Planning Area until such time a suitability study is conducted under the Wild and Scenic Rivers Act (WSRA).

**Objective WSR-1:** Protect outstandingly remarkable values of rivers and corridors totaling 1,117 acres within the Planning Area that are found to be eligible under the WSRA, by not allowing any surface-disturbing activities that might impair values, until a suitability analysis has been completed (Map 8). Note: WSR management protections for eligible stream segments lying within proposed ACECs will be addressed in a separate ROD (an additional 6,766 acres were included in ACECs).

#### **Management Actions**

**WSR-1:** Apply a SSR/CSU to the 1,117 acres until such time a suitability study is completed. If the waterways are found to be suitable at that time, the SSR/CSU will remain in place. If the waterways are not found suitable, the SSR/CSU for this action (i.e., GS-CSU-ROAN-17) will no longer apply.

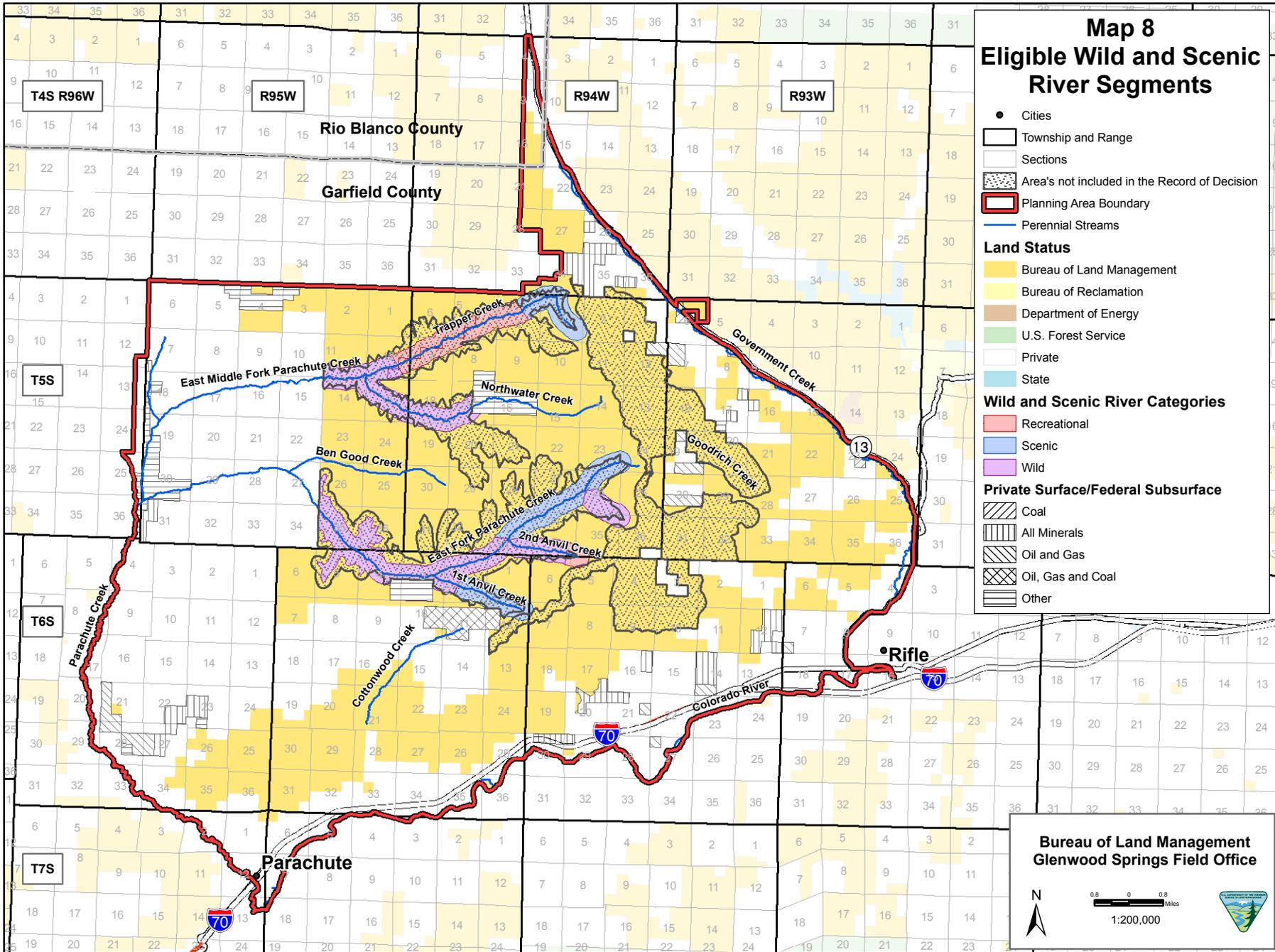
#### **Stipulations**

- **SSR/CSU**

**GS-CSU-ROAN-17. Wild and Scenic River Eligibility Corridor:** See Appendix F

# Map 8 Eligible Wild and Scenic River Segments

- Cities
  - Township and Range
  - Sections
  - ▨ Area's not included in the Record of Decision
  - ▭ Planning Area Boundary
  - Perennial Streams
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State
- Wild and Scenic River Categories**
- Recreational
  - Scenic
  - Wild
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other



**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.8 0 0.8 Miles

1:200,000

## **6.4 Adoption of Material in Appendices**

Several appendices are contained in this ROD, and are part of the RMPA. Decisions regarding the approval and adoption of material contained within them are described below:

### **6.4.1 Appendix A – Best Management Practices (BMPs), Which May Be Implemented as Conditions of Approval (COAs)**

Material in this appendix is provided to illustrate examples and provide guidance on the types and methods associated with BMPs. Inclusion of this appendix does not constitute a decision to apply these specific BMPs, but it is anticipated that these or other BMPs will be applied to project-specific designs to mitigate impacts of various resource management or development activities.

### **6.4.2 Appendix B – Glenwood Springs Field Office Grazing Guidelines for Riparian Areas**

The decision of this RMPA is to adopt current grazing guidelines for riparian areas that reflect the most current techniques.

### **6.4.3 Appendix C – Disturbed Site Reclamation Standards Monitoring and Success Criteria**

This appendix supplements the discussion found in “Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development”, commonly referred to as “The Gold Book.” All ground-disturbing activities will be subject to these reclamation standards and monitoring requirements. These include resource improvements initiated by the BLM, as well as permitted activities such as fluid and solid mineral development activities, including oil and gas development.

### **6.4.4 Appendix D – Glenwood Springs Field Office Resource Monitoring Plan**

Appendix D is the BLM Glenwood Springs Monitoring Plan. It contains the processes and format that will be used for monitoring and evaluating vegetation, riparian, and wetlands objectives.

### **6.4.5 Appendix E – BLM Colorado Standards For Public Land Health Guidelines for Livestock Management**

The decision of this RMPA is to adopt all provisions contained in Appendix E.

### **6.4.6 Appendix F – Resource Management Decision Stipulations for New Oil and Gas Leases and Other Land Uses and Management Actions for the Roan Plateau RMP Amendment**

The decision of this RMPA is to adopt all provisions contained in Appendix F.

### **6.4.7 Appendix G – U.S. Fish and Wildlife Service Section 7 Letter**

The BLM discussed USFWS concerns and addressed as appropriate in this ROD.

## **7. MITIGATING MEASURES**

Measures to avoid or minimize environmental impacts are included in this RMPA where practicable. The Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management (Appendix E) are used as the standard for assessing the health of the BLM lands in the Planning Area. BMPs and COAs (Appendix A) are used as applicable. Reclamation standards and monitoring (Appendix C) are used for all ground-disturbing activities in the Planning Area.

## **8. PLAN MONITORING AND EVALUATION**

Consistent with the BLM Land Use Planning Handbook H-1601-1, the BLM will monitor plan implementation and effectiveness, and will report annually or as the BLM determines is appropriate on:

- Management actions undertaken;
- Management actions remaining to be undertaken; and
- The effectiveness of those actions toward meeting goals and objectives.

Monitoring strategies will be developed that identify indicators of change, acceptable thresholds, methodologies, protocols, and timeframes that will be used to evaluate and determine whether desired outcomes are being achieved.

The RMPA will be periodically evaluated at least every five years as documented in an evaluation schedule. Special or unscheduled evaluations may also be required to review unexpected management actions or significant changes that have the potential to trigger an amendment or revision.

## **9. PUBLIC INVOLVEMENT**

This RMPA was prepared in consultation and coordination with interested public individuals and organizations, federal and State of Colorado agencies, and local municipal and county governments. Involvement and input from all of these entities is a vital component of the RMPA process and EIS preparation. Public involvement for the RMPA was conducted in three phases: public scoping, public review and comment, and Cooperating Agency (local government input) on the Draft RMPA/Draft EIS and on the Proposed RMPA/Final EIS.

The BLM conducted a formal scoping process, inviting the participation of affected federal, state, and local agencies; Indian tribes; and other interested persons. Comments were accepted. Based on these comments, the BLM identified the environmental issues that were analyzed in the Draft RMPA/Draft EIS and Proposed RMPA/Final EIS. The scoping comments also guided the BLM in determining the appropriate depth of analysis for each issue, and which issues were outside the scope of the proposed action.

The BLM released the Draft RMPA/Draft EIS for public comment on November 26, 2004. The BLM subsequently extended the public comment period until April 11, 2005. Three informational public meetings were held in the vicinity of the Roan Plateau Planning Area within 30 days of the release of the Draft RMPA/Draft EIS and were held in the communities of Parachute (Battlement Mesa), Rifle, and Glenwood Springs. Major points for the Draft RMPA/Draft EIS were presented at these meetings and questions regarding the planning process and Planning Area were answered by BLM representatives. A total of 74,907 comment submissions were received by the BLM at the close of the public comment period on midnight, April 11, 2005.

Following closure of the extended public comment period, the BLM initiated additional consultation and work sessions with the Cooperating Agencies to discuss resolution of public concerns and comments in regards to the final format and content for the Proposed RMPA/Final EIS. This group included those entities with which the BLM initially negotiated Memoranda of Understanding: the City of Rifle, Town of Parachute, Garfield County, Rio Blanco County, and CDNR. The City of Glenwood Springs later requested and was granted the same status as well.

The Cooperating Agency meeting process consisted of six working sessions during July and August 2005. During this process, it became clear that most of the Cooperating Agencies shared the concerns expressed in the majority of public comments regarding impacts to sensitive resources and the socially and economically important recreational opportunities on top of the plateau. Other specific concerns generally focused on three components of the lower portion of the Planning Area (below and along the Roan Cliffs): the need to protect deer and elk winter range, the need to protect high-sensitivity viewsheds as seen from local communities and major travel corridors, and the need to maintain existing opportunities for OHV travel. Additional concerns expressed and discussed during the Cooperating Agency meetings included (among others) impacts of oil and gas development on local economies, both directly and indirectly through increased traffic and infrastructure costs to the counties and communities; impacts on the regional culture, including hunting and livestock grazing; and impacts to air quality and local water supplies.

During the consultation and coordination process, CDNR proposed an innovative approach to oil and gas development atop the plateau while providing substantial levels of natural resource protection. The CDNR approach received a favorable response from other participants in the process.

This RMPA comprises the components of the Proposed RMPA/Final EIS, along with clarifications.

## **10. AVAILABILITY OF THE PLAN**

Copies of this ROD and the RMPA are available for download at the "Planning" page of the BLM national website (<http://www.blm.gov>). A CD or paper copy may be requested by contacting the Glenwood Springs Field Office, Bureau of Land Management, 50629 Highways 6 & 24, Glenwood Springs, Colorado 81601.

**11. FIELD MANAGER RECOMMENDATION AND APPROVAL OF IMPLEMENTATION DECISIONS**

Having considered a full range of reasonable alternatives, associated effects, and public input, I recommend adoption and implementation of the attached RMPA. I also approve the Travel Management implementation decision, which will be effective upon approval of the RMPA.



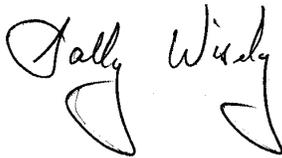
Jamie E. Connell  
Field Manager

June 8, 2007

Date

**12. APPROVAL**

In consideration of the foregoing, I approve the Roan Plateau Resource Management Plan Amendment.



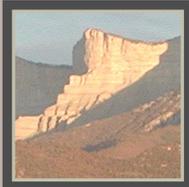
Sally Wisely  
BLM State Director

June 8, 2007

Date

### **13. REFERENCES**

- Bureau of Land Management (BLM). 1988. Glenwood Springs Resource Area Record of Decision and Resource Management Plan (ROD). Grand Junction District Office, Colorado. U.S. Department of the Interior.
- Bureau of Land Management (BLM). 1996. White River Resource Area, Proposed Resource Management Plan and Final Environmental Impact Statement [ROD issued July 1997]. Craig District Office, Colorado. U.S. Department of the Interior.
- Bureau of Land Management. (BLM) 1999. Glenwood Springs Resource Area Oil and Gas Leasing and Development Record of Decision and RMP Amendment (ROD). U.S. Department of the Interior.
- Bureau of Land Management (BLM). 2004. Draft Roan Plateau Resource Management Plan Amendment/Draft Environmental Impact Statement. Glenwood Springs District Office, Colorado. U.S. Department of the Interior.
- Bureau of Land Management (BLM). 2006. Proposed Roan Plateau Resource Management Plan Amendment/Final Environmental Impact Statement. Glenwood Springs District Office, Colorado. U.S. Department of the Interior.



# APPENDICES

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## **Appendix A**

### **BEST MANAGEMENT PRACTICES (BMPs) WHICH MAY BE IMPLEMENTED AS CONDITIONS OF APPROVAL (COAs)**

Environmental Best Management Practices (BMPs) are state-of-the-art mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. A number of the BLM BMPs for oil and gas development are incorporated into the general oil and gas development requirements in the Approved Plan. These include minimizing the number and size of pads through utilization of multiple well designs and directional drilling; centralizing fracing; minimizing road footprints; centralized support facilities such as tank batteries; collocating utilities and pipelines in common corridors and aligning them along roadways; and implementing intensive interim reclamation practices. The BMPs identified in this Appendix are examples of activities which may be required; actual BMPs required during the permitting process to mitigate impacts may vary. The BMPs and specific methodologies associated with them are expected to change over time as technology changes, and to reflect the results of monitoring and ongoing adaptive management efforts. Additional practices may be required, practices may be withdrawn, or practices may be modified during activity, implementation, or project level planning; this may be done without future land use plan (i.e., RMP) decisions or amendments, but would be analyzed as part of the NEPA analysis associated with the permitting process. Monitoring and adaptive management practices will be used to refine and clarify needed practices consistent with the goals and objectives of this plan.

The following BMPs and standard operating practices are typical of those that will be applied to all long-term ground-disturbing activities, as appropriate to each site and activity. New or additional BMPs may be utilized as they are developed.

#### **Reduced Oil and Gas Development Footprint (Included in the General Development Plan)**

- Collocate multiple wells on well pads
- Use directional drilling to reduce the number of pads and allow pads to be placed in environmentally less sensitive areas.
- Use centralized production facilities for all natural gas liquids and produced water
- Co-locate utilities into common corridors where practicable.
- Bury flowlines and powerlines in or adjacent to the roadbed where practicable.
- Use remote monitoring with telemetry to reduce vehicular traffic.
- Adhere to seasonal road closures and restrictions on public vehicular access.
- Use recessed or below-ground wellheads.

#### **Physical Site Protection/Water Quality Controls**

- Employ dust suppression to minimize impacts to air, water, vegetation, and wildlife
- Install silt fences to protect riparian areas, wetlands, open water
- Use closed compressor buildings or mufflers to minimize noise
- Install catalytic converters to minimize emissions

#### **Interim Disturbed Site Reclamation**

- Limit surface disturbance to the minimum area necessary by avoiding development on steep slopes; through careful planning, consider the grouping structures and sharing rights-of-way.

- To achieve full interim reclamation, locate production facilities such as natural gas liquids tanks, produced water tanks, and dehydration equipment in centralized areas and not on individual well pads whenever practicable. Normally, the only facilities remaining on individual well pads will be the wellhead and metering facility. The entire portion of the well pad not subject to ongoing disturbance from production operations will be revegetated, including the areas within the remaining rig anchors.
- Minimize the area necessary for construction; determine the minimal area needed to facilitate necessary activities, and initiate interim reclamation as quickly as possible after construction.
- **Topsoil Salvage and Storage**
  - Strip topsoil to a minimum depth of six inches and salvage from potential disturbance sites. Exceptions to this practice may be granted in disturbance areas infested with noxious weeds or other undesirable plants species, or with seleniferous or erosive soils. Whenever possible, salvaged topsoil will be direct-hauled to disturbed areas with similar soil characteristics undergoing concurrent revegetation.
  - BLM may require stripping be conducted in stages to avoid topsoil compaction, beginning with a leading edge and moving in one consistent direction for subsequent loads.
  - Topsoil must be stockpiled where no vehicle traffic will cross topsoil mounds. Stockpiles shall be protected from wind and water erosion through the use of suitable weed-free mulch, seeding, and other measures as approved by BLM.
  - With the exception of active work areas, all disturbed soils that remain exposed, unprotected, or un-reclaimed for longer than one month shall be stabilized as approved by BLM. This may be conducted through the use of native or sterile non-native seed, or application of a covering such as mulch or matting.
- Interim reclamation includes re-contouring of the disturbed surface to blend with surrounding terrain, spreading salvaged topsoil evenly on disturbed areas, and re-vegetating with native plants.
- Install fencing where required to limit livestock grazing for a minimum of two growing seasons or until plants are sufficiently established to persist under some physical disturbance. Seeded species will be considered established when at least 50 percent of plants are producing seeds. Fencing should be installed after dirtwork, grading, and seeding are completed and prior to livestock turnout on the allotment. A defensible corridor around structure and facilities may be appropriate in areas where wildfire is a threat.
- Remove all equipment, debris, and surface structures that are not necessary for the intended use of the site. Remaining structures should blend in to the extent possible with the surrounding terrain. Consider the use of natural features such as trees, rock formations, terrain, or berms to conceal disturbed areas. Paint structures a color that blends with the surrounding vegetation.
- Install silt fences, straw wattles, or other adequate barriers to protect riparian areas, wetlands, and open water.
- Design and install drainage crossings to adequately convey a minimum of a 25-year flow event.
- Design and install drainage crossings to allow passage by aquatic biota.
- Use mulching (certified weed-free straw or hay) or biodegradable erosion matting where needed to stabilize soil and improve the chances for revegetation success.
- Apply soil amendments such as fertilizer, flocculants, pH modifiers, inoculants, or other techniques where necessary to increase reclamation success and site stabilization on erosive soils and locations lacking adequate or have contaminated topsoil.

### **Reserve Pit Reclamation and Bioremediation**

- Remove all fluids from the reserve pits immediately upon removal of the drilling rig. In addition, no oil or oily residue will be allowed to remain in the pits once the drilling rig is removed.
- If water accumulation in reserve pits is a problem, immediately implement measures to solidify the reserve contents following removal of the drilling rig and the free liquids to facilitate site reclamation and achieve VRM objectives. Closed mud systems may also be required by BLM to alleviate water accumulation or other problems associated with reserve pits
- Remove all oil or other hydrocarbon spills for proper disposal or bioremediate the spills *in situ* at the location of the spill.

### **Final Disturbed Site Reclamation**

- Remove all equipment, surface structures, and debris from areas to be reclaimed.
- Recontour all disturbed areas to blend with the surrounding terrain. Areas that have received heavy equipment use such as roads and well sites will need to be ripped to a depth sufficient to accommodate the establishment of native vegetation similar to the surrounding undisturbed area.
- Respread salvaged topsoil to a uniform depth across all disturbed areas. The surface should blend with the surrounding non-disturbed area. A rough surface will accommodate broadcast seeding better than a smooth surface. Consider the use of a high phosphorus and low nitrogen fertilizer. Mulching may be necessary to control soil erosion and limit soil-water evaporation.
- Revegetate with native plant species similar in mix and kind to the surrounding native plant community. The type of cultural material used will depend on the attributes of the site and revegetation goals. Consider a combination of seeding grasses and forbs, and planting shrub tubelings. Temporary fencing or other means may be necessary to protect the newly established vegetation from livestock until plants are a sufficient size to withstand grazing.
- Monitor reclaimed areas for a sufficient period of time to ensure site stabilization and adequate vegetation establishment as determined by BLM and outlined in Appendix C.

### **Visual Resource Management**

- Limit surface disturbance to the minimum area necessary as determined by BLM.
- Use natural features such as trees, rock formations, or terrain, to conceal disturbed areas. Constructed berms that blend with the terrain may be useful for concealment.
- Minimize contrast of the structure or activity with the surrounding terrain by using the visual resource management principles of form, line, color, and texture.
- Paint structures a color that blends with the surrounding vegetation.
- Remove unnecessary equipment, structures, and debris from the site that are not necessary for daily operation as determined by BLM.

### **Wildlife Protection Controls**

- Incorporate measures to protect wildlife and wildlife habitat in designing and scheduling planned activities.
- Minimize wildlife habitat loss and fragmentation by carefully planning and considering the location, size, and number of such things as roads, utilities, fencing, ponds, and well pads. Pipelines and power lines should be buried in or along roadways.
- If appropriate, employ habitat enhancement in appropriate areas to offset habitat loss or fragmentation caused by the planned development.

- Accomplish interim rehabilitation and reclamation as soon as practicable after cessation of ground-disturbing activities.
- Group structures and facilities into a centralized area where practicable.
- Give preference to buried power, but design surface powerlines to minimize raptor attraction or reduce the electrocution hazard.
- Install perch guards on utility lines to reduce risk of raptor electrocution and discourage raptor perching on utility poles by the use of anti-perching devices.
- Install raptor perch protection on fenceposts in sage grouse habitat.
- Design activities to eliminate general hazards to wildlife.
- Adhere to restrictions or prohibitions on activities during critical periods such as nesting or fawning.
- Employ appropriate noise reduction devices in order to minimize noise.
- Following interim reclamation, gate or otherwise barricade access spur roads to eliminate motorized use by the general public.
- Design reclamation to meet key wildlife species habitat requirements.
- Limit activity to only the area that is necessary.
- Require that dogs be on leash in critical habit areas, or close the area to all dogs (on or off lease).
- Remotely monitor wells and production equipment.
- Monitor wildlife as needed to document impacts of planned development on population dynamics or behavior; and develop and implement mitigation based on the results of monitoring.
- Employ bear-proof refuse containers and empty the containers on a regular basis.
- Emphasize the use of closed-loop systems that avoid the need for pits. Install nets on all oil and gas reserve and permanent open water pits to exclude birds; enclose pits within an 8-foot-high fence to exclude ungulates; enclose pits within a 2-foot solid barrier buried 6 inches into the soil to exclude small mammals and reptiles, and line to prevent infiltration to groundwater.
- Reclaim and contour roads to pre-development conditions upon final reclamation.
- Restrict and monitor vehicular speed to reduce wildlife collision potential.
- Use high tensile or post and rail (wildlife friendly) design for any necessary fences and remove unnecessary fences to reduce wildlife entrapment hazards.
- Fence livestock out of newly reclaimed areas until reclamation becomes established. Fence construction should follow CDOW fencing guidelines and be durable to avoid wildlife entrapment. Once fences are no longer needed, remove fencing material and dispose of properly.

### **Livestock Management**

- Require implementation of management tools such as fencing, stock ponds, and salt licks to manage livestock distribution as needed, and discourage grazing in unwanted areas such as riparian vegetation and sensitive wildlife habitat.
- Adjust livestock grazing in heavily used areas to allow native vegetation a period of recovery.
- Restore temporarily disturbed areas using native species, planting woody species, or use a biodegradable erosion-control fabric to enhance germination and seedling establishment.

- Drill-seed at a rate of Pure Live Seeds per square foot as needed to establish healthy vegetation (rate may be double for broadcast-seeding or hydroseeding) and be preceded by adequate site preparation, including decompaction of soil and control of annual or biennial weeds.
- Install fences around revegetated areas to exclude livestock for at least two full growing seasons.
- Use culverts or hardened crossings for use of roads that cross streams.
- Use erosion control devices around culverts as needed to reduce erosion and gulley formation.
- Construct fences and gates to ensure that livestock do not enter areas being protected for another resource that would be diminished by grazing or trampling.
- Construct alternative water sources to disperse livestock use and reduce dependence on natural streams and riparian corridors.

**Noxious and Invasive Weed Management**

- Rehabilitate disturbed sites quickly and effectively following interim or final rehabilitation guidelines as appropriate.
- Allow on supplementary livestock feed and revegetation mulches that are certified weed free.
- Clean vehicles regularly using water or air spray to reduce the chance of transporting weed seed from affected areas to unaffected areas.



**Appendix B**  
**Glenwood Springs Field Office Grazing Management Guidelines for**  
**Riparian Areas**



## **Appendix B**

### **GLENWOOD SPRINGS FIELD OFFICE GRAZING MANAGEMENT GUIDELINES FOR RIPARIAN AREAS**

#### **I. SUPPORTING DOCUMENTATION**

Colorado Livestock Grazing Management Guidelines applicable to riparian areas:

1. Grazing Management practices promote plant health by providing for one or more of the following:
  - periodic rest or deferment from grazing during critical growth periods;
  - adequate recovery and regrowth periods;
  - an opportunity (or opportunities) for seed dissemination and seedling establishment.
2. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency and intensity of grazing use and livestock health.
- 3. Grazing management practices maintain sufficient residual vegetation** on both uplands and riparian sites to protect the soil from wind and water erosion, to assist in maintaining appropriate soil infiltration, 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.

The bolded sections are probably the most important for riparian zones.

Excerpts from BLM TR 1737-14 1997 Grazing Management for Riparian-Wetland Areas:

No single grazing management system has resulted in consistent recovery of degraded riparian areas. Many combinations of sites, resource condition, and impacts, as well as human perspectives, are involved. The grazing management system for an area should be tailored to the conditions, problems, potential, objectives, and livestock management considerations on a site-specific basis.

Ehrhart (in press) concluded that the common denominator among riparian areas that were functioning properly, or at least improving, in eastern Montana was continual involvement by the operator or manager. As long as there is control of livestock distribution and grazing intensity, the specific grazing system employed may not be important (Clary and Webster 1989).

Successful grazing management strategies for riparian areas can usually be achieved using a combination of options, including grazing “prescriptions” that:

- Limit grazing intensity, frequency and/or season of use, thereby providing sufficient rest to encourage plant vigor, regrowth, and energy storage and minimize compaction of soils.
- Control the timing of grazing to prevent damage to streambanks when they are most vulnerable to trampling.
- Ensure sufficient vegetation during periods of high flow to protect streambanks, dissipate energy, and trap sediments.

Proper distribution of livestock can be an effective and economical tool in managing riparian areas. In some areas that are degraded, rest may be required, especially where woody species are part of the management objective.

Due to the variation in riparian sites and management objectives, one standard utilization and/or residual vegetation target is not appropriate.

Utilization patterns relative to total forage distribution reveal that livestock distribution, coupled with timing, duration, and frequency of grazing are often the main problems. Most successful grazing strategies of “prescriptions also include additional practices or techniques that promote distribution of livestock...

Total stocking rate problems at the pasture, ranch, or allotment level are the exception rather than the rule in today’s operations. The apparent overstocking of some areas while others are only moderately grazed or even ungrazed will not be solved by simply reducing numbers if other factors are not also changed. Reducing stocking rates may reduce the percentage of area in unsatisfactory condition, but the impacts around the foci of highly utilized areas (e.g., riparian areas, other waters, etc.) will remain the same until few, if any animals remain.

Sometimes exclusion fencing can be the most practical approach for initiating rapid riparian recovery or improving highly sensitive areas, or it can be a temporary measure for initiating recovery.

Using riparian pastures offers alternatives to eliminating livestock grazing and fencing riparian boundaries, which can be costly.

Frequent riding and herding can effectively control livestock distribution in some situations.

## **II. RECOMMENDED “RULE OF THUMB” GUIDELINES**

In consideration of the above, the following Rules of Thumb/Guidelines (not to be confused as mandates) are recommended to meet resource objectives and achieve Land Health Standards:

- Avoid continuous season-long grazing strategies. Adopt grazing strategies that limit the duration of grazing use and allow ample regrowth periods.
- Place salt and supplemental feed in a manner that attracts livestock away from riparian areas. Avoid placement of salt and supplemental feed adjacent to riparian areas. Place at least 0.25 mile and preferably 0.5 mile from riparian areas and in locations that encourage use of uplands.
- Develop additional water sources in uplands to attract livestock away from riparian areas.
- Adopt frequent riding and/or herding requirements where appropriate in AMPs or terms and conditions of grazing permits.
- Avoid using streams as fenced pasture boundaries. Fences that are adjacent to streams or zig-zag across streams tend to concentrate livestock near the stream.
- Consider exclusion fencing where practical or riparian pasture fencing.
- Adopt utilization and/or residual vegetation targets in AMPs or terms and conditions of grazing permits.<sup>1</sup>
- Apply guidelines that limit streambank shearing and trampling to acceptable levels in AMPs or terms and conditions of grazing permits.
- Conduct prescribed burning or other land treatments in uplands to provide better forage to attract livestock away from riparian areas.

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<sup>1</sup> GSFO has commonly used the following as a term and condition on grazing permits: “grazing in riparian areas by livestock will leave an average minimum 4-inch stubble height of herbaceous vegetation and will not exceed an average utilization of 40% of the current year’s growth for browse species. Livestock will be moved to another portion of the allotment where utilization levels are still within acceptable limits or removed immediately from the allotment when the above utilization levels occur.” A slightly older version of this term and condition used a 3-inch stubble height and 50% of the current year’s growth for browse species. It is not known where either figure was derived; hence, there is reluctance to apply these in a land use plan amendment without supporting published research.

- Provide rest from livestock grazing whenever appropriate (e.g., some rest may be required for degraded riparian areas where woody species are part of the management objective).



## **Appendix C**

### **Disturbed Site Reclamation Standards Monitoring and Success Criteria**



## **Appendix C**

### **DISTURBED SITE RECLAMATION STANDARDS MONITORING AND SUCCESS CRITERIA**

#### **1.0 INTRODUCTION AND SUCCESS CRITERIA**

The goal of the following reclamation standards and success criteria is to mitigate anticipated impacts to vegetation, soil and water resources from ground-disturbing activities by reestablishing a self-sustaining, diverse vegetation community composed of species native to the region in sufficient species density and diversity to closely approximate natural, undisturbed vegetation potential.

This Appendix supplements the discussion found in “Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development” (BLM 2006), commonly referred to as “The Gold Book. All ground-disturbing activities will be subject to these reclamation standards and monitoring requirements. These include resource improvements initiated by BLM, as well as permitted activities such as fluid and solid mineral development activities, including oil and gas development.

BLM is responsible for assuring compliance with monitoring requirements. Project proponents will be responsible for monitoring any reclamation that they are required to do, and will report the results annually or as otherwise determined by BLM. Projects must meet both interim and final reclamation objectives in order to retrieve any associated bonds, or for reclamation to be considered successful. For oil and gas development activities within the Federal Unit atop the plateau, five-year interim criteria must be met in order to have areas released from the total maximum disturbance area for the unit, or in order to move to the next development area. Interim reclamation objectives and success criteria have been split into short-term (two-year) and long-term (five-year) groupings. Two-year criteria must be met in two or fewer years, while five-year criteria must be met in five or fewer years. For example, five-year criteria may be met in a little as two years, but must be met within five years for reclamation to be considered successful.

#### **1.1. Short-Term (Two Year) Interim Reclamation Objectives and Success Criteria**

Interim reclamation refers to those actions taken immediately after cessation of ground-disturbing activities. Interim actions are typically expected to be taken to stabilize a portion of a site that is no longer undergoing disturbance while activities simultaneously continue to disturb other portions of the same area. For example, interim reclamation may be conducted in perimeter areas of a natural gas well site when the larger footprint required for the development is reduced in area to that necessary for production. The following interim reclamation success requirements will be used to determine success after two years (two complete growing seasons):

- a. Regrade the site to pre-disturbance topography to the extent practicable, in order to minimize disturbance and lessen erosion potential.
- b. Stabilize disturbed soil surface areas not subject to interim reclamation to reduce erosion and runoff to or below naturally occurring levels. This may be done through the use of native or sterile non-native seed, or application of a covering such as biodegradable matting or certified weed-free straw or hay mulch.
- c. Promptly revegetate topsoil stockpiles to maintain soil microbe health and help prevent weeds. Native or non-persistent, sterile non-native grasses may be used to seed stockpiles.
- d. Promptly revegetate all disturbed surfaces subject to interim reclamation using certified weed-free seed, per BLM policy, to establish and maintain a healthy and diverse community of species naturally occurring on the site and to provide for natural community succession.

Current Glenwood Springs Field Office policy is to use native species for short-term interim reclamation, unless an exception is granted. Exceptions may include, but are not limited to, the use of BLM-approved non-native grasses and forbs for soil stabilization and weed suppression.

- e. Where revegetated sites are subject to increased risk of erosion due to slope, aspect, soil, or other factors, stabilize the soil and prevent loss of seeds or seedlings. This may be accomplished using biodegradable matting, weed-free straw or hay mulch, or other suitable methods.
- f. Prevent or minimize establishment of noxious weeds and undesirable plants on the disturbed areas and expansion onto adjacent uninfected areas.
- g. Restore wildlife habitat and/or livestock forage, consistent with land use objectives.
- h. Reduce visual contrast to meet established visual resource management objectives in all reclaimed areas.

## **1.2. Long-Term (Five Year) Interim and Final Reclamation Objectives and Success Criteria**

Final reclamation will occur when no more ground-disturbing activities are expected to occur. The following interim reclamation success requirements will be used to determine success after 5 years (five complete growing seasons):

- a. Stabilize the disturbed soil surface to reduce erosion and runoff to or below natural background levels. Flow pattern development must not result in rills deeper than three inches, or spaced closer than on adjacent undisturbed hillsides. Activities must not contribute to formation of new gullies or to active downcutting or headcutting of pre-existing gullies. No slumping or subsidence will occur as a result of surface disturbing activities.
- b. With the exception of active work areas, stabilize all disturbed soils that remain exposed, unprotected, or unreclaimed for longer than one month, as approved by BLM. This may be done through the use of native or sterile non-native seed or application of a covering such as biodegradable matting or weed-free straw or hay mulch.
- c. Regrade the site to pre-disturbance topography to the extent practicable in order to minimize disturbance and lessen erosion potential.
- d. Achieve or exceed the pre-disturbance cover and diversity of native species on the site. Total cover by seeded or naturally colonizing and desirable native herbaceous species plus seeded non-native forbs must be at least 80% of the total native herbaceous plant cover on the reference area.
- e. State of Colorado A, B, or C listed noxious weeds or other undesirable plant species will be absent (including kochia and Russian-thistle), with an exception for cheatgrass. It may be necessary to treat adjacent infestations of noxious and undesirable species prior to disturbance. If cheatgrass is present adjacent to the disturbed area in overall concentrations of less than 50 percent vegetative cover, the percentage vegetative cover of cheatgrass on the reclaimed site will not exceed five percent. In areas where adjacent lands have greater than 50 percent cheatgrass cover, the percentage cover on reclaimed lands will not exceed 30 percent.
- f. Restore visual quality, reduce visual contrast, and enhance aesthetic values to meet visual resource management objectives on all areas of surface disturbance.

## **2.0 RECLAMATION PLANS**

Reclamation plans must be submitted for BLM review and approval prior to surface disturbing activities. Reclamation plans will be considered as COAs for oil and gas leases and reviewed and approved through activity or project specific planning for other resource management activities. Reclamation plans will address the following requirements in sufficient detail to demonstrate an understanding of the potential

reclamation site and activities required to achieve the stated success criteria. These plans will incorporate the following reclamation topics and fully develop appropriate site-specific BMPs for each permitted action and location.

**2.1. Site-specific Baseline Information:**

- a. Pre-disturbance terrain and contour
- b. Pre-disturbance land use
- c. Seasonal weather patterns
- d. Topsoil depth and other limitations to plant root growth
- e. Vegetation type, dominant species cover, density, and productivity by strata

**2.2. Reference Site Selection and Documentation:**

- a. Appropriate reference sites will be assessed, selected, and characterized following Ecological suite Inventory (ESI) methods and standards, or an approved equivalent system (see Attachment A for an example).
- b. Reference sites will be approved by BLM prior to a permitted disturbance.

**2.3. Site-specific Revegetation Plan:**

- a. Size of disturbed versus reclaimed area
- b. Proposed surface finish and grades
- c. Proposed topsoil handling and treatment
- d. Proposed seed mix (seeding rate, species, and variety)/plant schedule (container size and off-center spacing)
- e. Treatment of noxious and undesirable species
- f. Proposed seeding/mulching techniques
- g. Ongoing maintenance activities expected
- h. Monitoring plan

**2.4. Bond Agreement Information (if applicable), or Conditions for Future Activity**

Bonds to be held against achievement of reclamation success criteria will be negotiated on a site-by-site basis. In general, the amount of a bond will be considered a percentage of the total reclamation costs for a project sufficient to ensure reclamation success. These costs will be demonstrated in the reclamation plan. Documentation of compliance with bonding requirements sufficient to assure reclamation will also be included as part of the approved reclamation plan.

Future associated development activities may be precluded until successful reclamation is achieved for a given area or project.

**3.0 RECLAMATION PRACTICES AND STANDARDS**

The following practices and standards are to be applied simultaneously with all appropriate BMPs to all reclamation sites. Some standards are only appropriate for interim or final reclamation, while others will be used in either situation. Practices and standards are intended to provide direction and clarify the BLM's intent for reclamation activities. The intent of BLM's Resource Management Plan (RMP) process is to identify standards and objectives to be met on public lands. Specific methodologies are not considered to be activity or implementation level planning decisions and not RMP decisions. As such, practices are provided to clarify the BLM's intent for reclamation activities. The following list is not considered to be all-inclusive, but rather is presented to provide a sense of the minimum requirements that will be required to produce acceptable reclamation outcomes. Additional practices may be required,

practices may be withdrawn, or practices may be modified during activity, implementation, or project level planning; this may be done without future RMP decisions or amendments. Monitoring and adaptive management practices will be used to refine and clarify needed actions consistent with the goals and objectives of this plan. Reclamation practices and standards are listed below.

### **3.1. Interim Reclamation Practices and Standards**

- a. Limit surface disturbance to the minimum area necessary by avoiding development of roads, pipelines, and well pads on steep slopes; minimize the potential for surface disturbance through careful planning; grouping facilities to the extent possible; and sharing rights-of-way such as burying pipelines along roadways.
- b. Stockpile topsoil when possible and prudent (i.e., not in areas of seleniferous or erosive soils, or in areas with noxious weed populations without pretreatment) following all topsoil salvage and storage BMPs; or if directed by BLM plan for salvage, direct-haul, and application (live handling) of topsoil from a disturbance site to a site undergoing concurrent revegetation. Promptly revegetate topsoil stockpiles to maintain soil microbe health and help prevent weeds. With BLM approval, native or non-persistent, sterile non-native grasses may be used to seed stockpiles.
- c. Minimize the area necessary for construction activities; determine the minimal area needed to facilitate necessary activities, and initiate interim reclamation as quickly as practicable after construction.
- d. Install silt fencing in areas in proximity to water features such as streams, ponds, and wetlands or in other situations where wind or water erosion may otherwise move sediments into sensitive or valuable surrounding habitat.
- e. During interim reclamation, recontour the disturbed surface to blend with the surrounding terrain, spreading salvaged or stockpiled topsoil evenly on areas to be reclaimed, and revegetating with native plants.
- f. Use seed mixes consisting of native, early-succession species, or species with ability to readily establish quickly in recently disturbed soil areas. Use non-native species (e.g., desirable non-native forbs or non-persistent, sterile non-native grasses) only where directed by the BLM. In areas subject to occasional vehicle travel, interim revegetation should include species selected to accommodate occasional activity such as vehicle travel, vehicle parking, or temporary staging areas.
- g. Drill-seed the disturbed area with a seed mix of species native to the local area at a rate sufficient to achieve site stabilization and achieve desired cover based on reference sites (rate would be doubled for broadcast or hydroseeding where drill seeding is impracticable) following adequate soil preparation, including but not limited to removal of weeds and undesirable species, decompaction (“fluffing”) of compacted soil, and harrowing to prepare the seedbed.
- h. Stabilize soil, maximize moisture infiltration, and improve the chances for revegetation success through mulching or other techniques. Where mulch is used, it must be certified free of weeds and non-native grasses, and applied at a rate to achieve site stabilization and suppress establishment of undesirable species. If hydromulch is used it must be applied with a non-asphalt tackifier.
- i. Eradicate or control State of Colorado Listed A-,B-, and C-listed noxious weeds and undesirable plant species within reclaimed areas. (See Section 1.2.e).
- j. Install fencing to limit livestock grazing for a minimum of two growing seasons or until plants are sufficiently established to persist under some physical disturbance. Seeded species will be considered established when at least 50% of plants are producing seeds. Fencing will

be installed after dirtwork, grading, and seeding are completed and prior to livestock turnout on the allotment. The use of less palatable grasses and forbs or fencing will be used as approved by BLM to limit livestock presence along roadways, or other disturbed areas.

**3.2. Long-Term (Five Year) Interim and Final Reclamation Practices and Standards**

- a. Remove all equipment, debris, and surface structures that are not necessary for the intended use of the site. Remaining structures will blend in to the extent possible with the surrounding terrain. Consider the use of natural features such as trees, rock formations, terrain, or berms to conceal roads, pipelines, and well pads. Paint structures a color that blends with the surrounding vegetation.
- b. Recontour all disturbed areas to blend with the surrounding terrain to the extent practicable. Areas that have received heavy equipment use such as roads and well sites will be ripped to a depth sufficient to accommodate the establishment of native vegetation similar to the surrounding undisturbed area.
- c. As soon as practicable, spread salvaged or stockpiled topsoil to a uniform depth across all disturbed areas. The surface must blend with the surrounding non-disturbed area. (A rough surface will accommodate broadcast seeding better than a smooth surface.)
- d. Revegetate with native plant species similar in mix and kind to the appropriate reference plant community. The selection of species and installation method (seeding or planting) will depend on the attributes of the site and revegetation goals. As needed and directed by BLM, use a combination of seeding with grasses, forbs, and/or woody species and planting containerized nursery stock of shrubs and trees.
- e. Drill seed the disturbed area with a seed mix of species native to the local area at a rate sufficient to achieve site stabilization and achieve desired cover based on reference sites (rate would be doubled for broadcast or hydroseeding where drill seeding is impracticable) following adequate soil preparation, including but not limited to removal of weeds and undesirable species, decompaction (“fluffing”) of compacted soil, and harrowing to prepare the seedbed.
- f. Seed disturbed areas in fall/early winter or late winter/spring (depending on elevation) to exploit elevated moisture normally available in winter and spring as an aid in germination and seedling establishment, unless a different seeding schedule is approved by BLM.
- g. Use mulching where needed to stabilize soil, maximize moisture infiltration, and improve the chances for revegetation success. Mulch seeded areas with certified weed-free native hay or straw at a rate sufficient to achieve site stabilization and establish native species. If physical conditions preclude this, apply appropriate hydromulch with a non-asphalt tackifier.
- h. Eradicate or control State of Colorado Listed A-, B-, and C-listed noxious weeds and undesirable plant species within reclaimed areas, and as necessary adjacent areas. (See Section 1.2.e).
- i. When conditions warrant following successful noxious weed control, install containerized native shrubs and trees, if appropriate based on the surrounding plant community. Plantings of woody species should be, in natural-appearing groups at a spacing that approximates the structure of local plant communities.
- j. Install fencing to limit livestock grazing for a minimum of two growing seasons or until plants are sufficiently established to persist under some physical disturbance. Seeded species will be considered established when at least 50% of plants are producing seeds. Fencing will be installed after dirtwork, grading, and seeding are completed and prior to livestock turnout on the allotment. The use of less palatable grasses and forbs or fencing may be required or approved by BLM to limit livestock presence along roadways, or other disturbed areas.

#### **4.0 MONITORING**

Annual monitoring and reporting of results will be required for all reclaimed areas. Monitoring will occur annually for either a minimum of five years or until performance standards are obtained, whichever is longer. Monitoring methods and reporting standards will be included in reclamation plans and approved by BLM prior to disturbance. Monitoring methods are outlined below. Project proponents will be responsible for monitoring any reclamation that they are required to do, and will report the results annually or as otherwise determined by BLM.

##### **4.1. Methods**

Monitoring methods will be approved as part of a site reclamation plan, prior to site disturbance. In general, methods must be used that will yield appropriate quantitative measures by which to address success criteria parameters against a reference site.

- a. Plant species composition and cover will be sampled using either point intercept transect or plot sampling at a sufficiency to demonstrate statistical adequacy at the 85% level.
- b. Woody species (tree and shrub) density and survivorship will be assessed using plot or belt transect sampling.
- c. Fixed photo points (location to be determined and used during baseline conditions sampling).

##### **4.2. Monitoring Reports**

Reports of annual monitoring efforts will be submitted annually to BLM for approval. Each report will address the results of the monitoring in terms of each success criterion and compared to the same parameters for the reference site. Additionally, each report must address the following items:

- a. Text and data to illustrate trends in terms of site conditions against each of the agreed-upon success criteria
- b. Tabulated woody (tree and shrub species) containerized planting survivorship
- c. Tabulated vegetation cover data for planted and seeded herbaceous species
- d. Annotated photographs from fixed photo points illustrating conditions before and after mitigation activities are completed
- e. A figure showing locations of fixed photo points and data sampling locations
- f. A brief discussion of the overall mitigation success, incorporating monitoring data. Problem areas identified during the monitoring session will be discussed and adaptive management remediation activities will be recommended, as necessary.
- g. A description of any adaptive management activities performed since the previous annual report for the site as well as planned actions to be taken if plant establishment efforts are sub-standard or completely fail. For these circumstances, the cause of failure must be stated and how corrective actions will mitigate these causes.

**ATTACHMENT A:**  
**Alternative Approach to ESI Reference Sites**  
**Example of a Quantitative Success Sampling Assessment Tool**  
**FLORISTIC QUALITY INDEX**

I. Floristic Quality Indices (after Taft et al., 1997)

1. For the reference species list, assign an index based on the affinity to "natural areas". Individual species assignment range from 0-10 with "10" being considered the highest fidelity to natural areas. This index is termed the coefficient of conservatism (C). General categories for species assignments consist of the following:

X 0-1: Taxa that are adapted to severe disturbance, particularly anthropogenic. Disturbance occurs so frequently that often only brief periods are available for growth and reproduction. Generally considered ruderal species/opportunistic invaders.

X 2-3: Taxa within this category are associated with more stable, though degraded habitat. Generally considered ruderal-competitive species, found in a variety of habitats.

X 4-6: Taxa that have a high consistency of occurrence within a given community type and will include many dominant or matrix species for several habitats. Species will persist under moderate disturbance.

X 7-8: Taxa associated mostly with natural areas but can persist where the habitat has been somewhat degraded. Increases in the intensity or frequency of disturbance may result in reduction in population size, or taxa may be subject to local extirpation.

X 9-10: Taxa exhibiting a high degree of fidelity to a narrow range of synecological parameters. Species within this category are restricted to relatively intact natural areas.

Assignment of the "C" value should be based upon field experience of principal investigators (A-Team), consultation with local or regional plant ecologist/ taxonomists, description of habitat preferences in floristic manuals or published synecological or autecological studies. Values to be assigned should be considered in the context of the defined reference domain (geographic distribution) and range of variability (disturbance gradient) within the HGM subclass of interest.

2. Calculation of the Floristic Quality Index

X Determine the mean coefficient of conservatism ( $\bar{C}$ ) by summarizing all coefficients in the inventory unit (reference site or sample within the reference site) and dividing by the number of taxa (N), or  $\bar{C} = \sum C/N$ .

X Multiply the mean coefficient of conservatism ( $\bar{C}$ ) by the square root of the total number of taxa. The floristic quality index is then indicated by:

$$FQI = \bar{C} (\sqrt{N})$$

*From:*

Taft, J.B., G.S. Wilhelm, D.M. Ladd, and L.A. Masters. 1997. Floristic quality assessment in Illinois; a method for assessing vegetation integrity. *Erigenia* 15:3-95.



**Appendix D**

**Glenwood Springs Field Office  
Resource Monitoring Plan**



## Glenwood Springs Field Office

### Resource Monitoring Plan

February 2006

Prepared by: Carla J. Scheck  
Carla J. Scheck  
Ecologist

Concurred: Karl Mendonca  
Karl Mendonca  
Supervisory Natural Resource Specialist

Approved: Jamie E. Connell  
Jamie Connell  
Glenwood Springs Field Office Manager

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## **I. Introduction**

Monitoring rangeland health and evaluating the effects of management practices is an essential part of wise land management. Monitoring is the orderly collection, analysis, and interpretation of resource data in order to evaluate progress in meeting management objectives and/or land health standards. The Glenwood Springs Field Office (GSFO) will conduct rangeland monitoring to determine the effects of specific management actions on resource conditions.

Management objectives established in land use plans, coordinated resource management plans, activity plans and land health assessments form the foundation for determining the level and intensity of monitoring studies required. When establishing objectives, they must be well defined, measurable and realistic in order for the results of monitoring studies to be useful.

### **A. Purpose**

The purpose of this monitoring plan is to establish a clear, consistent approach to conducting monitoring studies in the Glenwood Springs Field Office. Rangeland monitoring should be designed to obtain required data to address one or more of the following concerns; *1) determine present condition of the allotment/landscape/watershed in relation to the Colorado Standards for Land Health (Appendix 1), 2) determine causes of problems in meeting land health standards or management objectives, 3) evaluate the relative success or failure of a given management practice in achieving the management objectives, and 4) assess changes in land health over time.*

The strategy incorporated into this monitoring plan includes the evaluation of impacts associated with livestock and big game grazing on public rangelands and does not address or identify methods used to determine impacts of other land uses such as mineral development, reclamation practices, recreational use levels or rights-of-way actions. Ocular assessments of the overall impacts of these and other land uses relative to the land health standards may be gathered during formal land health assessments and may be extremely valuable to land managers in making future allocation decisions, but methods used for evaluation are not brought forth in this effort.

The procedures identified in this plan outline a standard approach for monitoring, however, different or additional methods may be needed where values or management objectives dictate. Regardless of what methods are used on a particular study location the same method should be continued over the years for consistency, unless it can be demonstrated that the existing studies do not provide the necessary data to make sound, supportable management decisions.

## **B. Physical and Biological Environment**

### **1. Location**

The Glenwood Springs Field Office is located in west central Colorado, primarily in Garfield and Eagle Counties, but also includes portions of Mesa, Pitkin, Rio Blanco and Routt Counties. Interstate 70 traverses through the middle of the administrative unit. The land ownership pattern is highly fragmented between private, state, and federal, with 566,042 acres (44%) being administered by the Bureau of Land Management.

### **2. Climate/Topography**

The climate of the GSFO is semi-arid and is greatly influenced by topography and elevation. The topography of the area varies from steep mountains and rolling foothill zones to gently sloping alluvial terraces and narrow valley floors. Elevations range from 5,000 feet near Debeque to 11,275 feet on Castle Peak. Total annual precipitation ranges from less than 12 inches to more than 30 inches depending on geographical locations and elevation. The majority of the precipitation received is in the form of snow during the winter months (November - March) or during thunderstorm events in the summer months.

### **3. Vegetation**

The GSFO administrative area lies primarily in the Southern Rocky Mountains and Utah High Plateaus Ecoregions. At the lower elevations, relatively low annual average precipitation has a direct bearing on overall forage productivity and potential natural communities. Vegetative communities include salt desert shrubs, sagebrush steppe, pinyon/juniper woodlands, oakbrush/mixed mountain shrubs, aspen, mixed conifers and badlands.

### **4. Wildlife**

The GSFO supports year-round habitat for mule deer and elk. Greater sage grouse habitat occurs throughout much of the public lands in Eagle and Routt Counties. Lynx denning and foraging habitat is found at the upper elevations of the Field Office and four linkage corridors have also been identified within the GSFO administrative area. Other wildlife species include mountain lion, black bear, turkey, bald and golden eagles, peregrine falcon, other raptors, bats, migratory songbirds, numerous small mammals, reptiles, and amphibians.

## **C. Grazing Administration**

The Glenwood Springs Field Office administers grazing within 255 allotments, of which 58 are currently un-allotted due to terrain, lack of forage, lack of fencing or allocations for other resource uses. The allotments support a total of 46,505 permitted animal unit months (AUMs) for cattle, sheep and horses.

## **D. Coordination**

Monitoring activities within designated allotment units, herd management areas or landscapes will include consultation, cooperation and coordination (CCC) with range users, the Colorado Division of Wildlife (DOW) and other interested parties, prior to, during the collection of, and through the evaluation period of any monitoring studies.

The most important concept in the CCC objective is to develop trust, understanding and a sound working relationship between BLM, the range user, DOW and members of the interested public.

1. Wildlife

Studies established in those specific allotments identified as possessing wildlife/livestock conflicts will require close coordination with and input from the Division of Wildlife. DOW personnel will assist in developing management objectives for the area and in the planning, implementation and analysis of the subject monitoring studies.

2. Permittees/Lesseees

The range user should be encouraged to share responsibility for selecting key areas, developing management objectives, making field observations and collecting on-the-ground data. The range user may also provide specific operational experience that may be lacking by the individual range management specialist. The following procedure is suggested to accomplish this element and ensure that all parties are in agreement.

- a. Review the case file on each specific allotment to determine historical use, present levels of grazing, distributional patterns, etc. prior to meeting with the range user. Discuss potential conflicts or issues in the office with other resource specialists who may have an interest in the allotment or data to support the need for management changes.
- b. Schedule an informal meeting with the range user in the field to discuss and better understand their operational procedures and allow the opportunity for them to show you the allotment, how the livestock normally use the allotment, their expectations of future grazing activities, etc.
- c. Introduce the concepts of Colorado Standards for Healthy Rangelands. Discuss with the range user any apparent failures in meeting the standards and some of the guidelines for livestock grazing that have been adopted to address the failures of the standards.
- d. Document the field visit and discussion as it pertains to grazing activities and encourage the range user to provide written documents involving their operational procedures, conflicts and philosophies.
- e. Continue to discuss and develop specific objectives and options that could be

implemented to ensure progress toward meeting the failed standard.

f. Identify key areas for monitoring studies to be established.

3. Interdisciplinary Staff

The use of an interdisciplinary team to set up and conduct monitoring within each allotment is a desirable process, but often becomes unfeasible based on budgetary constraints and other workload priorities of each specialist. Therefore, an interdisciplinary team should be used to monitor livestock grazing impacts in those allotments where the degree, amount, intensity and importance of the issues and resources involved are considered extremely high to the general public, field office and/or land users. Examples of such situations might be an allotment that involves lynx habitat, supports Colorado River cutthroat trout or a Special Status plant species, or allotments currently failing one or more of the Colorado Standards for Healthy Rangelands based on a formal Land Health Assessment.

On other allotments, an interdisciplinary team should be used to help identify key or critical areas and set management objectives for the allotment, but the rangeland management specialist responsible for the administration of that particular allotment should establish and complete most of the monitoring studies.

This consolidates the effort to the individual with the most knowledge of the grazing management of the area, and ensures a central point of contact for proper consultation, coordination and communication throughout the process with the permittees, DOW and other affected parties.

## II. Management Objectives

The goal for livestock grazing management as discussed in the Glenwood Springs 1984 RMP and amended following adoption of the Colorado Standards for Public Land Health relates to providing a target number of AUMs of livestock forage commensurate with meeting public land health standards. *Specific resource objectives will be developed for each allotment* and will be listed in the Monitoring Files for that allotment. These objectives should be fairly specific, simple, and measurable. The objectives should identify the most immediate responses that should occur as a result of a management action. Objectives should be attainable within an evaluation period and should not exceed two evaluation periods. The intensity of monitoring will vary depending on the objectives developed, as well as on the resource values, changes anticipated, and timeframes established.

In the absence of identified management objectives for an allotment, the monitoring established will be designed to determine whether current stocking rates are appropriate and whether the Colorado Land Health Standards are being met.

### III. Establishing Priorities

#### A. Allotment Categorization

Due to limited funding and time constraints, BLM cannot intensively monitor the effectiveness of authorizations and management actions on all rangelands it administers. Therefore priorities need to be established on an allotment, watershed, wildlife habitat unit or landscape basis and efforts will be focused on those areas.

The following factors will be used in prioritizing allotments for monitoring:

1. Allotments in which a determination has been made that Standards are not being met as a result of a formal Land Health Assessment and monitoring is needed to determine causal factors.
2. Allotments which have undergone management changes to make progress toward meeting a Standard or move toward a management objective. Monitoring will be needed to determine if management actions taken are making significant progress toward meeting the management objectives and/or Land Health Standards.
3. Allotments with concerns regarding meeting Standards or Allotment Management Objectives based on prior monitoring, professional judgment, or public feedback.
4. Allotments due for Grazing Permit Renewal in the next few years. Gather data regarding use levels and resource conditions prior to developing the NEPA analysis for permit renewal. Level of monitoring intensity can be dictated by I, M, and C allotment categorization.
5. Allotments due for Land Health Assessments in the next few years. Establish studies to determine if resource problems exist so that consultation and coordination with the appropriate land users can be initiated prior to the Assessment being conducted.
6. I, M, C Allotment Categorization will be the basis for prioritizing all other allotments.

GSFO categorized each of its allotments into one of three categories based on the BLM's Final Grazing Management Policy. These categories were:

- \* "I" (Improve) – Manage the allotment to improve the currently unsatisfactory resource conditions. These allotments are generally given the highest priority for project development, monitoring emphasis, management plan development and public investment. ;
- \* "M" (Maintain) – Manage the allotment to maintain currently satisfactory resource conditions;
- \* "C" (Custodial) – Manage the allotment in a custodial manner, while protecting existing resource values.

The factors used in establishing allotment categories were range condition, present management, resource potential, resource conflicts, level of controversy and economic investment opportunity. In addition, the GSFO considered disposal

parcels, access problems, prospective livestock cuts, and office commitments. Based on these criteria and input from other agencies, there are 98 allotments classified under AI@, 41 as an AM@ and 119 managed as a AC@ category.

This categorization should be reviewed periodically to determine whether the category assigned to each allotment is still valid in light of new information or issues.

Stipulations that have been made part of a grazing authorization, such as utilization restrictions, would be classified as “compliance inspections” to ensure compliance with the authorization.

If budget or manpower restrictions impose a constraint on completing scheduled studies, the above priorities will determine which studies will be accomplished and which will not. These priorities will also dictate the intensity/frequency of the monitoring studies to be conducted. If the Field Office administrative area is experiencing a severe or prolonged drought, other immediate management priorities, such as conducting use supervision, may take precedence over that year’s monitoring workload.

Refer to **Appendix A** for a listing of the current highest priority allotments. The list of highest priority allotments is subject to change as management objectives are achieved or as new issues arise.

## **B. Monitoring Intensity**

The Glenwood Springs Field Office has been divided into three geographical areas with one area assigned to each Rangeland Management Specialist (RMS) for administration. Within each of these respective areas, the RMS, in coordination with other field office specialists, prioritizes the allotments based on the factors identified above. This prioritization forms the basis for determining the intensity of monitoring required, the type of studies necessary to address the issues, schedules for monitoring, and associated workload requirements. The issues identified by the field office specialists will determine which specialists, besides the RMS, need to be involved in monitoring and data collection.

The monitoring method, number of studies and frequency of data collection for each allotment will vary depending on the allotment prioritization, the resource values and identified conflicts, and the specific allotment objectives. In general, High Intensity monitoring will be conducted on those allotments identified in the High Intensity Allotment List in Appendix A. The remaining lower priority I and M category allotments will have moderate intensity studies performed to detect major changes in resource condition. “C” category allotments will receive low intensity monitoring efforts. However, for those High Intensity Allotments in which the permittee has agreed to implement livestock management changes to conform to the Grazing Management Guidelines and improve allotment conditions, less intensive monitoring may be required.

### C. Short-term vs. Long-term Monitoring

Monitoring of management actions consists of both short-term and long-term monitoring. Short-term monitoring studies include those studies used to determine preliminary standards conformance, proper stocking levels, livestock distribution problems, and wildlife/livestock dietary overlap concerns. Short-term monitoring is also used to assure that the management actions outlined in Activity Plans are being followed. Results from this monitoring provide the basis for immediate adjustments in management actions.

#### Intensive, Short-term Monitoring

For allotments where resource concerns have been identified, where standards are not being met and causal factors have not been determined, where AMP development is being considered, or where stocking levels may be inappropriate, short-term, intensive monitoring will be conducted to obtain the information necessary to resolve the issues and implement changes in management, if necessary.

Studies for these determinations include rapid assessment, actual use, utilization, use pattern mapping, and climatic data. The minimum monitoring data that will be collected is: Actual Use (by direct counts or Actual Use forms), Utilization and Climate Data. Actual Use and Utilization studies will be conducted every year of the Intensive Monitoring period. Upon completion of the prescribed monitoring period, the data will be compiled and analyzed and an evaluation of the allotment completed. Wherever trend data is available, it will be included in the evaluation.

The evaluation will include narrative and graphical data, as appropriate. If adjustments in grazing management are needed to achieve rangeland health or meet management objectives, an environmental analysis will then be prepared and a decision issued. If the evaluation indicates no management changes are needed, this conclusion will be briefly documented and placed in the monitoring file.

Short-term, intensive monitoring should precede or at least coincide with all other studies. Short-term monitoring methods to be used within the Field Office are listed in Table 1 below.

Table 1

SHORT TERM MONITORING METHODS		
Method	Attribute Measured	Target Area
Actual Use	Record of animal numbers and pasture use dates	Entire allotment
Utilization Map	Utilization patterns, developed by general reconnaissance of the area	Entire allotment
Key Species Method	Utilization of key species	Key Areas

Cole Browse Method	Utilization of browse species	Key Areas (Big Game)
Residual Measurements (Stubble Height)	Height of vegetation remaining at end of grazing season	Riparian Areas
Professional Judgment	Documented observations	Entire Allotment

Long term Monitoring

Long-term trend monitoring is used to determine the effectiveness of the management actions in achieving the specific management objectives. These studies involve the collection of cover, density, frequency, and/or species composition of the plant community. The data is compared to an established baseline and analyzed over time to determine if the appropriate actions that were initiated are making progress toward meeting management objectives or rangeland health standards.

Long term monitoring includes both condition and trend studies. Condition studies are generally inventories such as Land Health Assessments and Ecological Site Inventories in which data will be collected on a one-time or infrequent basis to establish a *baseline* of current conditions.

Long-term trend studies generally require a period of five or more years before any conclusive results can be obtained. Quantitative and qualitative sampling and measuring techniques are used to measure changes in vegetation or physical attributes over time. These changes are compared to a baseline to determine whether the measured attribute is moving toward or away from the established management objectives (i.e. the trend).

Long term monitoring methods to be used in the Field Office are shown in Table 2.

Table 2

LONG TERM MONITORING METHODS		
Trend	Attribute Measured	Target Area
Daubenmire Cover Class	Canopy cover, ground cover, composition, frequency	Key Areas, Riparian Areas
Nested Frequency	Frequency, ground cover	Key Areas
Photo Plot (1m x 1m)	Ocular estimate of cover	Key Areas, Riparian Areas
Photo Point	Ocular assessment of cover, structure	Key Areas, Riparian Areas
Cole Browse Method	Age and form class of shrubs	Wildlife Key Areas
Condition	Attribute Measured	Target Area
Ecological Site Inventory	Composition of vegetation by weight (lbs of forage production/ac)	Area wide Key Areas

Land Health Assessment	Ocular assessment of composition, cover, age classes, soil stability	Area wide
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**Appendix B** lists the general schedule in which the various monitoring studies will be conducted based on allotment prioritization. This schedule will remain flexible based on the specific needs of each allotment and on annual budget constraints. At the time each study is established, the frequency of re-reading will be determined based on the management objectives, current site conditions, the expected time frame for achieving the objectives, and/or the need for data for upcoming NEPA analysis (grazing permit renewals).

#### **IV. Monitoring Concepts**

Proper selection of study sites is critical to the success of any monitoring program. The stratification, key area, and key species concepts shall be used when selecting study sites to show the effects of current grazing management. The site selection process used and the management objectives for each site should be documented in the monitoring files.

##### **A. Stratification**

Stratification is a means of dividing an area of rangeland into smaller, more homogeneous units. Allotments, pastures, wildlife habitat areas, watershed units or other management areas may be divided into areas having similar characteristics. These may be areas having similar vegetation, soils, topography, or grazing use.

Some criteria that should be considered in stratifying an area are:

1. Vegetation Type. Each major vegetation type may be a separate stratum.
2. Range Site. Range sites with their specific potential plant associations and soil characteristics may be considered criteria for stratifying an area.
3. Present ecological status. The present ecological status of the range site may be used as a basis for stratification.
4. Soils and Topography. Differences in soils are usually expressed as differences in vegetation, but there may be instances where the soil and topography may be more significant than vegetation in stratifying such areas as fragile watersheds or rare plant habitat.
5. Grazing Systems. Areas subjected to similar grazing treatments may be considered in stratification.
6. Utilization Patterns. Grazing utilization patterns can play a key role in stratifying

an area as well as in locating key areas.

7. Suitability. Suitability of rangelands for use by different classes of livestock can also be used in stratifying rangelands.
8. Threatened, Endangered or Sensitive Species Habitat. In some cases, habitat for threatened, endangered, or sensitive species may be an important consideration in stratifying an area.

Topographic maps and aerial photographs may be very helpful aids in the stratification of a management unit. A stratified map of the allotment should be created and stored in the monitoring file.

## **B. Key Areas**

Monitoring studies should be established in key areas. Key areas are indicator areas that reflect what is happening on a larger area as a result of on-the-ground management actions. Depending on the management objectives, a key area may be a representative sample of a large stratum, such as a pasture or allotment, or it may be a representative sample of a small stratum having important grazing value, such as a heavy use area around water, a riparian area, etc. An interdisciplinary team should be used to select these areas. Permittees, lessees, and other interested parties should be invited to participate as well. The criteria that were used in the selection of key areas or key species will be documented on the Study Location and Documentation Data Form (**Illustration 1**).

1. Criteria for Selecting Key Areas.  
Proper selection of key areas is critical to the success of a monitoring program. Some criteria that should be considered in selecting a key area are listed below.  
A key area:
  - a. Should be representative of the stratum in which it is located.
  - b. Should be located within a single ecological site and present plant community.
  - c. Should contain the key species or have the potential to produce the key species.
  - d. Should be foraged by livestock or wildlife when the allotment or pasture is used. Small areas of natural concentration such as those immediately adjacent to salt, roads, or trails are usually not suitable key management areas because they reflect higher levels of use than representative for the stratum. Likewise, areas remote from water or having limited accessibility may be suitable as reference areas for comparison purposes, but should not be considered key management areas because they will not be affected by changes in grazing management.
  - e. Should be capable of and likely to show response to management actions.
  - f. May be selected to represent special or unique situations such as a riparian zone, special status species population or habitat, or heavily grazed area.

- g. Should be changed when the pattern of use is significantly modified because of a change in season of use, kinds or class of animals, water supplies or other factors affecting distribution.

2. Number of Key Areas.

The number of key areas, which are selected to represent a particular stratum or range site, depends on the size of the stratum and on data needs, but may ultimately be limited by funding and personnel constraints. A minimum of one key area should be established in each pasture of each intensively managed allotment. More than one key area may be necessary in each pasture or allotment depending on the vegetation present and the objectives to be measured. For example, in a pasture or allotment containing a sagebrush/grass type and a riparian zone, one key area in each may be appropriate if there are different objectives for each area.

3. Objectives

Objectives should be developed so that they are specific to the key area. Monitoring studies can then be designed to determine if these objectives are being met.

**C. Critical Areas**

Critical areas are areas that should be evaluated separately from the remainder of a management unit because they contain special or unique values. Critical areas may include sage grouse nesting habitat, lynx winter foraging habitat, riparian areas, known populations of special status plants, etc. The ecologist, wildlife biologist or the range management specialist most closely involved with determining the objectives for those areas will generally monitor these areas.

**D. Key Species**

Key species are generally an important component of a plant community. Key species serve as indicators of change and may or may not be forage species. More than one key species may be selected for a stratum depending on management objectives and data needs. In some cases, problem plants or indicator species, (poisonous plants, species which increase with grazing, etc.) may be selected as key species.

The selection of key species depends on the plant species in the present community, the present ecological status and the potential natural community for the particular range site. Key species are typically an important component of the plant community.

More than one key species may be chosen for a particular key area. In areas where there is more than one period of use, several key species may be selected. For example, on an area with both spring and summer grazing use, a cool season plant

may be the key species during the spring, while a warm season plant may be the key species during the summer.

Key species may or may not be key forage species. For example, threatened, endangered, or sensitive plants that have no particular forage value may be selected as key species. If these species are particularly susceptible to grazing damage, management objectives and use levels may be established specific to these species regardless of use levels elsewhere on the allotment.

Normally, the key species selected should be present, or potentially so, on each key area. However, on depleted rangelands these species may be sparse or absent. If a key area does not contain any plants of the key species because of severe depletion, it may be necessary to conduct monitoring studies on other species that comprise the bulk of the forage and extrapolate the effects on the establishment of the key species.

The NRCS Range Site Descriptions will provide a list of those plant species which occur within the potential natural communities. These descriptions should be consulted when selecting key species that are absent or sparse within identified key areas.

## **V. Study Design and Analysis**

### **A. Planning the Study**

#### **1. Choose sample sites**

Stratify the allotment and choose one or more key areas for establishing the studies.

#### **2. Establish Management Objectives**

Objectives for an allotment or landscape should be based on indicators of land health standards and the potential of the range site or sites of concern. Objectives should be specific and measurable and should include a reasonable timeframe for achievement, generally within 5 to 10 years or one grazing cycle. Objectives are generally specific to key areas. Examples: Increase the canopy cover of bluebunch wheatgrass from 3% to 6%; or Provide 40% ground cover of desirable perennial species to protect the site from erosion.

#### **3. Study Design**

The number of points, quadrats or transects needed depends on the monitoring objectives and the variability of the samples. The frequency of data collection should be determined before studies are implemented.

Randomly select the starting point and the bearing of the transect within the study

area. If the examiner is unable to collect an adequate sample with this transect before leaving the ecological site, additional transects can be run from the same transect location stake at different, randomly-selected bearings. Alternatively, additional transects can be established in the key area with random starting points and bearings.

## **B. Statistical Considerations**

### **1. Random or Systematic Sampling**

Critical to valid monitoring study design is that the sample be drawn randomly from the population of interest. All of the statistical analysis techniques available are based on knowing the probability of selecting a particular sampling unit. If some type of random selection of sampling units is not incorporated into the study design, the probability of selection cannot be determined and no statistical inferences can be made about the population.

With linear study design, such as in utilization, stubble height or Daubenmire studies, systematic sampling is a very common technique. Data is collected along a transect at specified intervals. The starting point of the transect must be randomly selected. i.e. If the interval between observations is 5 paces, a number between 0 and 4 is randomly selected to represent the distance from the reference post or baseline to start making observations. Additional observations are made at 5-pace intervals from this starting point. This is a valid sampling technique, particularly useful for natural populations that are clumped or clustered in spatial distribution.

### **2. Confidence Intervals**

The best way to judge how well a sample estimates the true population total is by calculating a Confidence Interval. The confidence interval is a range of values that is expected to include the true population size (or utilization or any other parameter) a given percentage of the time. Confidence intervals are set around an estimated average value to indicate that the true average of the population will occur within those limits a specified percentage of the time. Confidence intervals are the principal means of analyzing utilization data. For instructions on calculating confidence intervals, see the Interagency Technical Reference, *Planning for Monitoring*.

### **3. Sample Size Determination**

An adequate sample is vital to the success of any successful monitoring effort. Adequacy relates to the ability of the observer to evaluate whether the management objective has been achieved. Depending upon how large a sample is taken and how variable the data is in the area sampled, the estimate from the sample may be very close to the true value or very far from it. The more narrow the confidence interval, the greater the precision of the data. (The width of the confidence interval is determined by the variability of the measurements.)

It makes little sense, for example, to set a management objective of increasing the density of a rare plant species by 20 percent when the monitoring design and sample size is unlikely to detect changes in density of less than 50 percent. Formulas for calculating sample sizes are given in the Technical Reference, *Planning for Monitoring*.

### **C. Study Documentation**

Permanently mark the location of each study with a reference post (fence post) placed about 30 meters from the actual study location. Record the distance and bearing from the reference post to the study location.

Permanently mark the study location itself by means of driving rebar or angle iron stakes into the ground at the randomly selected starting point. Baseline studies require that both ends of the transect be permanently staked.

### **D. Data Analysis and Interpretation**

Utilization and residue (stubble height) studies do not compare data differences between years, so significance tests are not ordinarily employed. The appropriate analysis of utilization data depends upon whether the management objective is written based on the average or median percentile utilization. Confidence intervals are then calculated around this average or median.

For stubble height data, the average should never be used as a measure of the central tendency. Because utilization data are often not normally distributed (i.e. some plants may be much taller than average and would skew the resulting average stubble height) using the average will not guarantee that the majority of stubble heights are close to the management objective. Using the median ensures that at least half of the plants measured meet or exceed whatever objective has been set. Other percentiles can also be used. For example, the objective could be that at least 60 percent of the plants be taller than 4 inches.

## **VI. Monitoring Studies**

The types of studies selected depend on the issues of concern, the management objectives, the vegetative type, and budget and manpower. Once established, sampling methods should not be changed without justification. Changes should be made only after an evaluation of the data shows that the existing sampling method is not providing the necessary data. All changes in sampling methods should be documented and approved by an interdisciplinary team of resource specialists.

### **A. Actual Use**

Actual use data is necessary to correlate utilization and trend data in determining stocking rates and grazing capacity. Only those permittees operating under an AMP with after-the-fact billing may be required to submit livestock actual use data. Actual use will be reported by the permittees to the Field Office within 15 days of the end of the grazing period. A copy of the Actual Use form is found in **Illustration 2**.

Where the range manager deems it necessary, alternative ways to gather or verify actual use data may be used, including counting livestock as they enter or leave the allotment or spot check counts while livestock are in each allotment.

## **B. Utilization**

Utilization data will be used to measure the degree of grazing and browsing on specific areas of rangeland by livestock and wildlife. Utilization will be expressed as a percentage of the current year's production that has been consumed or destroyed. Residual measurement (stubble height) is the amount of forage material or stubble height remaining. Utilization data and residual measurements can be used: 1) to determine when livestock should be moved within a grazing allotment, 2) to identify livestock distribution patterns, 3) to correlate changes in rangeland trend or condition with degree of utilization, and 4) to estimate proper stocking levels when combined with other monitoring data.

Utilization data should not be used alone to determine stocking rates, but should also include actual use data, climatic information, ocular reconnaissance, and other pertinent information, such as trend data, where available.

### **Collecting Utilization Data and Stubble Height Measurements**

A brief description of the concepts and techniques involved in each of the utilization study methods to be used in Glenwood Springs Field Office are discussed below. Utilization data will be collected in accordance with the Interagency Technical Reference Utilization Studies and Residual Measurements, 1734-3 and more detailed descriptions of each method are found therein.

#### **1. Transect Location**

Utilization studies should be located within key areas. The starting point of the transect should be randomly located. The bearing and distance of the transect from the starting point should either be set by compass or directed toward a permanent, highly visible natural feature.

#### **2. Observations**

Starting at the study location post, run the transect in the direction specified in the study folder. Observations are located at constant intervals along transects (generally every 5 steps unless the size of the key area or the distribution of key

species dictates otherwise). If the key species is not present at the selected interval, relocate the observation point to the nearest individual of that species within a 180 degree arc along the transect line. The next interval is measured from this relocated point.

Use pilot transects to determine the number of observation points needed. A larger number of observations tends to reduce inaccuracies in estimating utilization. As a general rule, continue until at least 20 plants of one or more key species have been recorded. If there are insufficient key plants present within the key area to make 20 observations of a single species, return to the reference post and run another transect with a different bearing. In the Comments section, note the lack of key species.

While conducting utilization transects, the observer should make notes regarding the general appearance of the range; i.e. overall vigor of vegetation, signs of concentrated use, and infestations of cheatgrass or other noxious weeds, etc.

3. Study Documentation

GPS each study site and enter the data into GIS. Plot the data onto maps (preferably 1:24,000 scale), which will be maintained in the Monitoring Files.

4. Timing

Livestock utilization should be documented generally within 5 days and no later than 10 days after the livestock have been removed from the allotment or pasture.

If herbaceous dietary overlap between livestock and big game is a concern, conduct utilization studies both before and after the period of livestock use.

5. Frequency of Studies

Utilization and residue studies may be conducted every year or as often as needed to satisfy the data requirements for evaluation of the management area. On allotments with AMPs or a grazing system, utilization should be conducted annually through one complete cycle of the grazing system, or for as long as necessary. It may be necessary to conduct utilization and residue studies annually until management objectives are achieved and maintained. After that, utilization may be conducted less frequently, or only when management actions, such as the class of livestock or season of use, changes.

6. Data Analysis

Calculate confidence intervals around the estimate of average percent utilization for the Key Species Method and calculate confidence intervals around the median height for Stubble Height measurements.

**1. Key Species Method (formerly the Modified Key Forage Plant Method)**

The Key Species Method will be the primary method for determining utilization of herbaceous cover by livestock and wildlife throughout the field office.

Utilization studies are to be read no later than two weeks after livestock are removed from the allotment or pasture. Where there are both utilization transects and trend plots in an allotment or pasture, one utilization transect will always be run in the immediate vicinity of the trend plot. This provides site-specific grazing information for use in interpreting trend data. Other utilization transects may be run in other parts of the allotment or pasture as needed.

a. Sampling Process

Utilization levels are based on an ocular estimate of the amount of forage removed by weight on individual key species within a designated key area. At specified intervals along the pace transect, select the plant of the key species nearest the toe and estimate percent utilization by weight in one of seven utilization classes; 0-5%; 6-20%, 21-40%, 41-60%, 61-80%, 81-94%, and 95-100%. See **Illustration 3** for a copy of the Key Species Method form.

b. Utilization Cages

Utilization cages are useful for comparing grazed plants to ungrazed plants and will be established in key areas whenever possible. They also should be used if differences of opinion are occurring between the data collector and range user or in heavily utilized areas for comparison purposes. At the time when utilization studies are read, observe the growth of key species inside the cage and try to calculate the height of the various grass species with different percentages of current year's growth removed.

Current year's growth of key grass species within the cage may be clipped and weighed to determine the weights of the ungrazed grasses. The utilization cage will then be moved to another location within the key area. The weights of the ungrazed species will be compared to the weights of grazed key species clipped outside the utilization cage until the observer has calibrated his ocular estimations of percent utilization by weight removed. More detailed descriptions of how to calibrate ocular estimates is explained on p. 81-82 of TR 1734-3.

**2. Residual Measurement (Stubble Height Method)**

The concept of this method is to measure the height of herbage left ungrazed at any given time. Stubble height standards and measurements are especially useful in riparian areas where adequate stubble heights on streamside areas is needed at the end of the growing season for maintenance of plant vigor and streambank protection.

a. Sampling Process

At specified intervals, measure the stubble height of the key species nearest to the toe of the foot. Measurements should be in inches or centimeters of *leaf stubble* left. Do not include measurements of inflorescences. A copy of the

Stubble Height form is shown in **Illustration 4**.

### **3. Cole Browse Method (Big Game or Sage Grouse Habitat)**

In some allotments with wildlife-livestock conflicts or some indication that browse utilization may be excessive, browse utilization transects will be run. If winter big game utilization is the primary concern, the study is to be done as early in the spring as possible and preferably, before livestock enter the allotment. If winter sheep or fall cattle utilization is the concern, the study should be done as soon after the livestock leave as possible.

The number of paces between points on the transect will be determined by the density of the browse species and will be noted on the study form. A photo should be taken from the start of the transect showing the orientation of the transect. This photo should be retaken every second time the transect is read.

Browse species should be included in the list of key species on big game winter ranges. The Cole Browse Method will be used to estimate utilization of browse species. This method provides data on age and form class, availability and hedging, estimated utilization, and growth and use indexes for key shrub species in the plant community.

Distinguishing current year's leader growth from last year's growth on sagebrush is often very difficult. The Cole Browse Method estimates the percent of available leaders that have been browsed and not the percent of growth removed. Therefore the Cole Browse Method, which estimates "percent of twigs browsed" rather than "percent of leader growth removed", is usually a more reliable estimate of utilization on sagebrush than other available methods. A minimum of 25 plants of each key browse species will be sampled. Utilization level will be an ocular estimate of the percent of twigs browsed.

#### **Collecting Data on Browse Utilization**

Utilization estimates should be made following livestock grazing and again following the season of use by big game. Estimate the percent of available leaders that have been browsed on each sample plant. Utilization is recorded in one of six classes: 0%, 1-10%, 11-40%, 41-60%, 61-90%, and 91-100% to record one of five classes of use. See Illustration 5 for a copy of the Cole Browse Method form.

#### **Timing**

Wildlife use should be conducted prior to May 15<sup>th</sup> or initiation of plant growth.

### **C. Utilization Mapping**

Mapped utilization patterns can be used to stratify a management unit and delineate key areas. Utilization mapping can also be used to determine areas of under or over-utilization to help identify needed range improvements. Use pattern mapping is also

essential for tracking the impacts of range improvements and management changes.

1. Sampling Process

The first step in conducting utilization studies is preparing a base map that shows the ecological sites or vegetation types and physical features such as fences, water, and roads. Mapping utilization patterns involves traversing the allotment to obtain a general concept of the use levels. When another use zone is observed, the boundary of the use zone is recorded on the map. Areas that do not have any of the key species should also be delineated. Unused areas suitable for grazing and areas of animal concentration should be delineated to help identify range improvements needed to change grazing use distribution.

**D. Climatic Data**

The principle objective for gathering climate data is to differentiate the influence of climatic factors on vegetative response from those due to management practices. Vegetative production and vigor varies based on precipitation received. Precipitation data should be used to adjust the current year's production and utilization results obtained.

One BLM-administered rain gauge is located along the Colorado River Road in the Horse Creek Allotment (08631). The gauge is read monthly. In addition, data will be gathered from NOAA weather stations across the Resource Area and used to estimate precipitation for each allotment in which studies are conducted.

Additional rain gauges may be established if it is determined that precipitation data from existing sources do not accurately reflect site-specific conditions.

**E. Trend Studies**

Trend studies measure changes in vegetative and ecological condition from an established baseline. Trend also indicates whether the rangeland is moving toward or away from its potential or toward or away from specific management objectives. Trend studies are the primary method of measuring the success or failure of management practices.

Trend is measured by noting changes in characteristics of vegetative communities such as composition, density, canopy and ground cover, production and frequency of the vegetation. The trend studies to be conducted in this Field Office include: 3 ft x 3 ft (or 1 m squared) photo plots, photo points, Daubenmire transects, nested frequency transects, and the Cole Browse Method. Other recognized methods may be used or added to monitor other resource concerns such as water quality but should not be done so without coordination between the resource specialists. While each method is discussed separately here, in actual practice, these methods should usually be considered in combination, so that a more accurate trend picture is obtained.

## 1. Photographs

Photographs are often very effective in illustrating resource values and conditions. Use close-up and/or general view photographs with all of the study methods. Comparing pictures of the same site taken over a period of years furnishes visual evidence of vegetation and soil changes.

### a. Photo Plots

This method involves taking a close-up photograph of a permanently marked 3 ft x 3 ft or 1 m x 1 m plot and a general view photograph depicting the study site. Angle iron stakes or rebar are driven into the ground at the lower left and upper right hand corners of the plot. Paint the stakes with brightly colored spray paint to aid in relocation.

Whenever possible, photos should be taken toward the south or southwest. This will avoid shadows across the photo plot. The photo of the plot should be taken from directly above the plot. Comparing photographs of the same site taken over a period of years will furnish visual evidence of overall vegetation and soil changes. For low-intensity monitoring, photo points could be the primary monitoring tool, but generally photo points are used to supplement other trend studies. If photo plots are the sole source of information, qualitative evaluations can be made from these photographs to identify potential problems and the further need for specific monitoring. This study is to provide a long-term photographic record, save time and manpower, and still provide a qualitative assessment of gross changes.

### 1) Establishing Photo Plots

- a) Photo plots should be located in key areas and should include at least one of the key species being studied.
- b) Iron rebar stakes or angle-iron stakes are to be set in the upper right and lower left hand corners of the plot. Photos should be taken as close as possible to the peak growth period of the key forage species being studied.
- c) The photo should be taken as close to the peak of growth of the key species as possible.
- d) A reference post should be placed within 100 ft of the plot to permanently mark the location of the plot. Record the distance and bearing from the reference point to the plot.

### 2) Documenting the Study

- a) The plot location should be recorded with a GPS unit and entered into GIS.

- b) The study location should be documented on the Study Location and Documentation Data Form (Illustration 1).
- c) Photos should be taken using a 28 mm lens and color film. Identification Labels (**Illustration 6**) should be placed next to the plot and included in the photograph.

### 3) Scheduling

Ideally photo plots should be recorded at the same time of year and at the peak of growth of the key species. For efficiency, photo plots should be recorded when trend studies are scheduled. If frequency transects are not scheduled, then the photo plot should be taken when utilization transects are read.

#### b. Photo Points (General View Photographs)

Photo points are general view photographs taken from a permanent reference point. When associated with a permanent transect, the photo point should be taken from one end of the transect. When not associated with a permanent transect, the location of the photo point should be GPSed and the photo should include a reference point in the foreground (a fence post or fenceline, etc.).

The Photo Identification Label is placed in an upright position so that it will be visible in the foreground of the photo. Photographs taken from photo points should be brought to the field to assist in relocating the photo point and to ensure that the same photograph is retaken (bearing, amount of skyline, etc.)

## 2. Nested Frequency Transects

In the 1980's and 1990's, GSFO established nested frequency transects on several of the high priority allotments. The nested frequency study method was used because it is easy to conduct and is subject to less reader bias than some of the other methods, since it involves only the ability to accurately determine ground cover, and to identify individual species and determine whether they occur in the plot or not. However, with the advent of the Colorado Standards for Public Land Health and the associated indicators for each standard, it became apparent that the nested frequency method alone does not correlate well with many of the specific indicators of standards. Other studies such as the Daubenmire or the Line Intercept method, provide more direct feedback concerning Standards 1 and 3. Therefore, when new studies are established, GSFO will utilize the Daubenmire Method with the ground cover method. Where nested frequency transects have been established previously, these will be re-read at the next scheduled evaluation period and will then be replaced with Daubenmire transects.

Nested Frequency transects will continue to be conducted only where: 1) it is determined that the Daubenmire Method will not furnish the necessary data to

determine whether management objectives or land health standards are being met, or 2) It is desirable to continue to conduct Nested Frequency transects in conjunction with Daubenmire transects to maintain continuity in data collection. Other trend study methods will be conducted only when it is determined that the Daubenmire Method will not provide the necessary data to determine if management objectives are being met.

All transects should be established in key areas. In some cases, it may be necessary to disregard existing studies that are not representative. If a study was set up in an area that does not meet the criteria for a key area, the information being collected may not be useful during an evaluation. In this case, there may be a need to reestablish the study. Written documentation for re-establishment and/or the reasons for no longer collecting data at an established study location shall be placed in the appropriate study file. The Nested Frequency form is shown in **Illustration 7**.

### **3. Daubenmire Transect**

The Daubenmire Method consists of systematically placing a 20 x 50 cm rectangular frame along a permanently marked baseline transect. General view photographs should be taken each time the transect is read. Land health indicators measured by this method are canopy cover, ground cover and species composition.

Daubenmire trend transects should be established adjacent to a 3 ft x 3 ft (1m x 1m) photo plot. This should also be an area where utilization data is being collected. If possible, the transect should be located directly south of the photo plot so that aspect photos of the plot would also depict the transect. A photo point of the transect should be taken each time the transect is read.

- a. Establishing Studies.
  - 1) Randomly locate the transect within the study area.
  - 2) Permanently locate the baseline by means of two rebar posts, usually placed 100 ft apart. (A longer transect or additional transects may be used if the variability in vegetative characteristics warrants more plots.) Stretch a 100 ft tape between the stakes as close to the ground as possible.
  - 3) Place a reference fence post within 100 feet of the transect and record the distance and bearing from the reference post to the starting point of the transect.
  - 4) GPS the starting point of the transect and enter it into GIS.
- b. Running the Transect and Recording Information
  - 1) Sampling Process

In general, 50 frames are measured along the baseline, but this number may vary depending on the variability of the site and the coefficient of

variation measured during the pilot study. The Daubenmire frames are divided into six (6) classes. The frames are placed on the right hand side of a 100-foot tape with the lower left hand corner of the frame aligned with the 2-foot mark on the tape and read at each 2-foot interval along the tape. Percent canopy coverage of each species is recorded within one of six classes: (1-5%, 5-25%, 26-50%, 51-75%, 76-95%, and 96-100%). A copy of the Daubenmire Cover Class form is found in **Illustration 8**.

Canopies extending over the quadrat are estimated even if the plants are not rooted in the quadrat. In addition, ground cover is recorded at each of the four corners of the frame using a pin flag or other finely honed point. If the point is not small enough, basal coverage will be greatly overestimated. A narrative will accompany the trend data describing the observed range condition and trend indicators.

c. **Timing of Studies**

Ideally, Daubenmire transects should be read at the peak of the growing season in rested pastures. However, for those allotments or pastures that are grazed each year during the growing season, transects should be read at the same time of year so that cover comparisons between years will reflect the same degree of grazing use.

**4. Big Game Habitat Monitoring (Browse Monitoring)**

As discussed previously in the Utilization monitoring section, big game habitat monitoring will consist of the Cole Browse Method.

This method records estimates of the age and form class of shrubs and the degree of hedging.

Form Class measures the availability of the plant for browsing and the degree of hedging. Form classes fall into one of eight categories ranging from “all available, little or no hedging” to “dead”. Age Class data reflects the establishment, survival and decadence of key browse plants. Plants are recorded as seedlings, young, mature, or decadent. See the Cole Modified Browse Form for a complete description of the age and form classes. Numerous Cole Browse Method transects have been established throughout the Field Office. The locations of these transects are plotted in GIS and are found in

**T:\gisdata\gsfo\wildlife\browse transects**. These transects will be read when other trend studies in the pasture or allotment are scheduled to be read.

**5. Riparian Habitat Monitoring**

Riparian areas are critical habitats for the majority of Colorado’s aquatic and terrestrial wildlife. Livestock are attracted to riparian areas for the water, shade,

gentle gradients and succulent vegetation found there. Often, particularly during the warmer months of the year, these riparian areas can be concentration points for livestock. Riparian studies are necessary to insure that management practices leading to proper use of the rest of the allotment are not inadvertently degrading the riparian areas.

Riparian monitoring techniques will depend on the resource objectives for the riparian area. Generally, changes in riparian vegetation attributes will be documented through the use of riparian photo points. Photo points would subjectively show the health and trend of the riparian vegetation but would yield no measurable, objective data. Any other study initiated in a riparian area will have to be tailored to meet an identified concern.

Riparian areas to be monitored will be prioritized based on the results of Riparian PFC assessments. Generally, those riparian areas rated Functioning-at-Risk or "Nonfunctioning" will receive the highest priority for monitoring. Specific objectives for management and monitoring on the highest priority riparian areas will be developed. Riparian photo points or other monitoring techniques will be established based on the specific objectives for the area.

a. Riparian Photo Plots/Points

The Riparian Photo monitoring will consist of both close-up and general view photos. One close-up photo will be taken looking directly down at a 3 ft x 3 ft or 1m x 1m photo plot permanently staked with rebar or angle iron. Standing in the same location, general view photographs will be taken in three directions, looking directly across the stream, looking upstream and looking downstream.

b. Frequency

On high-intensity allotments, riparian monitoring photos or transects will be done every 3-5 years. More frequent readings may be necessary particularly if predicted changes are occurring at an accelerated rate which may result in deterioration of identified key areas within the 5 year period.

## **6. Special Status Plants Population Monitoring**

Threatened, endangered and proposed species are protected by the Endangered Species Act. In addition, BLM national policy directs State Directors to afford protection to federal candidate and BLM Sensitive species (BLM 6840 Manual). The policy directs BLM to inventory and monitor these species, develop management plans that include specific habitat and population management objectives designed to recover the species, and ensure that BLM activities are carried out in a manner consistent with the objectives for those species.

There are currently six special status plant species known to occur within the

Glenwood Springs administrative area. The plants and their current status are listed below:

- a. *Sclerocactus glaucus* (Uinta Basin hookless cactus) – Threatened
- b. *Penstemon debilis* (Parachute penstemon) – Federal Candidate
- c. *Phacelia scopulina* var. *submutica* (Debeque phacelia) – Candidate
- d. *Astragalus debequaeus* (Debeque milkvetch) – BLM Sensitive
- e. *Mentzelia argillosa* (Southwest stickleaf) – BLM Sensitive
- f. *Penstemon harringtonii* (Harrington’s penstemon) – BLM Sensitive

The first five species are found only in the westernmost portion of the Resource Area (west of Rifle) and therefore, only management actions in those allotments west of Rifle have the potential to affect these species. *Penstemon harringtonii*, occurs in the sagebrush steppe between 6,800 feet and 9,200 feet in elevation. This species appears to be concentrated in Eagle County but outlying populations have been found south of Rifle in the Beaver Creek watershed and in the Roaring Fork watershed south of Glenwood Springs.

In 1988, an extensive inventory for *Sclerocactus glaucus* was conducted within potential habitat in the area surrounding Debeque, Colorado. This inventory expanded a previous inventory conducted in the area north and east of Debeque in 1985. All populations found were mapped and counted. In addition, data regarding age class and condition were recorded. In 1993, all populations within the Glenwood Springs Field Office were resurveyed and population size, age class and condition were recorded. In 2001, a representative sample of these populations was reinventoried.

Long-term monitoring studies have been established on two populations of *Penstemon harringtonii* in Eagle County. One study lies within the Blowout AMP Allotment (08643), the other is within the North Bellyache Allotment (08712). Macroplots were established at each study site. The macroplots were further divided into belt transects and quadrats were run at randomly selected locations along the belt transects. Within each quadrat, all the *Penstemon harringtonii* plants were counted and the coordinates of their locations were recorded. These monitoring plots were established in 1995 and will be read annually for at least ten years. This monitoring method allows the documentation of changes in population size and distribution through time. The study design, layout, and data forms are maintained by the Denver Botanic Gardens. Annual reports are sent to GSFO and are filed in the Special Status Plants folders.

There are two populations of *Penstemon debilis* within the Glenwood Springs Field Office. One of the populations has been counted over a period of years, but no formal long-term monitoring of the population or habitat has been conducted. In 2003, a complete count should be made of both populations. Other data will also be collected, such as the number of rosettes per cluster, percent of plants that

flowered or set fruit, evidence of recruitment, disease or herbivory, etc.

Representative populations of each special status plant species within the Field Office should be monitored at least every 5 years to detect changes in population trends. The monitoring techniques chosen will depend on the life history, density, and areal extent of the population of interest, and on the population management objectives. For special status species in which habitat needs are known, monitoring may include assessments of the habitat condition. If trends are declining, additional studies may be needed to determine the cause of the decline.

If livestock grazing is determined to be a significant contributing factor in the declining population size or other parameters (i.e. failure to meet Colorado Standard 4), appropriate action must be taken prior to the next grazing season as stated in 43 CFR 4180.

## **7. Vegetation Treatments**

Vegetative treatments are designed to meet specific management objectives for an area, and usually involve decreasing production of one or more species and increasing the production of more desirable species. Monitoring studies verify the success or failure of the treatment in achieving the management objective and may provide valuable lessons for future treatment plans.

### **a. Factors to Consider**

#### **1) Before and After Studies**

Ideally, studies are established prior to implementing a vegetative treatment and then are repeated for a number of years following the treatment. However, with prescribed burning it is often difficult to predict which parts of the project area will burn and with any vegetative treatment it is generally impossible to predict which parts of the proposed treatment will later be representative of the whole treatment.

#### **2) Paired Plot Studies**

The use of paired plots established both inside and outside of the treatment area to evaluate the success of treatments is subject to bias from several sources:

\* The treated area often covers all of the best soils and gradients in the immediate area. Areas not treated are often stony, steep, or have shallow soils. This makes finding an area representative of what the treatment area was like before it was treated difficult.

\* The area surrounding the treated area sometimes benefits from the treatment. Aerial seeding can spread seed into the surrounding area. A shift of grazing and browsing to the treated area can decrease utilization in the surrounding areas. Conversely, if the areas surrounding a treatment are used as loafing areas, their utilization can increase.

b. Methodology

The specific study methods used to monitor treatment areas can vary considerably with the treatment, the area to be treated, and the objectives of the treatment. In general, the best study methods would combine before/after and paired plot studies.

Using ocular reconnaissance, select an area outside of the treatment area that is similar to the present production within the proposed treatment area. The selected non-treatment area should then have a pilot study established with an intensive, site-specific method. After the treatment has reached full production, an average site on it can be selected for a comparison study plot.

The specific studies to be used will depend on the site specific conditions and the objectives.

## VII. Allotment Evaluations

The end result of any monitoring effort is a periodic evaluation of an allotment and its management objectives. Sound, believable studies data is often the only justifiable reason for changing present management. A correct and accurate interpretation of that data will heavily influence any decision for change and will often indicate possible solutions for problems identified by the data.

Allotment evaluations will consist of analyzing changes in trend over time and the reasons for these changes. These evaluations will be in a narrative and graphical form and will include data from trend analysis, utilization studies, climatic data, actual use information and field observations by BLM staff, range users, and other interested parties.

The final evaluation will determine if the management system on each allotment is achieving or making significant progress toward achieving the management objectives. If the objectives are not being met, a determination as to the validity of the objectives will be made. If the objectives are valid, changes in management based on the data gathered will be discussed.

The **Evaluation Period** for each allotment will be determined at the time the monitoring studies are established. The evaluation timeframe will vary by allotment and will depend on a number of factors including the allotment prioritization, the severity and complexity of issues involved, the period of time in which resource changes are expected to occur, the grazing permit renewal schedule, and staff time constraints. The specific studies established, the intervals at which studies will be reread and the year the allotment will be evaluated will be entered into the Monitoring Spreadsheet on the computer's shared drive at **S:\Rangeland Monitoring**. Generally, the high priority Category I and M allotments will have an evaluation every 6-8 years. Low priority Category I and M allotments will be evaluated every 8-10 years. Category C allotments will be evaluated

on an as needed basis. More frequent evaluations can be done if interim data gathering or land health assessments indicate significant problems may be occurring.

## **VIII. Range Condition Assessments (Inventories)**

The Federal Land Policy and Management Act (FLPMA) of 1976 and The Public Rangelands Improvement Act (PRIA) of 1978 require that rangelands be inventoried to compare existing range conditions against the potential for the site. This may be done by determining the similarity of the present vegetation to the potential natural community for the site or the desired plant community as established through management objectives.

In addition to monitoring, inventories will be conducted to provide current information on ecological condition relative to the Colorado Land Health Standards and ecological status relative to the site potential. Condition assessments are designed to reflect ecological condition at a single point in time and are not intended to replace monitoring of changes over time. Two types of condition assessments are proposed for the Glenwood Springs Field Office. These are Ecological Site Inventory and Land Health Assessments.

### **A. Ecological Site Inventory (ESI) TR 1734-7, Ecological Site Inventory**

ESI is the BLM standard vegetation inventory technique. The methodology is presented in Tech Reference 1734-7, Ecological Site Inventory. By comparing the species composition by weight of the present plant community with the expected composition at ecological climax, a relative rating of present condition is obtained. The information is used to help develop appropriate management objectives for an area.

Objectives: 1) To provide a quantitative basis for predicting the extent and direction of changes that can result in the plant community as a result of specific management actions; 2) To supplement trend information by confirming the direction and magnitude of change in ecological condition over time; 3) To assist the land manager in developing appropriate management objectives for an area.

Range condition will be monitored on an allotment basis. Ecological status will be determined when trend studies are established. Key areas will be reassessed only if the analysis of trend data indicates a significant change has occurred.

### **B. Land Health Assessments (TR 1734-6, Interpreting Indicators of Rangeland Health)**

#### **1. Objective**

The primary purpose of conducting formal Land Health Assessments is to

qualitatively determine whether a management unit (allotment, watershed, or other area) is currently achieving the Colorado Standards for Public Land Health and conforming to the Guidelines for Livestock Grazing.

2. Schedule

The Glenwood Springs Field Office is in the ongoing process of completing formal Land Health Assessments on all public lands within the Field Office. These assessments are done on a landscape basis to address issues and management practices at a landscape scale. The Field Office has been divided into 13 Landscape Units. Each year a formal Land Health Assessment is conducted on one of these landscape units. The assessment of any specific landscape may be conducted before, after or during the monitoring process described above.

3. Assessment Procedure

Glenwood Springs Field Office has been utilizing and will continue to utilize an Interdisciplinary Team approach. Team members should represent a cross section of skills and knowledge related to the physical and biological aspects of the resource area. Team members should also be familiar with the Colorado Standards and associated indicators. Non-BLM members representing user groups, organizations, or other interested publics are encouraged to be a part of the team.

The assessment of public land health may involve varying intensities and scales. The use of existing data, such as soil and vegetation inventory and mapping, rangeland monitoring, riparian proper functioning condition (PFC) assessments, water quality data, soil erosion data, T&E species data, and wildlife habitat and population data, is encouraged. If insufficient information exists, further data collection, including the BLM's rapid assessment procedure, and monitoring, may be necessary. In the case of a formal rapid assessment, the ID team collects and uses qualitative information to better understand and determine the landscape potential, capability, condition, and trends being influenced by current management.

a. Establishing Baseline Studies

Before conducting a formal assessment it is useful to gather data on existing conditions and trends. Where no monitoring studies exist, it may be useful to establish and read baseline transects prior to conducting the assessment to provide data on existing conditions (canopy cover, ground cover, age classes, etc). This data can be useful for comparisons with reference sites. Where formal monitoring studies already exist it may be useful to reread these studies to determine general trends. This information may be incorporated into the land health assessment.

b. Determining Potential and Capability

Each ecological site must be evaluated relative to areas of similar potential when observing the standards and indicators. For this reason, it is extremely helpful to locate "reference sites" of the same ecological site for comparison purposes. Reference areas are areas of similar geology, climate, landform, ecological site and socio-economic condition which approach the site potential or are in the range of natural variability for a functioning site.

In some areas the potential of the site has been permanently or temporarily altered by past human activity. In these circumstances, a site should be observed relative to its existing potential rather than its historic potential. This does not refer to ongoing activities affecting public land health. When socioeconomic factors outside the jurisdiction of the BLM affect the potential of a site, the basis for observing the standards and indicators is called the capability of the site. The authorized officer must determine if the standards and indicators are going to be evaluated in comparison with the natural potential or some other capability. If the authorized officer determines the need to measure the standards against a capability other than the natural potential, that capability must be described and documented.

c. Setting Goals and Objectives

Another aspect of the assessment process may involve setting goals, objectives, and desired future conditions where they do not exist. This will include the desired condition from a social/economic aspect as well as from a biological and ecological position. Where goals, objectives and desired future conditions have not been established for appropriate landscape situations, the ID team should do so in conjunction with the existing objectives established if monitoring studies have been initiated. Finding and using reference areas for comparison purposes is very useful in setting realistic goals and objectives. These areas provide clues as to site potential and health.

4. Methodology

The method used in the GSFO consists of a combination of BLM's riparian proper functioning condition assessment technique to address Standard 2, Vegetative Cover and Dominant Species estimates, a Biological and Physical Indicators form based on the Technical Reference, Interpreting Indicators of Land Health to address Standards 1 & 3, and water quality testing to address Standard 5. Where special status species populations or habitat are known to exist within the site being assessed, additional data is collected to address these species. A Rangeland Health Site Documentation Worksheet is also completed to record the location of the assessment and other relevant site features. The upland health assessment procedure is described in the Interagency Technical Reference 1734-6, Interpreting Indicators of Rangeland Health. The use of the Riparian PFC forms is fully described in BLM Tech References 1737-9, Process for Assessing Proper Functioning Condition (for lotic riparian areas) and 1737-11, Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas.

## 5. Evaluation

A number of possible outcomes can result from the assessment process. These include:

- a. Standards are being met - "Healthy". The area or allotment meets the standards and conforms to the guidelines or is making significant progress toward meeting the standards. Review the existing terms and conditions to ensure that they will provide for continued achievement of or progress towards the standards and guidelines. Continue or initiate monitoring activities that will provide assurance that the area continues to meet or make significant progress towards meeting the standards.
- b. Standards are not being met - The area is either "At Risk" or "Non-functional". The Interdisciplinary team must determine if grazing is a significant factor in failing to meet the standards. Review the best resource information available, such as quantitative data from monitoring and inventories, qualitative information, professional knowledge, and knowledge provided by public land users and others. If inadequate information is available to determine whether current livestock grazing is a significant factor in failing to meet the standards, initiate action to gather the information needed to make the determination. Identify solutions and implement appropriate actions to make progress toward achieving land health. Although 4180 Regulations require the Authorized Officer to take appropriate action to ensure significant progress towards meeting the standards, in general, funding for new range developments or vegetation treatments will focus on "At-risk" sites. These are sites where the ecological condition has not crossed an ecological threshold beyond which intensive, active management input is required to restore land health. Identify what monitoring will be done to determine progress towards achieving land health.
- c. Don't know if standards are being met - continue with existing monitoring or implement additional monitoring to focus on attributes/ indicators in question. Evaluate for trend towards or away from achieving land health.

The primary focus of future management actions and ongoing monitoring will be on "at-risk" landscapes. Healthy areas will need monitoring, albeit at a less intensive level, to ensure conditions don't deteriorate. Unhealthy areas are lower priority than At Risk areas because they generally will require a greater investment of time, money and human resources to restore to health than an At Risk area. Greatest benefits for the least cost can be expected in the At Risk category.

## 6. Determining Causes

Determine the relationship between existing land uses and the failure to meet the standards. Causes of failing to meet standards can be determined through a combination of data sources, including utilization studies (transects), grazing

enclosures, climate data, aerial photos, and other background information about the area being assessed (i.e. water diversions, recent storm events or other major disturbance factors, upland and/or upstream conditions and uses). Once the cause or causes have been determined, monitoring information would be used to plan appropriate projects, modify uses or take other necessary management actions designed to make significant progress toward meeting the standards.

## **IX. Study File Organization**

Locations of all studies will also be documented through the use of a GPS unit and the data entered into GIS (**T:\gisdata\gsfo\range\studies locations**).

Monitoring data will be kept in two six-way file folders; one for short-term monitoring studies and the other for long-term monitoring studies. The organization of studies data will be as follows:

### **File 1. Short-term Studies**

1. Allotment Information (Maps showing land status, pastures, range improvements, and studies locations and Study Location and Documentation Data Forms)
2. Use Supervision Forms
3. Actual Use Records or Certificates of Livestock Count
4. Utilization Pattern Mapping
5. Utilization forms (Key Species and Cole Browse)
6. Climate Data

### **File 2. Long-term Studies**

1. Allotment Map (showing studies locations and Ecological Sites) and Study Location and Documentation Data Forms
2. Allotment Management Plans (if no plans exist, then Allotment Management objectives and Description of authorized grazing use, # AUMS, period of use, etc.)
3. Trend Studies Forms
4. Trend Photos
5. Allotment Evaluations
6. Miscellaneous (PFC forms, etc)

**APPENDIX A**

High Intensity Allotments

Allotment Name	Allotment Number	Mgt Category	Issues/Concerns	Existing Studies
Rifle Unit				
Alkali Creek Common	08130	I	Stds 1,3,5, season of use	3 FT, 3 P,
Brush Creek Common	18012	I	Season of use, forage availability	No data
Clough-Alber	18909	I	Riparian cond, CRCT, season of use	4 P, 2 RP, 1 FT?
East Fork Common	18910	I	Riparian cond, CRCT	9 P, 5 FT,
Hogback Common	18026	I	Stds 1, 3, stocking level, livestock distribution, season	3 P, 3 FT,

			of use	
Hubbard Mesa	18903	I	Stds 1,2,3,5, season of use, stocking level	3 P, 3 FT, 8 CB
Webster Park	18902	I	Season of use, Stds 1,3, forage availability, % federal range	1 P, 1 CB,
Simpson & Nichols	18022	M	Season of use, Std 3, livestock distribution	
Eagle Unit				
Deer Pen	08616	I	Sagegrouse habitat, P/J encroachment, old age class sagebrush	2 P,
E Hardscrabble	08502	I	Riparian cond, livestock distribution	6 P, 3 RP, 1 CB,
Greenhorn	08641	I	Sagegrouse habitat, P/J encroachment, old age class sagebrush	4 P,
Luark	08672	I	Allotment bdry adj, stocking levels	1 P, 1 CB,
Piskey	08606	I	Stds, low pern grass prod, P/J encroachment, old age sage	2 P,
Spring Creek	08614	I	Allotment bdry adj, stocking levels	1 CB
Upper Cottonwood	08639	I	P/J encroachment, old age sage, season	1 P,
W Hardscrabble Com	08504	I	Riparian cond, livestock distribution,	5 P, 1 FT, 3 RP, 2 CB
Bull Gulch Com	08625	M	Season of Use, P/J encroach, old age sage, lack of water (distribution)	
Catamount Common	08619	M	Season of Use	
West Castle	08620	M	Season of use,	

			Riparian, livestock distrib	
<b>Roaring Fork/South Eagle Unit</b>				
South Canyon	08217	I	Trespass, Stocking levels and/or distrib	1 P,
Blowout AMP	08643	I	OHV use, livestock distrib	8 P, 1 FT,
Prince Creek	08341	I	Riparian, livestock distrib	3 P, 1 CB,
Vulcan AMP	08213	I	Livestock distr, utilization	2 P, IMP cover & util obj
Crown Com	08334	I	Livestock distr, utilization	P
Upper Garfield Com	08222	I	Riparian, Livestock distr, utilization	2 DT, P, 1 CB,

P = photo plot/point  
 RP = Riparian photo point  
 FT = Nested Frequency transect

CB = Cole Browse transect  
 DT = Daubenmire transect

### APPENDIX B

MONITORING SCHEDULE				
Monitoring	Study	Intensity		
		High Priority ("I")	Mid Priority (some "I" and "M")	Low Priority ("C")
Short Term Monitoring	Actual Use	Actual Use forms and/or Actual Counts; Annually	Actual Counts as needed	None
	Utilization Map	Annually, until use patterns are established	None	None
	Key Species	Annually on key areas	Every 3 years	None
	Cole Browse	Twice annually on conflict areas	Annually on conflict areas	None

	Stubble Height	Annually on riparian areas of concern	Every 3 years	None
Long Term Monitoring	Daubenmire Cover Class	Every 6 years	Every 8 years	None
	Nested Frequency	Every 6 years or once before replaced	Every 8 years or once before replaced	None
	Photo Plot	Every 6 years	Every 8 years	Every 10 years
	Photo Point	Every 6 years	Every 8 years	Every 10 years
	Riparian Photo Points	Every 4 years	Every 6 years	Every 10 years
	Stream Cross-Sections	As needed	Every 10-13 years with LHA	None
Condition	Ecological Site Inventory	As funds allow; One time landscape or allotment inventory Reread key areas as trend indicates	As funds allow; One time landscape or allotment inventory Reread key areas as trend indicates	None
	Land Health Assessment LHA	Once as baseline 10 to 13 years	Once as baseline 10 to 13 years	Once as baseline 10 to 13 years

### Study Location & Documentation Data

Study Method						Study Number		
Allotment Name & Number					Pasture			
District				Resource Area				
Ecological Site				Plant Community				
Date Established		Established by (Name)			Map Reference			
Elevation		Slope		Exposure		Aerial Photo Reference		
Township		Range		Section		1/4	1/4	1/4
Location							Scale: ____ inches equals one mile	
Key Species								
1		2		3				
Distance and bearing between reference post or reference point and the transect location stake, beginning of transect, or plot								
Distance and bearing between location stake and bearing stake								
Transect Bearing				Vertical Distance Between Ground & Aligned Tape				
Length of Transect				Plot/Frame Size				
Sampling Interval						Total Number of Samples		

Notes (Description of study location, diagram of transect/plot layout, description of photo points, etc. If more space is needed, use reverse side or another page.)

Note: Depending on the study method, fill in the blocks that apply when a study is established. This documentation enables the examiners to conduct follow-up studies in a consistent manner to provide comparable data for analysis, interpretation, and evaluation.



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#### NOTICES

The Privacy Act of 1974 and the regulations in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this permit.

**AUTHORITY:** Taylor Grazing Act, 43 U.S.C. 315, 316; Federal Land Policy and Management Act, 43 U.S.C. 1701; and Public Rangelands Improvement Act of 1978, 43 U.S.C. 1901, and 43 U.S.C. 1181d.

**PRINCIPAL PURPOSE:** Information will be used to document the actual amount of livestock grazing use on the public lands to calculate your billing, and to help evaluate the effectiveness of management actions in meeting resource management objectives.

**ROUTINE USES:** (1) This information is being collected to gather and document the actual amount of livestock grazing use on the public lands. (2) This information will be used to calculate your billing and to help evaluate the effectiveness of management actions in meeting resource management objectives. (3) Documentation for public information of the grazing use made on public lands. (4) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

**EFFECT OF NOT PROVIDING INFORMATION:** Disclosure of the information is required to obtain a benefit in accordance with Sections 3 and 15 of the Taylor Grazing Act, Section 11 of the Alaska Grazing Act, Section 12 of the Reindeer Act, and Section 302 of the Federal Land Policy and Management Act.

The Paperwork Reduction Act of 1995 requires us to inform you that:

BLM collects this information to document the purpose, need, and other information for grazing use on the public lands.

Response to this request is required to obtain a benefit.

BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 25 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0051), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Washington, D.C. 20240.

### Key Species

Study Number				Date				Examiner			
Allotment Name & Number							Pasture				
Kind and/or Class of Animal							Period of Use				
Class Interval	Int Mid (M)	Key Species			Key Species						
		Dot Count	No. By Class (C)	No. X Midmt. (C)(M)	Dot Count	No. By Class (C)	No. X Midpt. (C)(M)				
0-5%	2.5							(a) (0-5%). The key species show no evidence of grazing use or negligible use.			
6-20%	13							(b) (6-20%). The key species has the appearance of very light grazing. Plants may be topped or slightly used. Current seedstalks and young plants are little disturbed.			
21-40%	30							(c) (21-40%). The key species may be topped, skimmed, or grazed in patches. Between 60 and 80 percent of current seedstalks remain intact. Most young plants are undamaged.			
41-60%	50							(d) (41-60%). Half of the available forage (by weight) on key species appears to have been utilized. Fifteen to 25 percent of current seedstalks remain intact.			
61-80%	70							(e) (61-80%). More than half of the available forage on key species appears to have been utilized. Less than 10 percent of the current seedstalks remain. Shoots of rhizomatous grasses are missing.			
81-94%	88							(f) (81-94%). The key species appear to have been heavily utilized and there are indications of repeated use. There is no evidence of reproduction or current seedstalks.			
95-100%	97.5							(g) (95-100%). The key species appears to have been completely utilized. The remaining stubble is utilized to the soil surface.			
		Totals			Totals						
Avg. Util. = $\frac{\sum(CM)^*}{\sum C}$		_____ = _____			_____ = _____						

Notes (use other side or another page, if necessary)

\* Where C = The number of observations within each class interval (C column), M = the class interval midpoint (M column), and  $\Sigma$  = the summation symbol.

### Stubble Height

Study Number			Date		Examiner	
Allotment Name & Number				Pasture		
	1	2	3	4	5	6
Site (or)						
Species						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
Total						
Average						

*(Record averages on back of form.)*

### Stubble Height Summary

Record of Decision, Roan Plateau Approved Resource Management Plan Amendment and Final Environmental Impact Statement - Appendix D

Species	Total Stubble Height	Number of Plants	Average Stubble Height
Totals			

Notes:



PI No	Leader Length										Total Length	No of Leaders Meas.	Notes (use another page, Plan Amendment and Final Environmental Impact Statement if necessary)
	1	2	3	4	5	6	7	8	9	10			
1													
2													
3													
4													
5													
6													
7													
8													
9													
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11													
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39													
40													
41													
42													
43													
44													
45													
46													
47													
48													
49													
50													
Totals													
Total Length _____											Average Leader Length _____		=
No Leaders Meas. _____													=

**DATE** \_\_\_\_\_

**NO.** \_\_\_\_\_

**R.A.** \_\_\_\_\_

**ALLOT.** \_\_\_\_\_

**PAST.** \_\_\_\_\_





**Daubenmire Summary**

Page \_\_\_\_ of \_\_\_\_

Study Number		Date	Examiner	Allotment Name & Number		Pasture	
Study Location		Number of Quadrats					
Cover Class	Mid-Point	Species		Species		Species	
		Number	Product	Number	Product	Number	Product
1	1-5%	2.5					
2	5-25%	15					
3	26-50%	37.5					
4	51-75%	62.5					
5	76-95%	85					
6	96-100%	97.5					
Total canopy							
Number of Samples							
% canopy cover							
Species composition							
Frequency							

Aerial Photo: \_\_\_\_\_

Management Unit: \_\_\_\_\_ State: \_\_\_\_\_ Office: \_\_\_\_\_ Range/Ecol. Site Code: \_\_\_\_\_  
(Allotment or pasture)

Ecological Site Name: \_\_\_\_\_ Soil Map Unit/Component Name: \_\_\_\_\_

Observers: \_\_\_\_\_ Date: \_\_\_\_\_

Location (description): \_\_\_\_\_

T. \_\_\_\_ R. \_\_\_\_ or \_\_\_\_ N. Lat. Or UTM E \_\_\_\_ m Position by GPS? Y / N  
UTM Zone \_\_\_\_, Datum \_\_\_\_  
Sec. \_\_\_\_, \_\_\_\_ W. Long. N \_\_\_\_ m Photos taken? Y / N

Size of evaluation area: \_\_\_\_\_

Composition (Indicators 10 and 12) based on: \_\_ Annual Production, \_\_ Cover Produced During Current Year or \_\_ Biomass

Soil/site verification:

Range/Ecol. Site Descr., Soil Surv., and/or Ecol. Ref. Area:

Surface texture \_\_\_\_\_

Depth: very shallow \_\_, shallow \_\_, moderate \_\_, deep \_\_

Type and depth of diagnostic horizons:

1. \_\_\_\_\_ 3. \_\_\_\_\_

2. \_\_\_\_\_ 4. \_\_\_\_\_

Surf. Efferv.: none \_\_, v. slight \_\_, slight \_\_, strong \_\_, violent \_\_

Parent material \_\_\_\_\_ Slope \_\_\_\_% Elevation \_\_\_\_ ft.

Average annual precipitation \_\_\_\_ inches

Evaluation Area:

Surface texture \_\_\_\_\_

Depth: very shallow \_\_, shallow \_\_, moderate \_\_, deep \_\_

Type and depth of diagnostic horizons:

1. \_\_\_\_\_ 3. \_\_\_\_\_

2. \_\_\_\_\_ 4. \_\_\_\_\_

Surf. Efferv.: none \_\_, v. slight \_\_, slight \_\_, strong \_\_, violent \_\_

Topographic position \_\_\_\_\_ Aspect \_\_\_\_\_

Seasonal distribution \_\_\_\_\_

Recent weather (last 2 years) (1) drought \_\_\_\_, (2) normal \_\_\_\_, or (3) wet \_\_\_\_.

Wildlife use, livestock use (intensity and season of allotted use), and recent disturbances:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Off-site influences on evaluation area:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Criteria used to select this particular evaluation area as REPRESENTATIVE (specific info. and factors considered; degree of "representativeness")

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other remarks (continue on back if necessary)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Reference: (1) Reference Sheet: \_\_\_\_\_; Author: \_\_\_\_\_; Creation Date: \_\_\_\_\_  
or (2) Other (e.g., name and date of ecological site description; locations of ecological reference area(s)) \_\_\_\_\_



**Author(s)/participant(s):** \_\_\_\_\_

**Contact for lead author:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **MLRA:** \_\_\_\_\_ **Sub-MLRA:** \_\_\_\_\_ **Ecological Site:** \_\_\_\_\_ This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

**Composition (Indicators 10 and 12) based on:** \_\_Annual Production, \_\_Foliar Cover, \_\_Biomass

**Indicators.** For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years and natural disturbance regimes for **each** community within the reference state, when appropriate and (3) cite data. Continue descriptions on separate sheet.

1. Number and extent of rills: \_\_\_\_\_
2. Presence of water flow patterns: \_\_\_\_\_
3. Number and height of erosional pedestals or terracettes: \_\_\_\_\_
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are **not** bare ground): \_\_\_\_\_
5. Number of gullies and erosion associated with gullies: \_\_\_\_\_
6. Extent of wind scoured, blowouts and/or depositional areas: \_\_\_\_\_
7. Amount of litter movement (describe size and distance expected to travel): \_\_\_\_\_
8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values): \_\_\_\_\_
9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): \_\_\_\_\_
10. Effect of plant community composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: \_\_\_\_\_
11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): \_\_\_\_\_
12. Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify using symbols: >>, >, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and "others" on separate lines):  
 Dominants:  
 Sub-dominants:  
 Other: \_\_\_\_\_
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): \_\_\_\_\_
14. Average percent litter cover ( \_\_\_\_\_%) and depth ( \_\_\_\_\_ inches). \_\_\_\_\_
15. Expected annual production (this is TOTAL above-ground production, not just forage production):  
 \_\_\_\_\_ - \_\_\_\_\_ lbs./acre or kg/ha (choose one)
16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site.: \_\_\_\_\_
17. Perennial plant reproductive capability: \_\_\_\_\_



State \_\_\_\_\_ Office \_\_\_\_\_ Ecological Site \_\_\_\_\_ Site ID \_\_\_\_\_

Authors \_\_\_\_\_ Revision Date \_\_\_\_\_

Departure from Reference Sheet

Indicator*	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Rill formation is severe and well defined throughout most of the site.	Rill formation is moderately active and well defined throughout most of the site.	Active rill formation is slight at infrequent intervals; mostly in exposed areas.	No recent formation of rills; old rills have blunted or muted features.	Current or past formation of rills as expected for the site.
2. Water Flow Patterns _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Water flow patterns extensive and numerous; unstable with active erosion; usually connected.	Water flow patterns more numerous and extensive than expected; deposition and cut areas common; occasionally connected.	Number and length of water flow patterns nearly match what is expected for the site; erosion is minor with some instability and deposition.	Number and length of water flow patterns match what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short.	Matches what is expected for the site; minimal evidence of past or current soil deposition or erosion.
3. Pedestals and/or Terracettes _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestaled; exposed plant roots are common.	Moderate active pedestalling; terracettes common. Some rocks and plants are pedestaled with occasional exposed roots.	Slight active pedestalling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occasional terracettes present.	Active pedestalling or terracette formation is rare; some evidence of past pedestal formation, especially in water flow patterns on exposed slopes.	Current or past evidence of pedestaled plants or rocks as expected for the site. Terracettes absent or uncommon.

\* Descriptions for each indicator should be more specific than those listed in the Generic Descriptors, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet (Appendix 1).

Indicator*	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
4. Bare Ground _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Much higher than expected for the site. Bare areas are large and generally connected.	Moderate to much higher than expected for the site. Bare areas are large and occasionally connected.	Moderately higher than expected for the site. Bare areas are of moderate size and sporadically connected.	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected.	Amount and size of bare areas match that expected for the site.
5. Gullies _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active.	Moderate in number to common with indications of active erosion; vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent.	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts may be present.	Uncommon, vegetation is stabilizing the bed and slopes; no signs of active headcuts, nickpoints, or bed erosion.	Match what is expected for the site; drainages are represented as natural stable channels; vegetation common and no signs of erosion.
6. Wind Scoured, Blowout, and/or Depositional Areas _____	_____	_____	_____	_____	Reference Sheet: _____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Generic Descriptor	Extensive.	Common.	Occasionally present.	Infrequent and few.	Match what is expected for the site.

\* Descriptions for each indicator should be more specific than those listed in the Generic Descriptors, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet (Appendix 1).

Indicator*	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
7. Litter Movement (wind or water)					Reference Sheet: _____
Generic Descriptor	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.	Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.	Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions.	Slightly to moderately more than expected for the site with only small size classes of litter being displaced.	Matches that expected for the site with a fairly uniform distribution of litter.
8. Soil Surface Resistance to Erosion					Reference Sheet: _____
Generic Descriptor	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Significantly reduced in at least half of the plant canopy interspaces, or moderately reduced throughout the site.	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	Matches that expected for the site. Surface soil is stabilized by organic matter decomposition products and/or a biological crust.
9. Soil Surface Loss or Degradation					Reference Sheet: _____
Generic Descriptor	Soil surface horizon absent. Soil structure near surface is similar to, or more degraded, than that in subsurface horizons. No distinguishable difference in subsurface organic matter content.	Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss or degradation in plant interspaces with some degradation beneath plant canopies. Soil structure is degraded and soil organic matter content is significantly reduced.	Some soil loss has occurred and/or soil structure shows signs of degradation, especially in plant interspaces.	Soil surface horizon intact. Soil structure and organic matter content match that expected for site.

\* Descriptions for each indicator should be more specific than those listed in the Generic Descriptors, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet (Appendix 1).



Indicator*	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
12. Functional/ Structural Groups (F/S Groups) See Functional/ Structural Groups Worksheet	_____	_____	_____	_____	Reference Sheet: _____
Generic Descriptor	Number of F/S groups greatly reduced <b>and/or</b> Relative dominance of F/S groups has been dramatically altered <b>and/or</b> Number of species within F/S groups dramatically reduced.	Number of F/S groups reduced <b>and/or</b> One dominant group and/or one or more sub-dominate group replaced by F/S groups not expected for the site <b>and/or</b> Number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced <b>and/or</b> One or more sub-dominant F/S groups replaced by F/S groups not expected for the site <b>and/or</b> Number of species within F/S groups moderately reduced.	Number of F/S groups slightly reduced <b>and/or</b> Relative dominance of F/S groups has been modified from that expected for the site <b>and/or</b> number of species within F/S slightly reduced.	F/S groups and number of species in each group closely match that expected for the site.
13. Plant Mortality/ Decadence	_____	_____	_____	_____	Reference Sheet: _____
Generic Descriptor	Dead and/or decadent plants are common.	Dead plants and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present.	Slight plant mortality and/or decadence.	Plant mortality and decadence match that expected for the site.
14. Litter Amount	_____	_____	_____	_____	Reference Sheet: _____
Generic Descriptor	Largely absent or dominant relative to site potential and weather.	Greatly reduced or increased relative to site potential and weather.	Moderately more or less relative to site potential and weather.	Slightly more or less relative to site potential and weather.	Amount is what is expected for the site potential and weather.

\* Descriptions for each indicator should be more specific than those listed in the Generic Descriptors, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet (Appendix 1).

Indicator*	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
15. Annual Production					Reference Sheet: _____
Generic Descriptor	Less than 20% of potential production for the site based on recent weather.	20-40% of potential production for the site based on recent weather.	40-60% of potential production for the site based on recent weather.	60-80% of potential production for the site based on recent weather.	Exceeds 80% of potential production for the site based on recent weather.
16. Invasive Plants					Reference Sheet: _____
Generic Descriptor	Dominate the site.	Common throughout the site.	Scattered throughout the site.	Present primarily in disturbed areas within the site.	If present, composition of invasive species, matches that expected for the site.
17. Reproductive Capability of Perennial Plants (native or seeded)					Reference Sheet: _____
Generic Descriptor	Capability to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions	Capability to produce seed or vegetative tillers is moderately reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is slightly reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is not reduced relative to recent climatic conditions.

\* Descriptions for each indicator should be more specific than those listed in the Generic Descriptors, if possible, and refer to the criteria included in the None to Slight description, which is based on the Reference Sheet (Appendix 1).



### Standard Checklist

Name of Riparian-Wetland Area: \_\_\_\_\_

Date: \_\_\_\_\_ Segment/Reach ID: \_\_\_\_\_

Miles: \_\_\_\_\_ Acres: \_\_\_\_\_

ID Team Observers: \_\_\_\_\_

Yes	No	N/A	HYDROLOGY
			1) Floodplain above bankfull is inundated in "relatively frequent" events
			2) Where beaver dams are present they are active and stable
			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
			4) Riparian-wetland area is widening or has achieved potential extent
			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events
			10) Riparian-wetland plants exhibit high vigor
			11) Adequate riparian-wetland vegetative cover is present to protect banks and dissipate energy during high flows
			12) Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
			14) Point bars are revegetating with riparian-wetland vegetation
			15) Lateral stream movement is associated with natural sinuosity
			16) System is vertically stable
			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

(Revised 1998)





**Appendix E**  
**BLM Colorado Standards for Public Land Health**  
**Guidelines for Livestock Management**

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### F-1. Standards for Public Land Health in Colorado

Standards for Public Land Health describe conditions needed to sustain public land health and relate to all uses of the public lands. Standards are applied on a landscape scale and relate to the potential of the landscape. The Secretary of the Interior approved BLM Colorado's Standards for Public Land Health and Guidelines for Livestock Management (see F-2, below) on February 3, 1997.

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

Indicators:

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

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

Indicators:

- Vegetation is dominated by an appropriate mix of native or desirable introduced species.
- Vigorous, desirable plants are present.
- There is vegetation with diverse age class structure, appropriate vertical structure, and adequate composition, cover, and density.
- Streambank vegetation is present and is comprised of species and communities that have root systems capable of withstanding high streamflow events.
- Plant species present indicate maintenance of riparian moisture characteristics.
- Stream is in balance with the water and sediment being supplied by the watershed (e.g., no headcutting and no excessive erosion or deposition).
- Vegetation and free water indicate high water tables.
- Vegetation colonizes point bars with a range of age classes and successional stages.
- An active floodplain is present.
- Residual floodplain vegetation is available to capture and retain sediment and dissipate flood energies.

- Stream channels with size and meander pattern appropriate for the stream's position in the landscape, and parent materials.
- Woody debris contributes to the character of the stream channel morphology.

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

Indicators:

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

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

Indicators:

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

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

Indicators:

- Appropriate populations of macro invertebrates, vertebrates, and algae are present.
- Surface and ground waters only contain substances (e.g. sediment, scum, floating debris, odor, heavy metal precipitates on channel substrate) attributable to humans within the

amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado (5 CCR 1002-8).

**F-2. BLM Guidelines for Livestock Grazing Management in Colorado**

Guidelines 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. In response to public concern about management of livestock grazing on western public lands, BLM began developing new regulations for livestock grazing administration. The Secretary of the Interior approved BLM Colorado's Standards for Public Land Health (see F-1, above) and Guidelines for Livestock Management on February 3, 1997.

1. Grazing management practices promote plant health by providing for one or more of the following:
  - periodic rest or deferment from grazing during critical growth periods;
  - adequate recovery and regrowth periods;
  - opportunity for seed dissemination and seedling establishment.
2. Grazing management practices address the kind, numbers, and class of livestock; the season, duration, distribution, frequency, and intensity of grazing use; and livestock health.
3. Grazing management practices maintain sufficient residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion to assist in maintaining appropriate soil infiltration and permeability and to buffer temperature extremes. In riparian areas, vegetation dissipates energy, captures sediment, recharges ground water, and contributes to stream stability.
4. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required on land treatment efforts, emphasis will be placed on using native plant species. Seeding of non-native plant species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals/noxious weeds on the site, and composition of non-natives in the seed mix.
5. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland sites.
6. Grazing management will occur in a manner that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds.
7. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, thus minimizing habitat fragmentation.

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



## **Appendix F**

### **Resource Management Decision Stipulations for New Oil and Gas Leases and Other Land Uses and Management Actions for the Roan Plateau Resource Management Plan Amendment**



## **Appendix F**

### **Resource Management Decision Stipulations for New Oil and Gas Leases and Other Land Uses and Management Actions for the Roan Plateau Resource Management Plan Amendment**

#### **Introduction**

Oil and gas leases issued pursuant to approval and implementation of this Resource Management Plan (RMP) Amendment (RMPA) grant the lessee the right to extract the oil and gas resource on affected the Bureau of Land Management (BLM) lands within the Roan Plateau Planning Area. Section 6 of the lease document terms restricts the lease rights granted by requiring that the lessee conduct operations in a manner that minimizes adverse environmental impacts and takes reasonable measures deemed necessary by the lessor (BLM) to accomplish this intent. These prudent measures are applied through a Condition of Approval (COA) during the permit process for oil and gas development.

The BLM applies stipulations to an oil and gas lease if additional restrictions on the rights of lessees are required to protect environmental resources. Stipulations that would be applied to new oil and gas leases under the RMPA are listed and described in Section 6.2.6 of this Record of Decision (ROD) and described in Table F-1. Areas included within the various stipulations under this RMPA are shown on Figures F-1 through F-30.

The BLM policies allow for the granting of exceptions, modifications, and waivers to stipulations on oil and gas leases, as laid out in Chapter IV, Section C.3, of BLM Handbook H-1624-1 (Planning for Fluid Mineral Resources). That handbook provides the following definitions:

- **Stipulation** – A condition of lease issuance (or other land use approval) that provides protection for other resource values or land uses by establishing authority for substantial delay or site changes or the denial of operations within the terms of the lease contract;
- **Exception** – A one-time exemption from a stipulation that is determined on a case-by-case basis;
- **Modification** – A change to the provisions of a stipulation, either temporarily or for the term of the lease; and
- **Waiver** – A permanent exemption to a stipulation.

Thus, an exception suspends the restrictions of a stipulation for a specified period of time, activity, or portion of the area where applied but remains in effect relative to other periods of time, activities, or areas where applied. A modification consists of a temporary or permanent change to a stipulation, such as a change in the areas, activities, or periods of time where applied, but does not eliminate the stipulation. A waiver permanently eliminates the restrictions of a stipulation, including all areas, activities, or periods of time to which applied.

Section C.3 of Chapter IV of BLM Handbook H-1624-1 states that “circumstances for granting a waiver, exception, or modification must be documented in the...plan amendment” and that the

“plan amendment should also identify the documentation requirements for supporting a waiver, exception, or modification and any public notification associated with granting them.” Based on these considerations, and on the regulatory requirements for granting waivers and modifications found at 43 Code of Federal Regulations (CFR) 3101.1-4, this RMPA includes the following requirements for granting an exception, modification, or waiver to an oil and gas lease stipulation:

- Granting an exception, modification, or waiver to a lease stipulation shall be limited to situations in which the authorized officer determines that (1) the factors that led to its inclusion in the lease have changed sufficiently to make it no longer justified, or (2) granting of the exception, modification, or waiver as sought would not cause unacceptable impacts to the resource protected by the stipulation.
- Documentation requirements for granting an exception, modification, or waiver to a lease stipulation shall consist of written documentation by the BLM authorized officer, including, as appropriate, supporting documentation by a BLM resource specialist, representative of another resource management agency (e.g., U.S. Fish and Wildlife Service, U.S. Forest Service [USFWS], or Colorado Division of Wildlife [CDOW]), or technical consultant, upon which the authorized officer relied in making his or her determination.
- If the authorized officer determines that a modification or waiver to a lease stipulation would be substantial, or that the stipulation involves an issue of major concern to the public, a period of at least 30 days of public review shall be provided prior to granting the modification or waiver.
- Granting an exception to a lease stipulation shall not require public notice.

For the purposes of this RMPA, the stipulations and associated bases for granting exceptions, modifications, or waivers apply to all land uses and management actions for which the BLM has approval responsibility, not only to oil and gas development. Restrictions on these other lands uses or management activities would be imposed at the time of issuance of a specific permit or other approval, while stipulations for oil and gas activities are imposed at the time of lease issuance. COAs are imposed during the permitting process, consistent with lease rights previously granted. These restrictions include:

- **No Surface Occupancy (NSO)** – The NSO stipulation is intended for application only when other stipulations are deemed insufficient to achieve the level of resource protection necessary to protect the public interest. An NSO stipulation is not needed if the desired level of protection can be accomplished by relocating a proposed facility or activity within the lease area or by avoiding that activity for a specified period.

The equivalent of an NSO for land uses and activities other than oil and gas development is a NGD (No Ground Disturbance).

- **Controlled Surface Use (CSU)** – The CSU stipulation is intended for application where the BLM determines the standard lease terms and permit-level decisions are insufficient to protect the public interest, but where an NSO is deemed overly restrictive.

A CSU stipulation allows the BLM to require that a proposed facility or activity be relocated by more than 200 meters from the proposed location if necessary to achieve the desired level

of protection. A CSU is not needed if relocating the proposed facility or activity by up to 200 meters would be sufficient.

The equivalent of a CSU for land uses and activities other than oil and gas development is a SSR (Site-Specific Relocation).

- **Timing Limitation (TL)** – This stipulation limits activity during a specified period of the year. A TL stipulation is intended for application where the BLM deems that standard lease terms are insufficient to protect the public interest, but where an NSO is overly restrictive. The scope of the TL stipulation goes beyond ground-disturbing activities to encompass any source of protracted or high-intensity disturbance that could interfere with normal wildlife behavior and adversely affect habitat use. The limitation is applied annually for a specified period lasting more than 60 days.

Under the RMPA, TLs may also be applied to land uses and activities other than oil and gas development.

Note that existing stipulations under the 1999 ROD and RMPA would apply to existing leases, while new stipulations under the RMPA would apply to all new oil and gas leases. Note also that equivalent levels of protection would be applied to other land uses and management actions as a condition of their approval. Other protective measures such as special mitigation requirements could also be applied to land uses and management actions other than oil and gas. (As described above, they could be required for oil and gas as a COA during the permitting process.)

**Table F-1  
Stipulations and Standards**

Number	Stipulation	Standards
<b>No Ground Disturbance (NGD)/No Surface Disturbance (NSO)</b>		
<b>GS-NSO-ROAN-21</b> <b>NGD/NSO</b> <b>Anvil Points</b> <b>Claystone</b> <b>Cave</b>	NSO to protect 118 acres encompassing the Anvil Points Claystone Cave. No ground-disturbing activities in the area encompassing the cave opening, subsurface features, and watersheds overlying the caves.	<ol style="list-style-type: none"> <li>1. Prior to implementing any ground-disturbing activity or other project component in the area covered by this stipulation, the proponent must provide an assessment of potential impacts to this resource value. The assessment will be based on current baseline data; the type, location, duration, and intensity of potential adverse effects; and mitigation measures proposed to avoid, minimize, or offset the adverse effects.</li> <li>2. A ground-disturbing activity may be permitted only if the BLM determines that a proposed activity would not impair the cave values, supported by a demonstration of such, based on monitoring data or another method with a high degree of scientific reliability, and considering the type, amount, duration, and timing of the activity; and after consultation with CDOW regarding wildlife habitat values.</li> <li>3. During and subsequent to the ground-disturbing activities covered by this provision, ongoing monitoring data will be collected using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified; and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</li> <li>4. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</li> </ol>
<b>GS-NSO-ROAN-22</b>	NGD/NSO on slopes greater than 50 percent. No ground-disturbing activities on the 10,672 acres of	<ol style="list-style-type: none"> <li>1. No ground-disturbing activities will be granted in areas of steep slopes that also are designated as wildlife movement corridors.</li> </ol>

Number	Stipulation	Standards
<b>NGD/NSO Steep Slopes Greater Than 50 Percent</b>	slopes steeper than 50 percent.	<ol style="list-style-type: none"> <li>2. Ground-disturbing activities in areas with slopes steeper than 50 percent will not be granted for access to areas with slopes less than 50 percent.</li> <li>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards detailed in Appendices A and C, respectively.</li> </ol>
<b>GS-NSO-ROAN-23 NGD/NSO Riparian and Wetland Habitat</b>	NSO to protect approximately 136 acres of riparian or wetland vegetation. Ground-disturbing activities including oil and gas facilities, roads, pipelines, electric transmission lines, communication facilities, and other sources of surface disturbance are limited to areas beyond the outer edge of riparian or wetland vegetation.	<ol style="list-style-type: none"> <li>1. A ground-disturbing activity may be permitted only if BLM determines that (a) the activity will not cause loss of riparian vegetation or, if riparian vegetation is lost, that the loss is limited to no more than 0.1 acre, and 100 linear feet, per mile of stream; (b) any temporarily disturbed areas must be revegetated with existing or similar species, including use of containerized nursery stock rather than seeds to replace woody plants on a one-to-one basis (trees) or area-for-area basis (shrubs); (c) revegetation success will be achieved within 2 years; (d) the activity will not impair water quality, flow regime, aquatic habitat quality, and channel and bank stability; and (e) no practicable alternative is available. Resource factors include topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or enhancement of the resource values. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; in such instances approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</li> <li>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be notified promptly, and corrective measures, as</li> </ol>

Number	Stipulation	Standards
		<p>approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-24 NGD/NSO Threatened, Endangered, or Candidate Species Habitat</b></p>	<p>NSO to protect occupied and immediately adjacent potential habitat crucial for the maintenance or recovery of species listed under the Endangered Species Act (ESA) or by the State of Colorado as threatened or endangered (including proposed or candidate species under the ESA). No ground-disturbing activities within approximately 25 acres of habitat currently mapped as occupied or immediately adjacent to potential habitat.</p>	<p>1. Ground-disturbing activity may be permitted if the BLM determines, following Section 7 consultation with USFWS or with CDOW for State-listed species, that the requested activity would not impair values associated with maintenance or recovery of the species. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of the species; the type, amount, and duration of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Ground-disturbing activities must avoid a 0.25-mile buffer around Mexican spotted owl nest sites year-round, with seasonal avoidance of active nests and a 0.5-mile buffer from February 1 - August 15.</p> <p>3. If a specie affected by this stipulation is removed from the federal list, this</p>

Number	Stipulation	Standards
		<p>stipulation would not apply to that specie. Other requirements, however, will apply if the species remains classified as sensitive, or is otherwise protected.</p> <p>4. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM will be promptly notified, and corrective measures, as approved by the BLM, must be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>5. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-25 NGD/NSO Raptor Nest Sites</b></p>	<p>NSO to protect approximately 442 acres around raptor nest areas not protected by the ESA or other species-specific stipulation. No ground-disturbing activities within 0.125 mile of an active nest (i.e., containing eggs or young or being attended by adults in preparation for nesting).</p>	<p>1. Site-specific ground-disturbing activity near active raptor nest sites will not be allowed between February 1 and August 15 unless the BLM determines, following consultation with CDOW, that the requested activity would not impair values, behaviors, or habitat associated with nesting and fledging. In making this determination, the BLM will consider the following resource factors: meteorological or ecological conditions during the period requested; potential to cause the nest not to be used or lead to nest failure; abandonment of the nest; mortality of fledglings; behavioral and ecological requirements of the species; the type, amount, intensity, and duration of the surface disturbance; the relative extent of available nesting and fledgling habitat; relationship to topography and vegetation screening; current baseline data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect the species, or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or</p>

Number	Stipulation	Standards
		<p>extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-26 NGD/NSO Bald Eagle Nest, Winter Roost Sites, and Winter Range</b></p>	<p>NSO to protect approximately 446 acres of bald eagle nest, winter roost sites, and winter range. No ground-disturbing activities within 0.25 mile of designated bald eagle nesting or roosting habitat, within bald eagle winter range, or within 0.25 mile of Fravert Reservoir (subject to valid existing rights and authorizations).</p>	<p>1. Ground-disturbing activity may be permitted if the BLM determines, following Section 7 consultation with USFWS or with CDOW for State-listed species, that the requested activity would not impair values associated with maintenance or recovery of the species. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of the species; the type, amount, and duration of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-</p>

Number	Stipulation	Standards
		<p>disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-27</b>  <b>NGD/NSO</b>  <b>Wildlife</b>  <b>Security Areas</b>  <b>Below the Rim</b></p>	<p>NSO to protect important wildlife security areas below the rim, especially those for deer and elk. No ground-disturbing activities in approximately 1,958 acres that provide high-value habitats along and below the base of the Roan Cliffs.</p>	<p>1. Ground-disturbing activity may be permitted if BLM determines, following consultation with CDOW, that the requested activity would not impair values associated with maintenance or recovery of the species. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of the species; the type, amount, and duration of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated</p>

Number	Stipulation	Standards
		<p>compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-28</b>  <b>NGD/NSO</b>  <b>High-Value</b>  <b>Special Status</b>  <b>Fish Species</b>  <b>Habitat</b></p>	<p>NSO to protect Colorado River cutthroat trout from direct and indirect impacts in high-value habitat. No ground-disturbing activities in approximately 2,895 acres that would result in loss or degradation of areas designated as high-value habitat for Colorado River cutthroat trout.</p>	<p>1. Prior to implementing any ground-disturbing activity or other project component in areas designated as high-value habitat for Colorado River cutthroat trout, the proponent must provide an assessment of potential impacts if any, to this resource value. The assessment will be based on current baseline data, collected by the proponent as approved by the BLM; the type, location, duration, and intensity of potential adverse effects; and mitigation measures proposed to avoid, minimize, or offset the adverse effects.</p> <p>2. Ground-disturbing activity may be permitted if the BLM determines, following consultation with CDOW, that the requested activity would not impair values associated with maintenance of the species of interest. In making this determination, the BLM will consider the following resource factors: habitat conditions needed for feeding, spawning, survival of eggs and larvae, and refugia during high or low flow. Impairment could include siltation of substrate; changes in flow regime (e.g., localized damming); loss of overhanging vegetation canopy; reduction in bank stability; reduction in water quality; and direct mortality of trout or trout eggs;</p>

Number	Stipulation	Standards
		<p>behavioral and ecological relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species of interest or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; in such cases, approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>3. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>4. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-NSO-ROAN-29</b>  <b>NGD/NSO</b>  <b>Colorado River</b></p>	<p>NSO to protect approximately 89 acres of high-quality habitat and wildlife areas, water quality benefits, and scenic qualities along the Colorado River. No ground-disturbing activities within 0.5 mile</p>	<p>1. A specific activity may be allowed if the BLM determines that (a) the specific activity or requested change would not impair water quality, high-quality habitat, and scenic qualities after considering the vegetation, topography, existing habitat impacts, and other site-specific or activity-specific factors and the amount, type, and duration of surface disturbance proposed, and (b) any lost vegetation would be replaced with the same or similar species within 3 to 5 years.</p>

Number	Stipulation	Standards
<b>Corridor</b>	of high-water mark on either side of river.	2. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.
<b>GS-NSO-ROAN-30 NGD/NSO I-70 Viewshed (VRM Class II)</b>	NSO to protect 7,955 acres of the Visual Resource Management (VRM) Class II, Interstate (I)-70 viewshed. No ground-disturbing activities on slopes steeper than 30 percent with high visual sensitivity in the I-70 viewshed. These are lands within 5 miles of the highway, of moderate to high visual exposure, where details of vegetation and landform are readily discernible, and changes in contrast can be easily noticed by the casual observer on I-70.	<p>1. A ground-disturbing activity may be permitted if the BLM determines that the requested activity would not impair values associated with VRM Class II objectives or degrade the visual characteristics of the viewshed below Class II standards. In making this determination, the BLM will consider the following resource factors: retention of the overall landscape character on both a site-specific and cumulative basis including line, form, color, and texture; the extent to which the activity blends with characteristics of the natural landscape; the type, amount, and duration of the surface disturbance; the relative extent of viewshed characteristics and current conditions; the relationship to topography and vegetation screening; the type, location, duration, and intensity of potential adverse effects including line, form, color, and texture; mitigation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect the visual and aesthetic quality. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future</p>

Number	Stipulation	Standards
		<p>proposed activities.</p> <p>3. Short-term (reclaimed within two years of initiation) activities may be permitted if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>Site-Specific Relocation (SSR)/Controlled Surface Use (CSU)</b>		
<p><b>GS-CSU-ROAN-04</b>  <b>SSR/CSU</b>  <b>Erosive Soils and Slopes Greater Than 30 Percent</b></p>	<p>SSR/CSU for erosive soils with slopes greater than 30 percent. The BLM may require special analysis, design, construction, operation, mitigation, reclamation measures, monitoring, and/or relocation by more than 200 meters to protect the soil resource, minimize impacts to other resources, and ensure reclamation success in the 6,668 acres with highly erosive soils on slopes steeper than 30 percent.</p>	<p>1. Prior to implementing any ground-disturbing activity or other project component in the area covered by this stipulation, the proponent must provide an assessment of potential impacts to this resource value. The assessment will be based on current baseline data; the type, location, duration, and intensity of potential adverse effects; and mitigation measures proposed to avoid, minimize, or offset the adverse effects.</p> <p>The BLM will determine the level of protection available under this stipulation required to preserve soil stability and productivity and minimize adverse impacts from soil erosion. The BLM’s determination will be based on site-specific conditions and the type, amount, and duration of the associated impacts.</p> <p>2. Prior to, during, and subsequent to ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be notified promptly, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through adaptive management to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. COAs (Appendix A) will be used to mitigate soil impacts.</p> <p>4. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would</p>

Number	Stipulation	Standards
		<p>result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-CSU-ROAN-07</b> <b>SSR/CSU</b> <b>Riparian and Wetland Habitat</b></p>	<p>CSU to protect 6,097 acres of riparian and wetland habitat. The BLM may require special design, construction, operation, mitigation, or reclamation measures, and/or relocation by more than 200 meters for any ground-disturbing activities, electric transmission lines, and other sources of disturbance within 500 feet of riparian or wetland vegetation to protect the values and functions of these areas. Measures required will be based on the nature, extent, and value of the area potentially affected.</p>	<ol style="list-style-type: none"> <li>1. The BLM will consider the following resource factors: proper hydrological and ecological functioning; protection of habitat supporting fish and wildlife resources; ecological requirements to maintain the riparian area; the type, amount, and duration of the surface disturbance; the relative extent and condition of the riparian area; the relationship to topography and surrounding vegetation; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or condition of the riparian area. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</li> <li>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM will be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</li> <li>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</li> </ol>
<p><b>GS-CSU-ROAN-08</b></p>	<p>CSU to protect approximately 178 acres of peregrine falcon cliff-nesting complex. Ground-disturbing</p>	<ol style="list-style-type: none"> <li>1. A site-specific ground-disturbing activity may be allowed within the CSU only if, following consultation with CDOW, the BLM determines that the specific activity or requested change would not impair behaviors, habitat use and quality, and</li> </ol>

Number	Stipulation	Standards
<p><b>SSR/CSU Peregrine Falcon Cliff- Nesting Complex</b></p>	<p>activities may be relocated outside of the cliff-nesting complex along the Roan Cliffs.</p>	<p>reproductive success of the peregrine falcon present within the area. In making this determination, the BLM will consider the status of the nest (active or inactive); behavioral and ecological requirements of the species; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; in such cases approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM will be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-CSU- ROAN-09 SSR/CSU Wildlife Security Areas</b></p>	<p>CSU to protect important wildlife security areas above the rim, especially deer and elk. Ground-disturbing activities may be relocated more than 200 meters to</p>	<p>1. A site-specific ground-disturbing activity may be permitted if the BLM determines, following consultation with CDOW, that the requested activity will not impair values, or if relocation or modification of such activity is found to be acceptable. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of the species; the type, amount, and duration</p>

Number	Stipulation	Standards
<b>Atop the Plateau</b>	avoid approximately 6,307 acres of wildlife security areas above the rim.	<p>of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Authorized ground-disturbing activities will be reviewed annually; if needed BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>GS-CSU-ROAN-10 SSR/CSU Big Game Migration Corridors</b>	CSU to protect contiguity and extent of big game migration corridors. Ground-disturbing activities may be relocated more than 200 meters to avoid approximately 153 acres of big game migration corridors.	<p>1. A site-specific ground-disturbing activity may be permitted if BLM determines, following consultation with CDOW, that the requested activity will not impair values, or if relocation or modification of such activity is found to be acceptable. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of big game species; the type, amount, and duration of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type,</p>

Number	Stipulation	Standards
		<p>location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-CSU-ROAN-11</b>  <b>SSR/CSU</b>  <b>Sensitive Bat</b>  <b>Species</b>  <b>Habitat</b></p>	<p>CSU to protect and preserve bat habitat values of the Anvil Points Claystone Cave. Special design, construction, implementation, and/or mitigation measures including relocation of operations by more than 200 meters to protect approximately 118 acres of habitat</p>	<p>1. If the BLM, in consultation with CDOW, determines that a proposed surface-disturbing activity will unacceptably impair resource values associated with sensitive bat species habitat, the BLM will modify or relocate the proposed activity. In making this determination, the BLM will consider the following resource factors: behavioral and ecological requirements of sensitive bat species; the type, amount, and duration of the surface disturbance; the relative extent of available habitat; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation</p>

Number	Stipulation	Standards
	<p>may be required for those species listed as sensitive by the BLM.</p>	<p>measures to avoid, minimize, or offset the adverse effects; and other factors that may affect maintenance or recovery of the species or cause habitat to become unusable. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-CSU-ROAN-12</b>  <b>SSR/CSU</b>  <b>Habitat for Special Status Plant Species Populations and Significant Plant</b></p>	<p>CSU to protect approximately 9,227 acres of special status plant species or significant plant communities. The BLM may require special design, construction, operation, mitigation, or reclamation measures, and/or relocation by more than 200 meters for any ground-disturbing activities, electric transmission lines,</p>	<p>1. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values, or if relocation or modification of such activity is found to be acceptable. If the BLM determines that a proposed surface-disturbing activity will unacceptably impair resource values associated with species health and ecological function of associated habitat, the BLM will modify or relocate the proposed activity. In making this determination, the BLM will consider the status of the population; ecological requirements of the species; the type, amount, intensity, and duration of the surface disturbance; the relative extent of the population or community; the effects on both individuals of the species and populations; the relationship to topography and other vegetation; current baseline</p>

Number	Stipulation	Standards
<b>Communities</b>	and other sources of disturbance within a watershed that would disturb, alter, or interrupt the hydrologic or ecological processes that support special status plant species or significant plant communities. Special status plants include the following: DeBeque milkvetch ( <i>Astragalus debequaeus</i> ), DeBeque phacelia ( <i>Phacelia submutica</i> ), hanging garden sullivantia ( <i>Sullivantia hapemanii</i> ), Parachute penstemon ( <i>Penstemon debilis</i> ), Piceance bladderpod ( <i>Lesquerella parviflora</i> ), Roan Cliffs blazingstar ( <i>Mentzelia rhizomata</i> ), sun-loving meadowrue ( <i>Thalictrum heliophilum</i> ), and Utah fescue ( <i>Argillochloa dasyclada</i> ).	<p>data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect the species or community. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <ol style="list-style-type: none"> <li>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</li> <li>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</li> </ol>
<b>GS-CSU-ROAN-13 SSR/CSU Parachute Creek High-Value Watershed and Watershed</b>	CSU to protect 23,574 acres within the Parachute Creek high-value watershed and Watershed Management Area (WMA). Provide resource protections through actions that minimize disturbance and habitat fragmentation, and protect key habitats from disturbance.	<ol style="list-style-type: none"> <li>1. Prior to exploration and/or lease development within the Planning Area, the operator must submit a Geographic Area Proposal (GAP) identifying projected activity (including well locations, pipelines, and facilities) during the next 2 to 5 years and appropriate monitoring and methodologies to ensure compliance with the BLM-identified standards (including limitations on surface disturbance).</li> <li>2. All oil and gas operations and activities on top of the plateau will be under the control of a single operator; the BLM will directly control and manage the timing, location, and type of all operations by that single operator in accordance with the</li> </ol>

Number	Stipulation	Standards
<p><b>Management Area (WMA)</b></p>		<p>following decisions:</p> <p>2.1 Oil and gas development activities (well pads and facilities) will be restricted to six specific development areas along ridge tops on slopes less than 20 percent (see Map 4). Access routes and pipelines will be allowed on slopes less than 50 percent. The least percent slope will be used to the extent practicable.</p> <p>2.2 Operations, excluding exploration activities, will be staged and sequenced over time from one geographic area to the next with each area being substantially developed prior to moving to the next.</p> <p>2.3 Surface disturbance associated with development and production activities will be allowed on only one of six development areas at a time; exploratory wells may be drilled in other areas in a nonsequential area-by-area manner sufficient to plan future drilling operations. Activities will be subject to the disturbance limitations identified in Section 2.4. Production (the flow of gas) will be allowed from multiple areas at any one time. Re-entry into existing wells or drilling of new wells will be subject to phasing and sequencing by area. In order to progress from one geographic area to the next, the lessee must first demonstrate and document compliance with the standards associated with the various stipulations and requirements of this plan.</p> <p>2.4 Total unreclaimed surface disturbance because of exploration, development, and production activities will be limited to 350 acres at any given time with the exceptions as provided below in Section 2.4.2. For purposes of this stipulation, areas will be considered reclaimed only if they meet the requirements of the five-year reclamation standards outlined in Appendix C.</p> <p>2.4.1 Unreclaimed surface disturbance associated with construction of the following would accrue toward the 1-percent limit:</p> <p>2.4.1.1 Disturbance associated with well pads above a threshold of 1 acre per pad;</p> <p>2.4.1.2 Pipelines, whether for oil, gas, or water;</p> <p>2.4.1.3 Compressors, dehydration units, storage tanks, maintenance buildings, and other surface facilities;</p>

Number	Stipulation	Standards
		<p>2.4.1.4. Borrow ditches, water diversion structures, and cut/fill slopes on any route used for oil and gas access; and</p> <p>2.4.1.5. Construction of new routes and realignment, widening, or other improvement of existing routes used for oil and gas access.</p> <p>2.4.2 Unreclaimed surface disturbance associated with the following would not accrue toward the 1-percent limit:</p> <p>2.4.2.1. The existing driving surface (or improvements to the driving surface) on existing routes designated as open (not to exceed a total of 86 miles atop the plateau);</p> <p>2.4.2.2. The existing driving surface (or improvements to the driving surface) on existing routes to be designated as administrative use only (not to exceed a total of 52 miles atop the plateau); and</p> <p>2.4.2.3. Up to one acre per well pad to accommodate unavoidable long-term disturbance associated with production activities at operating wells.</p> <p>2.5 Five-year interim reclamation standards must be met on 90 percent or more of disturbed lands within any given development area, as determined by the BLM, prior to development operations being allowed in another development area. For purposes of this stipulation, areas will be considered reclaimed only if they meet the requirements of the five-year reclamation standards outlined in Appendix C.</p> <p>2.6 Drilling pads will be a minimum of approximately 2,640 feet apart, and development and production facilities will be clustered and designed to minimize surface impacts. Where practicable, centralize pads for frac material storage.</p> <p>2.7 Open and administrative motorized routes will be limited to approximately 138 miles.</p> <p>2.8 Exceptions will be allowed only where necessary to reduce impacts, such as using a longer route to avoid a sensitive resource or reduce visual impacts and direct habitat loss.</p> <p>2.9 Innovative reclamation and performance-based monitoring standards will be implemented.</p>

Number	Stipulation	Standards
		<p>2.10 Roads and natural gas production facilities, pipelines, and staging areas along roadways, will be consolidated to minimize disturbance and associated disruption of wildlife habitat.</p> <p>2.10.1 To the fullest extent practicable, the use of pipelines and other methods to transport drilling and produced water, as well as fracing and other fluids will be incorporated.</p> <p>2.10.2 Where practicable, pipelines to remove condensate and gas will be utilized.</p> <p>2.10.3 Specific roadways and consolidation locations will be approved by the BLM during the GAP process.</p> <p>2.11 Before any on-the-ground lease operations are considered for approval by the BLM on top of the plateau, lessees will reach formal agreement on one operator to conduct all operations on behalf of all the lessees. All lessees/leases will join a Federal Unitization Agreement, approved by the BLM. The Unitization Agreement will be noncontracting. The agreement will allow the BLM to directly control and manage the timing, location, and type of all operations occurring on the entire top of the plateau. In effect, all of the leases will act administratively as a single lease; the BLM will work with just one operator for the life of all oil and gas operations occurring on top of the plateau. The Federal Unitization Agreement will (among other things) identify the agreed-upon single operator, and provisions on how to allocate the benefits of gas and/or production to all of the leases.</p> <p>3. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values associated with the WMA, or relocation or modification of such activity is found to be acceptable. If the BLM determines that a proposed surface-disturbing activity will unacceptably impair resource values, the BLM will modify or relocate the proposed activity. The BLM will consider the following resource factors: protection of ecological, hydrological, and habitat functions and resources; the type, amount, and duration of the surface disturbance; relationship to naturally occurring conditions; topography; type, location, duration, and intensity of potential adverse effects; mitigation measures to</p>

Number	Stipulation	Standards
		<p>avoid, minimize, or offset any adverse effects; and other factors that may affect the paleontological resource. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity will provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>The BLM will determine what level of protection available under this stipulation is required to protect Colorado River cutthroat trout and habitat, rare and/or significant natural plant communities, and municipal water supply and quality. The BLM’s determination would be based on site-specific conditions and the type, amount, and duration of the associated impacts.</p> <p>4. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. This monitoring may specifically include but not be limited to monitoring of surface and groundwater. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM will be notified promptly, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through adaptive management to refine the project components and associated mitigation measures to be applied to future proposed activities.</p> <p>5. Short-term (reclaimed within two years of initiation) activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>GS-CSU-ROAN-14</b>	CSU to protect approximately 20,690 acres in VRM Class II areas. The BLM may require special	1. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values associated with VRM Class II objectives, or if relocation or modification of such activity is found to be acceptable.

Number	Stipulation	Standards
<p><b>SSR/CSU VRM Class II Areas Below the Rim</b></p>	<p>design, construction, operation, mitigation, or reclamation measures, or relocation by more than 200 meters in VRM Class II areas below the rim to retain the existing landscape character and allow only limited changes.</p>	<p>In making this determination, the BLM will consider the following resource factors: retention of the overall landscape character on both a site-specific and cumulative basis including line, form, color, and texture; the extent to which the activity blends with characteristics of the natural landscape; the type, amount, and duration of the surface disturbance; the relative extent of viewshed characteristics and current conditions; the relationship to topography and vegetation screening; the type, location, duration, and intensity of potential adverse effects including line, form, color, and texture; mitigation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect the visual and aesthetic quality. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually or as required by the BLM. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project component.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<p><b>GS-CSU- ROAN-15 SSR/CSU VRM Class III</b></p>	<p>CSU to protect 21,654 acres of VRM Class III areas on top of the plateau. The BLM may require</p>	<p>1. 1. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values associated with VRM Class III objectives, or if relocation or modification of such activity is found to be acceptable. In making this determination, the BLM will consider the following resource factors:</p>

Number	Stipulation	Standards
<b>Atop the Plateau</b>	special design, construction, operation, mitigation, or reclamation measures, or relocation by more than 200 meters in VRM Class III areas.	<p>retention of the overall landscape character on both a site-specific and cumulative basis including line, form, color, and texture; the extent to which the activity blends with characteristics of the natural landscape; the type, amount, and duration of the surface disturbance; the relative extent of viewshed characteristics and current conditions; the relationship to topography and vegetation screening; the type, location, duration, and intensity of potential adverse effects including line, form, color, and texture; mitigation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect the visual and aesthetic quality. Authorized ground-disturbing activities will be reviewed annually; if needed BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project component.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>GS-CSU-ROAN-16 SSR/CSU Hubbard Mesa OHV Riding</b>	CSU to protect recreation opportunities and settings in the Hubbard Mesa Off-Highway Vehicle (OHV) Riding Area 2,460-acre Special Recreation	<p>1. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values with OHV opportunities within the Hubbard Mesa area, or if relocation or modification of such activity is found to be acceptable. In making this determination, the BLM will consider the following resource factors: existing OHV use; existing OHV riding opportunities; anticipated</p>

Number	Stipulation	Standards
<b>Area</b>	Management Area (SRMA). The BLM may require special design, construction, operation, mitigation, and reclamation measures, including relocation by more than 200 meters.	<p>future use; management of OHV use; type, amount, and duration of the surface disturbance; the relative extent of OHV use and current conditions; the relationship to topography and vegetation screening; the type, location, duration, and intensity of potential adverse effects; mitigation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect OHV riding opportunities. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p> <p>3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>GS-CSU-ROAN-17 SSR/CSU Wild and Scenic River Eligibility</b>	CSU to protect 64 stream miles and associated buffers on 1,117 acres in portions of the East Fork Parachute Creek and Trapper/Northwater Creek drainages. No ground-disturbing activities would be allowed within 0.25 mile of any	<p>1. A site-specific ground-disturbing activity may be permitted if the BLM determines that the requested activity will not impair values associated with WSR designation, or if relocation or modification of such activity is found to be acceptable. In making this determination, the BLM will consider the following resource factors: type and location of outstandingly remarkable values (ORVs); the type, amount, and duration of the surface disturbance; the relative extent of ORVs; the relationship to topography and vegetation screening; current baseline data; the type, location, duration, and</p>

Number	Stipulation	Standards
<b>Corridor</b>	stream segment(s) determined to meet criteria for eligibility for designation as a Wild and Scenic River (WSR).	<p>intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect ORVs, or that may affect the outcome of a suitability study. Authorized ground-disturbing activities will be reviewed annually; if needed the BLM will adjust authorizations in order to meet resource objectives. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.</p>
<b>GS-CSU-ROAN-18 SSR/CSU Sharrard Park Paleontological Resources</b>	CSU to protect 749 acres of the Sharrard Park paleontological resource. The BLM may require special survey, design, construction, operation, and reclamation measures, or relocation by more than 200 meters in identified portions of Wasatch Formation outcrops in Sharrard Park. Prior to any ground-disturbing activity, the operator must have the paleontological resources surveyed within 200 feet of the proposed disturbance by a BLM-approved paleontologist. Other special measures include requirements that (a) on-site personnel are informed of the potential for fossils, (b) the	<p>1. Prior to implementing any ground-disturbing activity or other project component in the area covered by this stipulation, the proponent must provide an assessment of potential impacts to this resource value. The assessment will be based on current baseline data; the type, location, duration, and intensity of potential adverse effects; and mitigation measures proposed to avoid, minimize, or offset the adverse effects. The BLM will determine the level of protection available under this stipulation required to protect, preserve, and/or recover the fossil resources at specific sites or for specific activities within this area. The BLM determination will be based on site-specific conditions and the type, amount, and duration of the associated impacts.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be notified promptly, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through adaptive management to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p>

Number	Stipulation	Standards
	proponent will notify the BLM if any fossils are found, and (c) activities do not disturb fossils in any way.	3. Ground-disturbing activities may be permitted without relocation by more than 200 meters if they will result in a limited surface disturbance area from which it can be demonstrated that no adverse impacts to the specifically protected resource would result. In situations where such a ground-disturbing activity is permitted, the activity would be subject to additional COAs and reclamation standards, criteria, plans, and practices detailed in Appendices A and C, respectively.
<b>Timing Limitation (TL)</b>		
<b>GS-TL-ROAN-13</b> <b>TL</b> <b>Big Game Winter Range</b>	TL to protect and maintain physical and biological components important to deer and elk winter range (approximately 27,753 acres) and the obligate species, both on federal lands and across the landscape as a whole, as opportunities present. This includes reducing or eliminating stress-induced impacts to deer and elk associated with human activity during critical winter months when animals are already stressed by environmental factors and concentrated on limited winter range. Surface disturbance and human activities that lessen the quality of the deer and elk winter range will not be allowed from December 1 to April 30. Ongoing drilling and other activities and operations will be designed and implemented such that the well bore is adequately secured and that all drilling and surface-disturbing	<ol style="list-style-type: none"> <li>1. Site-specific ground-disturbing activity in big game winter range may be allowed between December 1 and April 30 if the BLM determines, following consultation with CDOW, that the requested activity would not impair values associated with the quantity and quality of the winter range for the species of interest. In making this determination, the BLM will consider the following resource factors: minimization of the footprint of activities; fragmentation; impacts to winter range across the Planning Area as a whole; effectiveness of voluntary off-site mitigation of habitat with respect to quantity, quality, and duration of both the surface-disturbing activity and mitigation; the relative extent of available winter range; relationship to topography and vegetation screening; current baseline data; the type, location, duration, and intensity of potential adverse effects; mitigation and conservation measures to avoid, minimize, or offset the adverse effects; and other factors that may affect the winter range or cause winter range to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; in such cases approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</li> <li>2. The big game winter range TL may not apply, and the restriction may be considered to be met, if the BLM determines, following consultation with CDOW, that animals are not using the habitat, are not likely to use the habitat in a particular season, and that activities will not lessen overall habitat quality in future years.</li> <li>3. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted</li> </ol>

Number	Stipulation	Standards
	<p>operations cease by December 1 in important and critical deer and elk winter habitats. In the event of unforeseeable and unplanned events, extensions not exceeding two weeks in duration may be authorized to ensure safe shutdown of drilling operations, and conservation of mineral resources.</p> <p>Human activities including visitations for production activities and well monitoring from December 1 to April 30 will be designed and carried out to minimize impacts. This includes well monitoring through telemetry, scheduling of all nonemergency well maintenance activities outside the December 1 to April 30 timeframe, conducting unavoidable and necessary on-the-ground visits between the hours of 10:00 a.m. and 3:00 p.m., and minimizing on-the-ground visitations.</p>	<p>scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities</p>
<p><b>GS-TL-ROAN-14</b> <b>TL</b> <b>Raptor Nest Sites</b></p>	<p>TL to protect approximately 1,770 acres of nesting and fledging habitat for raptors not protected by species-specific measures. This includes owls, northern harriers, accipiters, buteos, golden eagle, osprey, and falcons except the American kestrel. Within a 0.25-mile radius of a nest,</p>	<p>1. Site-specific ground-disturbing activity near active raptor nest sites may be allowed between February 1 and August 15 if the BLM determines, following consultation with CDOW, that the requested activity would not impair values, behaviors, or habitat associated with nesting and fledging. In making this determination, the BLM will consider the following resource factors: meteorological or ecological conditions during the period requested; potential to cause the nest not to be used or lead to nest failure, abandonment of the nest, or mortality of fledglings; behavioral and ecological requirements of the species; the type, amount, intensity, and duration of the surface</p>

Number	Stipulation	Standards
	<p>no activities or other sources of disturbance with the potential to cause the nest not to be used or lead to nest failure, abandonment, or mortality of fledglings will be allowed. Stipulations will be applied annually from February 1 through August 15.</p>	<p>disturbance; the relative extent of available nesting and fledgling habitat; relationship to topography and vegetation screening; current baseline data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p>
<p><b>GS-TL-ROAN-15</b> <b>TL</b> <b>Bald Eagle Nest or Winter Roost Sites</b></p>	<p>TL to protect approximately 474 acres of nesting, fledging, and winter roost habitat of the bald eagle. Within a 0.5-mile radius of a nest, no activities or other sources of disturbance that could cause the nest not to be used or lead to nest abandonment, failure, or mortality of fledglings will be allowed. Stipulations will be applied annually from November 15 through June 15.</p>	<p>1. Site-specific ground-disturbing activity at bald eagle nests or winter roost sites may be allowed between November 15 and June 15 if the BLM determines, following Section 7 consultation with the USFWS, that the requested activity would not impair values associated with maintenance or recovery of the species; behaviors associated with winter roosting, nesting, and fledging; or fledging habitat. In making this determination, the BLM will consider the following resource factors: meteorological or ecological conditions during the period requested; the status of the nest (active or inactive); the type, intensity, and duration of disturbance; measures required by the USFWS; potential for the activity to cause the roost or nest not to be used; potential for nest failure, abandonment of the roost or nest, or mortality of fledglings; behavioral and ecological requirements of the species; the type, amount, intensity, and duration of the surface disturbance; the relative extent of available nesting and fledgling habitat; relationship to topography and vegetation screening; current</p>

Number	Stipulation	Standards
		<p>baseline data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect roosting or nesting success. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. This TL will be applied to wells that are drilled directionally from private surface into Federal minerals for the Federal lease being developed. Where the Federal lease does not include a relevant TL stipulation (and a nest or roost site falls within the identified buffer), BLM would not approve any permits for Federal wells or grant a right-of-way across BLM land unless the proponent has agreed to a voluntary TL (allowing a determination of “No Effect”) or until Section 7 consultation on proposed action has been completed and any associated terms and conditions agreed to by the proponent.</p> <p>3. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p>
<p><b>GS-TL-ROAN-16</b> <b>TL</b> <b>Peregrine Falcon Cliff-Nesting</b></p>	<p>TL to protect approximately 572 acres of nesting and fledging habitat of the State-listed threatened peregrine falcon. Within a 0.5-mile radius of the cliff-nesting complex on the Roan Cliffs, no activities or other sources of disturbance that</p>	<p>1. Site-specific ground-disturbing activity at the peregrine falcon cliff-nesting complex may be allowed between March 15 and July 31 if the BLM determines, following consultation with CDOW, that the requested activity would not impair values, behaviors, or habitat associated with nesting and fledging. In making this determination, the BLM will consider the following resource factors: meteorological or ecological conditions during the period requested; the status of the nest (active or inactive); potential to cause the nest not to be used or lead to nest failure,</p>

Number	Stipulation	Standards
<b>Complex</b>	could cause abandonment of a nest or established territory will be allowed. Stipulations will be applied annually, from March 15 through July 31.	<p>abandonment of the nest, or mortality of fledglings; behavioral and ecological requirements of the species; the type, amount, intensity, and duration of the surface disturbance; the relative extent of available nesting and fledgling habitat; relationship to topography and vegetation screening; current baseline data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p>
<b>GS-TL-ROAN-17 TL Waterfowl and Shorebird Nesting Areas</b>	TL to protect approximately 1,010 acres of nesting and brood-rearing habitats at the Fravert Reservoir Watchable Wildlife Area. No ground-disturbing activities, or other sources of disturbance, from April 15 through July 15, or until all young have hatched and dispersed from the production area, or that could cause waterfowl and	<p>1. Site-specific ground-disturbing activity at the Fravert Reservoir Watchable Wildlife Area may be allowed between April 15 and July 15 if the BLM determines, following consultation with CDOW, that the requested activity would not impair values, behaviors, or habitat associated with nesting and fledging. In making this determination, the BLM will consider the following resource factors: meteorological or ecological conditions during the period requested; the status of the nest (active or inactive); hatching and dispersal of young from the production or nesting area; potential to cause the nest not to be used or lead to nest failure, abandonment of the nest, or mortality of fledglings; behavioral and ecological requirements of the species; the type, amount, intensity, and duration of the surface disturbance; the relative extent</p>

Number	Stipulation	Standards
	<p>shorebirds not to nest or lead to nest failure or abandonment within 0.25-mile of the nesting and production area of Fravert Reservoir will be allowed.</p>	<p>of available nesting and fledgling habitat; relationship to topography and vegetation screening; current baseline data; the type, location, intensity, and duration of potential adverse effects; mitigation measures proposed to avoid, minimize, or offset the adverse effects; and other factors that may affect the species or cause habitat to become unusable. Approval of ground-disturbing activities granted in any given year will not constitute approval for subsequent years; approval for such activities must be granted (or extended) annually by the BLM. The proponent of any ground-disturbing activity must provide an assessment with their proposal that (a) documents anticipated compliance or nonimpairment of resource values protected by this stipulation, and (b) considers the above-mentioned resource factors.</p> <p>2. Prior to, during, and subsequent to the ground-disturbing activities covered by this provision, monitoring data will be collected by the proponent using widely accepted scientific methods as approved by and reported to the BLM not less often than annually. If unanticipated types or levels of adverse effects are noted during monitoring, the BLM must be promptly notified, and corrective measures, as approved by the BLM, will be identified and implemented by the proponent. This information will be used through an adaptive management process to refine the project components and associated mitigation measures that will be applied to future proposed activities.</p>
<b>Lease Notice (LN)</b>		
<p><b>GS-LN-ROAN-14 Geographic Area Proposal (GAP)</b></p>	<p>A GAP will be required of oil and gas operators prior to exploration or development activities.</p>	<p>1. For all activities in each of the geographic areas atop the plateau (see Map 1), and in areas being actively explored or developed below the rim, the operator must submit a GAP. The GAP must include all anticipated activities for a minimum of 2 years following the date of submission, for all operator-controlled federal leases or units. A longer term is encouraged and would be allowed under this standard to expedite the permitting process, provide for efficiencies as provided for in Standard 6 of this stipulation, and reduce costs to the operator for GAP preparation.</p> <p>2. The boundaries of the geographic areas to be addressed atop the plateau, as identified by the BLM (see Map 1), may be modified with approval from the BLM. The boundaries of all other geographic areas must be proposed by the operator and must be approved by the BLM.</p>

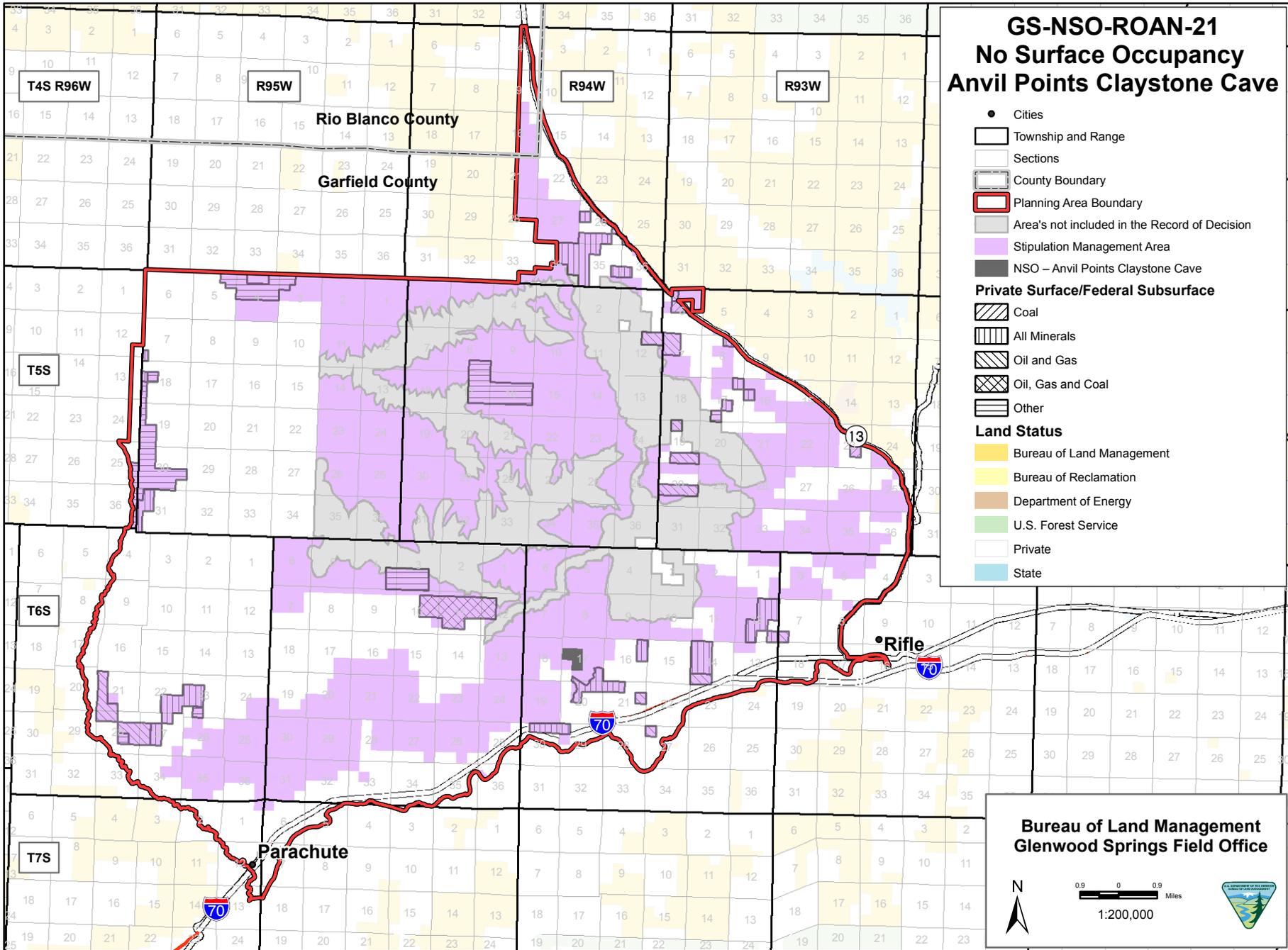
Number	Stipulation	Standards
		<ol style="list-style-type: none"> <li>3. The GAP must identify all anticipated exploration, development, and production activities on federal leases within the area, identifying well locations, roads, pipelines, and any other exploration or production disturbance or facilities.</li> <li>4. The GAP must include all specific measures needed to comply with standards associated with all stipulations and any other decisions of this RMPA.</li> <li>5. The GAP must include an analysis of site-specific and cumulative environmental effects and mitigation. The GAP must also address reasonable alternatives, and other information sufficient to satisfy the requirements of the National Environmental Policy Act (NEPA). The extent of the analysis will be dependent on the extent of surface ownership, extent of lease holdings, topography, access, resource concerns, and the ability to tier to the Roan Plateau Environmental Impact Statement (EIS), consistent with 40 CFR § 1500. The extent of the analysis needed to comply with 40 CFR § 1500 may appropriately vary when considering individual wells or small groups of exploratory wells or for directional wells drilled on previously developed wellpads.</li> <li>6. To the extent practicable, the activities identified in the GAP must be presented in such a manner as to support the orderly and efficient exploration and development of mineral resources in an environmentally responsible manner.</li> <li>7. GAPS may be modified by operators as needed, and shall be reviewed by the operators not less than annually. As appropriate, either a statement documenting that the GAP is current or a modified GAP shall be provided to the BLM.</li> </ol>
<p><b>GS-LN-ROAN-34 ESA Consultation</b></p>	<p>Endangered Species Act, Section 7 Consultation Stipulation</p>	<ol style="list-style-type: none"> <li>1. The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect</li> </ol>

<b>Number</b>	<b>Stipulation</b>	<b>Standards</b>
		any such species or critical habitat until it completes its obligations under applicable requirements of the ESA as amended, 16 USC § 1531 <u>et seq.</u> , including completion of any required procedure for conference or consultation.

## Appendix F Figures

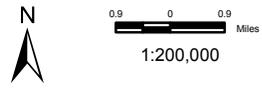
- GS-NSO-ROAN-21** No Surface Occupancy – Anvil Points Claystone Cave  
**GS-NSO-ROAN-22** No Surface Occupancy – Steep Slopes Greater Than 50 Percent  
**GS-NSO-ROAN-23** No Surface Occupancy – Riparian and Wetland Habitat  
**GS-NSO-ROAN-24** No Surface Occupancy – Threatened, Endangered, or Candidate Species  
*No Surface Occupancy – Parachute Penstemon (Candidate Plant)*  
*No Surface Occupancy – Debeque Phacelia (Candidate Plant)*  
**GS-NSO-ROAN-25** No Surface Occupancy – Raptor Nest Sites  
**GS-NSO-ROAN-26** No Surface Occupancy – Bald Eagle Nest, Winter Roost Sites, and Winter Range  
**GS-NSO-ROAN-27** No Surface Occupancy – Wildlife Security Areas (Below the Rim)  
**GS-NSO-ROAN-28** No Surface Occupancy – High-Value special Status Fish Species Habitat  
**GS-NSO-ROAN-29** No Surface Occupancy – Colorado River Corridor  
**GS-NSO-ROAN-30** No Surface Occupancy – I-70 Viewshed (VRM Class II)  
**GS-CSU-ROAN-04** Controlled Surface Use – Erosive Soils Slopes Greater Than 30 Percent  
**GS-CSU-ROAN-07** Controlled Surface Use – Riparian and Wetland Habitat  
**GS-CSU-ROAN-08** Controlled Surface Use – Peregrine Falcon Cliff-Nesting Complex  
**GS-CSU-ROAN-09** Controlled Surface Use – Wildlife Security Areas Atop the Plateau  
**GS-CSU-ROAN-10** Controlled Surface Use – Big Game Migration Corridors  
**GS-CSU-ROAN-11** Controlled Surface Use – Sensitive Bat Species Habitat  
**GS-CSU-ROAN-12** Controlled Surface Use – Sensitive Plant Species and Significant Plant Communities  
**GS-CSU-ROAN-13** Controlled Surface Use – Parachute Creek High-Value Watershed Management Area  
**GS-CSU-ROAN-14** Controlled Surface Use – Visual Resource Management Class II Areas (Below the Rim)  
**GS-CSU-ROAN-15** Controlled Surface Use – Visual Resource Management Class III Areas (Atop the Plateau)  
**GS-CSU-ROAN-16** Controlled Surface Use – Hubbard Mesa OHV Riding Area  
**GS-CSU-ROAN-17** Controlled Surface Use – Wild and Scenic River Eligibility Corridor  
**GS-CSU-ROAN 18** Controlled Surface Use – Sharrard Park Paleontological Resources  
**GS-TL-ROAN-13** Timing Limitation – Big Game Winter Range  
**GS-TL-ROAN-14** Timing Limitation – Raptor Nest Sites  
**GS-TL-ROAN-15** Timing Limitation – Bald Eagle Nest and Winter Roost Sites  
**GS-TL-ROAN-16** Timing Limitation – Peregrine Falcon Cliff-Nesting Complex  
**GS-TL-ROAN-17** Timing Limitation – Waterfowl and Shorebird Nesting Areas

# GS-NSO-ROAN-21 No Surface Occupancy Anvil Points Claystone Cave



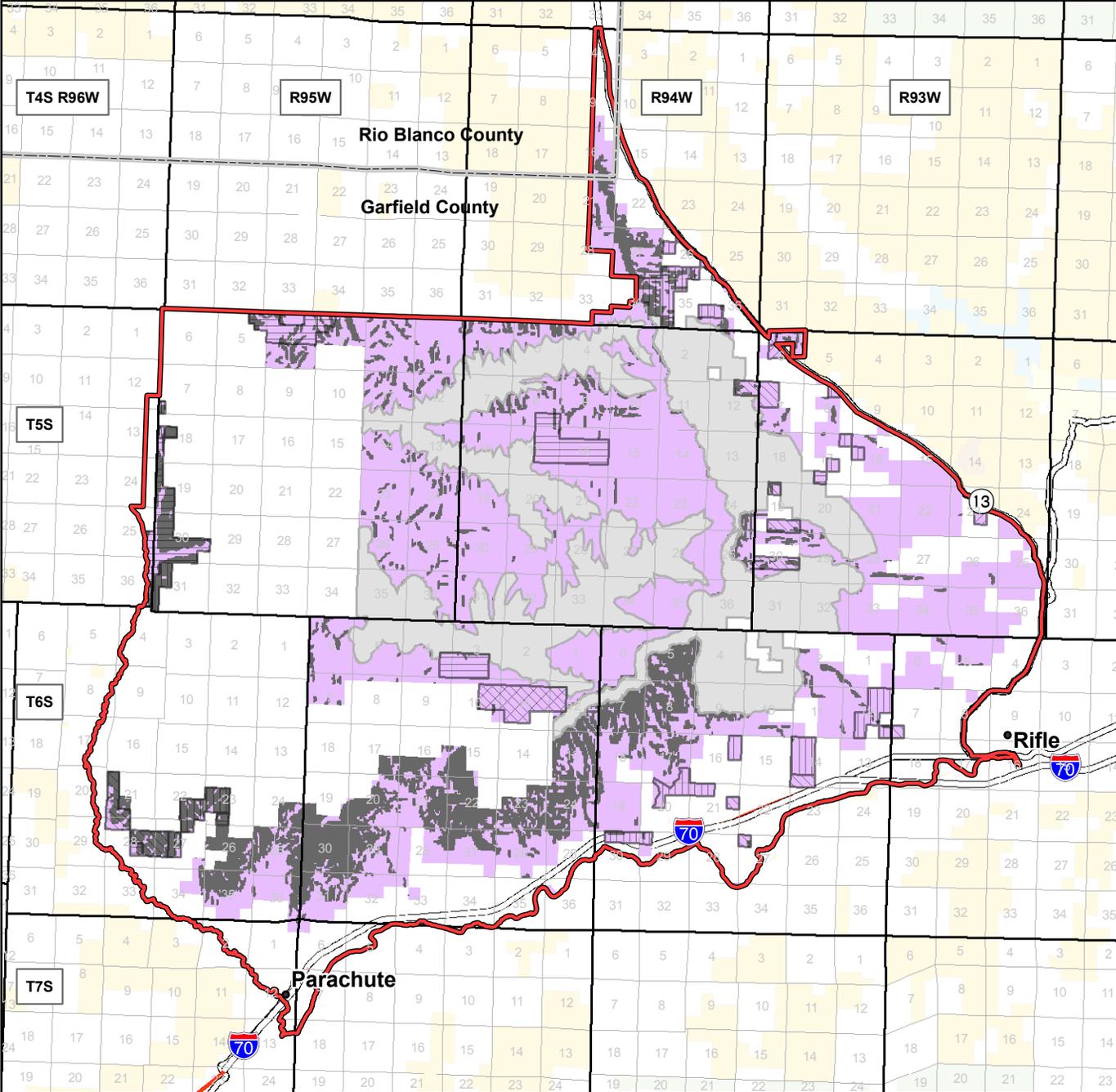
- Cities
- Township and Range
- Sections
- County Boundary
- Planning Area Boundary
- Area's not included in the Record of Decision
- Stipulation Management Area
- NSO – Anvil Points Claystone Cave
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State

**Bureau of Land Management  
Glenwood Springs Field Office**



# GS-NSO-ROAN-22 No Surface Occupancy Steep Slopes (Greater Than 50 Percent)

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ NSO – Steep Slopes (Greater Than 50 Percent)
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State



**Bureau of Land Management  
Glenwood Springs Field Office**

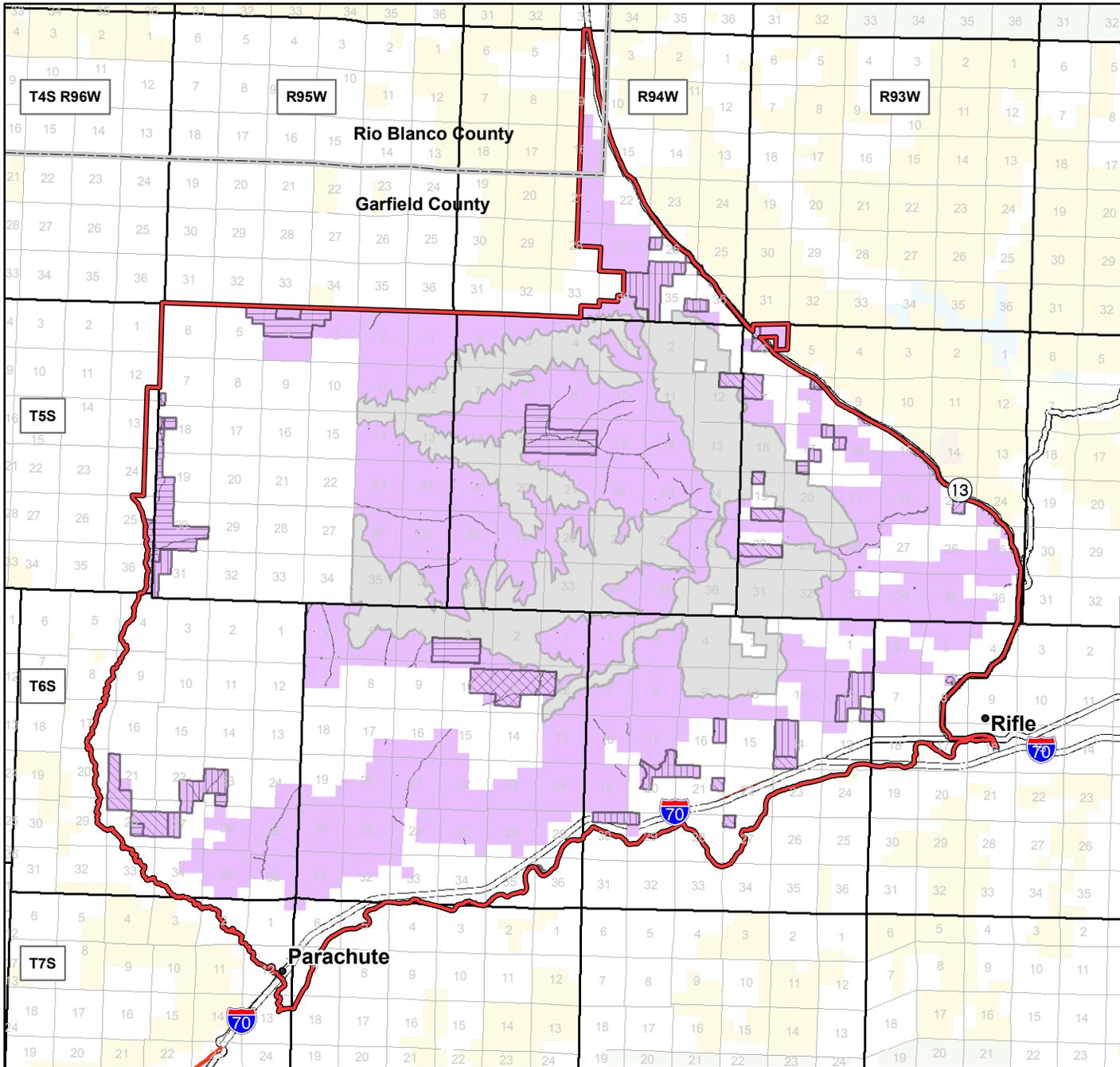
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0.8 0 0.8 Miles

1:200,000

# GS-NSO-ROAN-23 No Surface Occupancy Riparian and Wetland Habitat

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ NSO – Riparian and Wetlands
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



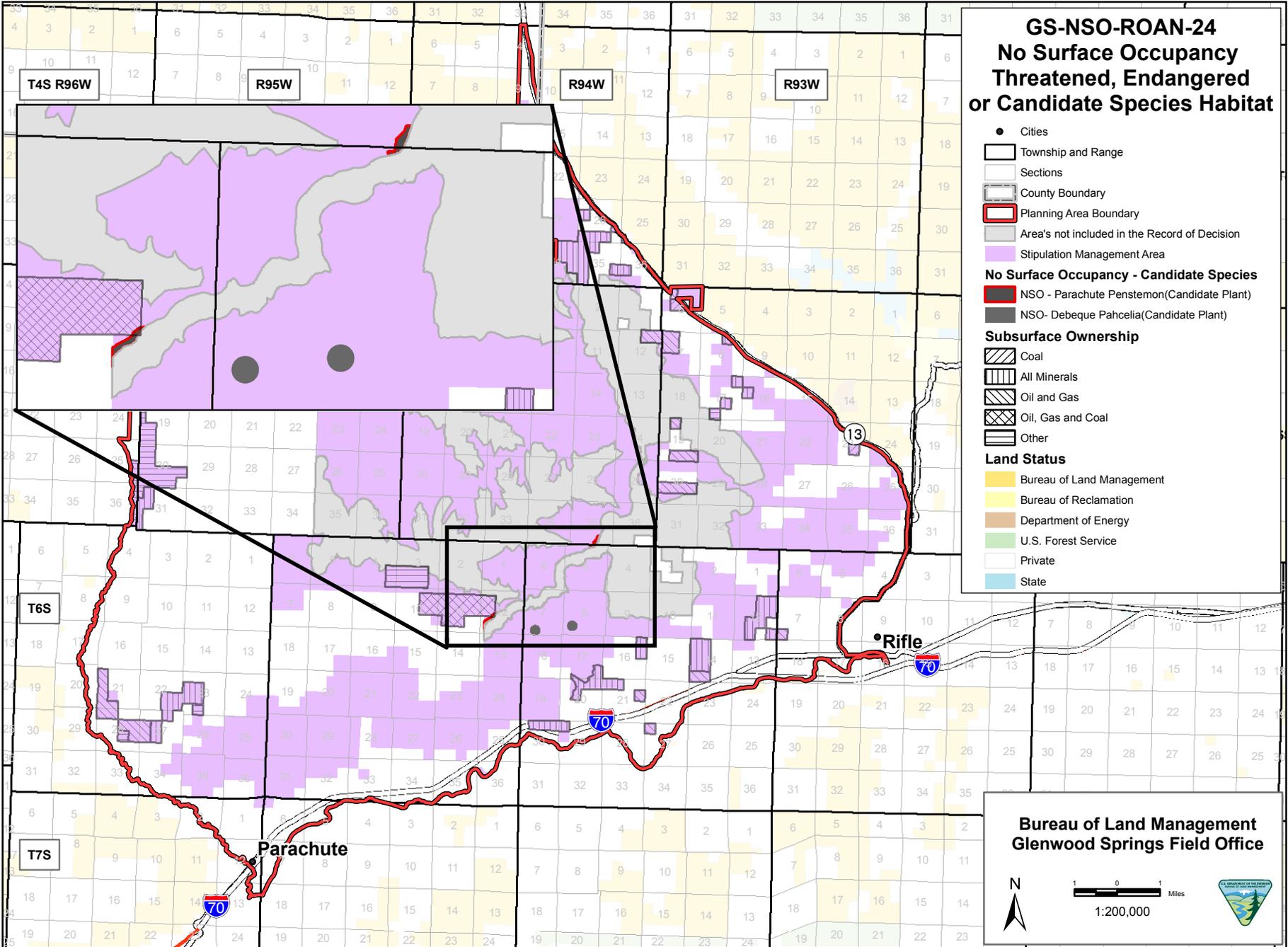
**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.8 0 0.8 Miles

1:200,000

# GS-NSO-ROAN-24 No Surface Occupancy Threatened, Endangered or Candidate Species Habitat



- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- No Surface Occupancy - Candidate Species**
  - ▭ NSO - Parachute Penstemon(Candidate Plant)
  - ▭ NSO - Debeque Pahocelia(Candidate Plant)
- Subsurface Ownership**
  - ▭ Coal
  - ▭ All Minerals
  - ▭ Oil and Gas
  - ▭ Oil, Gas and Coal
  - ▭ Other
- Land Status**
  - ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State

**Bureau of Land Management  
Glenwood Springs Field Office**

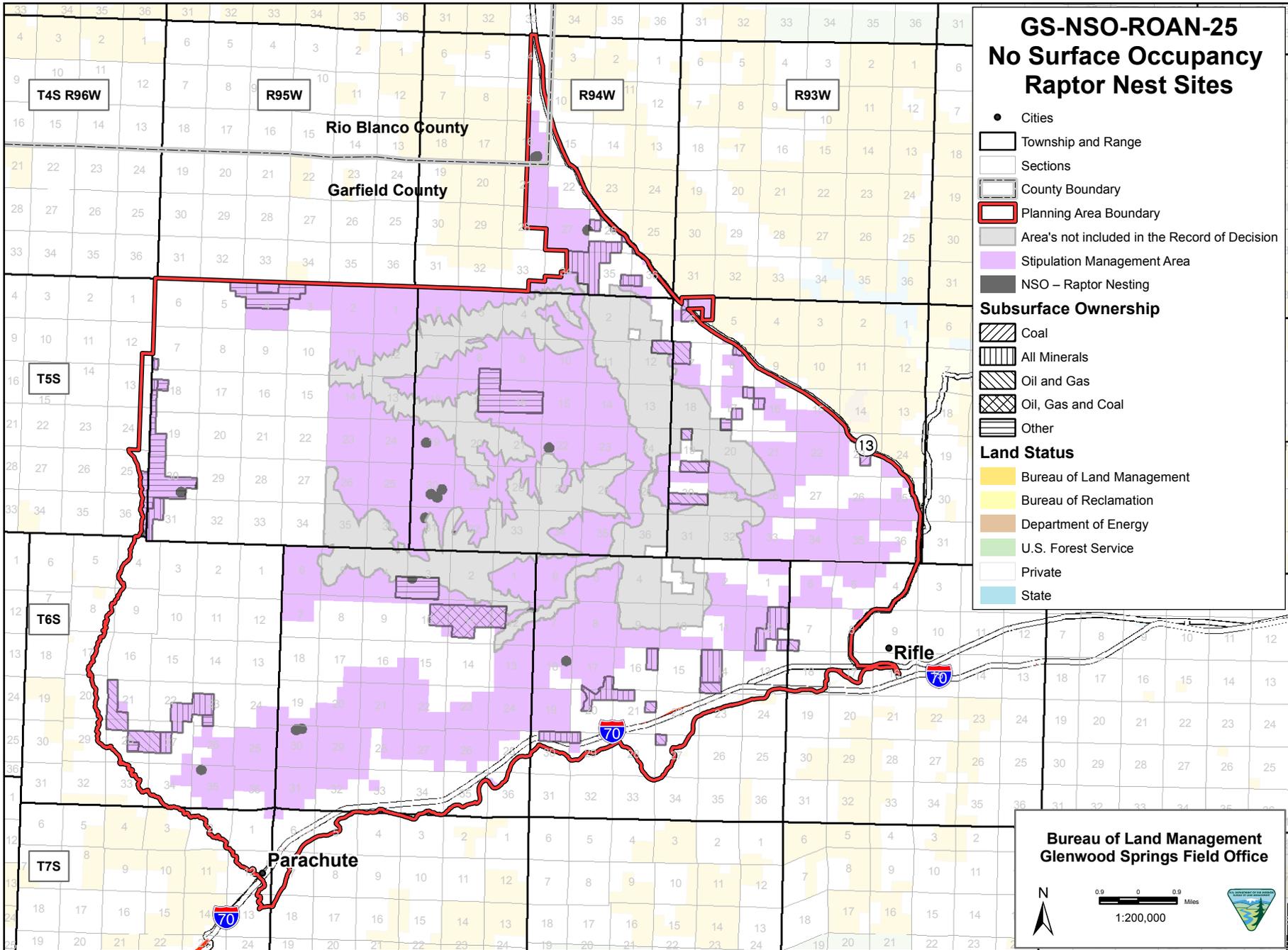
N

1 0 1 Miles

1:200,000

# GS-NSO-ROAN-25 No Surface Occupancy Raptor Nest Sites

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - NSO – Raptor Nesting
- ### Subsurface Ownership
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- ### Land Status
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



# GS-NSO-ROAN-26 No Surface Occupancy Bald Eagle Nest, Winter Roost Sites, and Winter Range

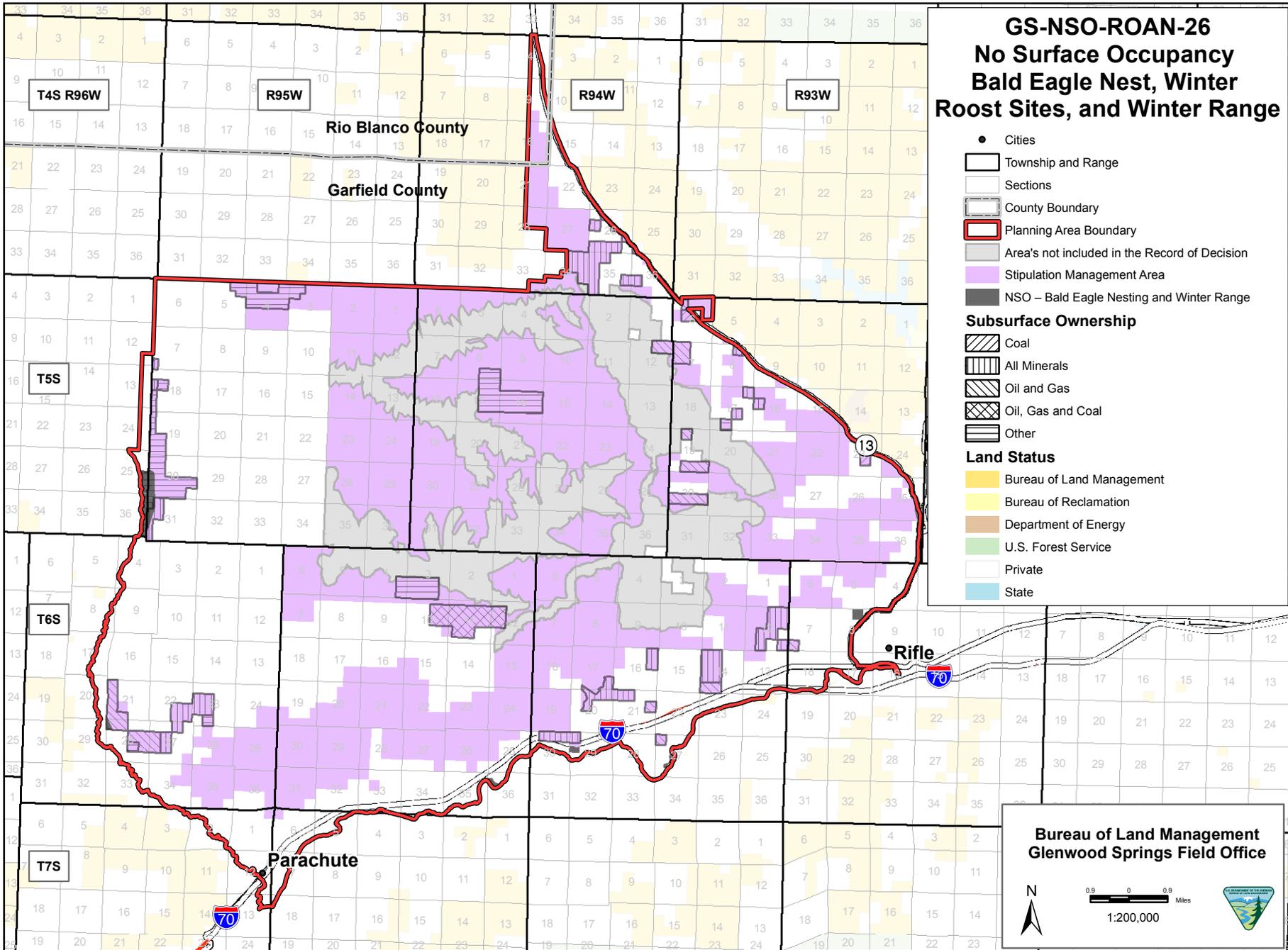
- Cities
- Township and Range
- Sections
- County Boundary
- Planning Area Boundary
- Area's not included in the Record of Decision
- Stipulation Management Area
- NSO – Bald Eagle Nesting and Winter Range

### Subsurface Ownership

- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other

### Land Status

- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.9 0 0.9 Miles

1:200,000

# GS-NSO-ROAN-27 No Surface Occupancy Wildlife Security Areas (Below the Rim)

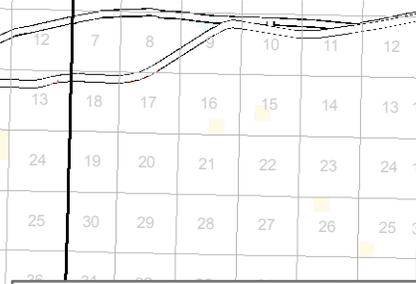
- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ NSO – Wildlife Security Areas (Below the Rim)

### Subsurface Ownership

- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other

### Land Status

- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State

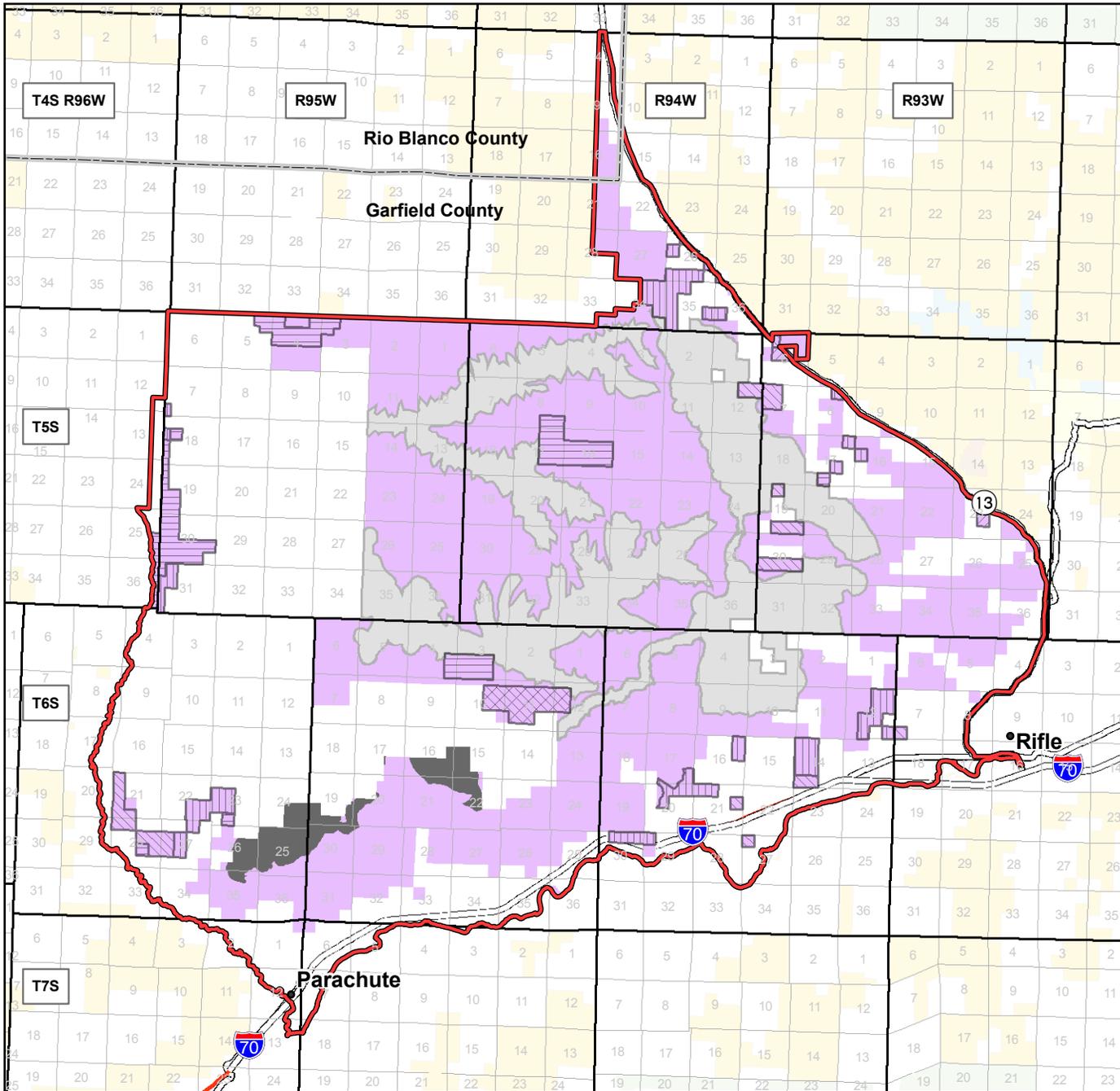


**Bureau of Land Management  
Glenwood Springs Field Office**

N

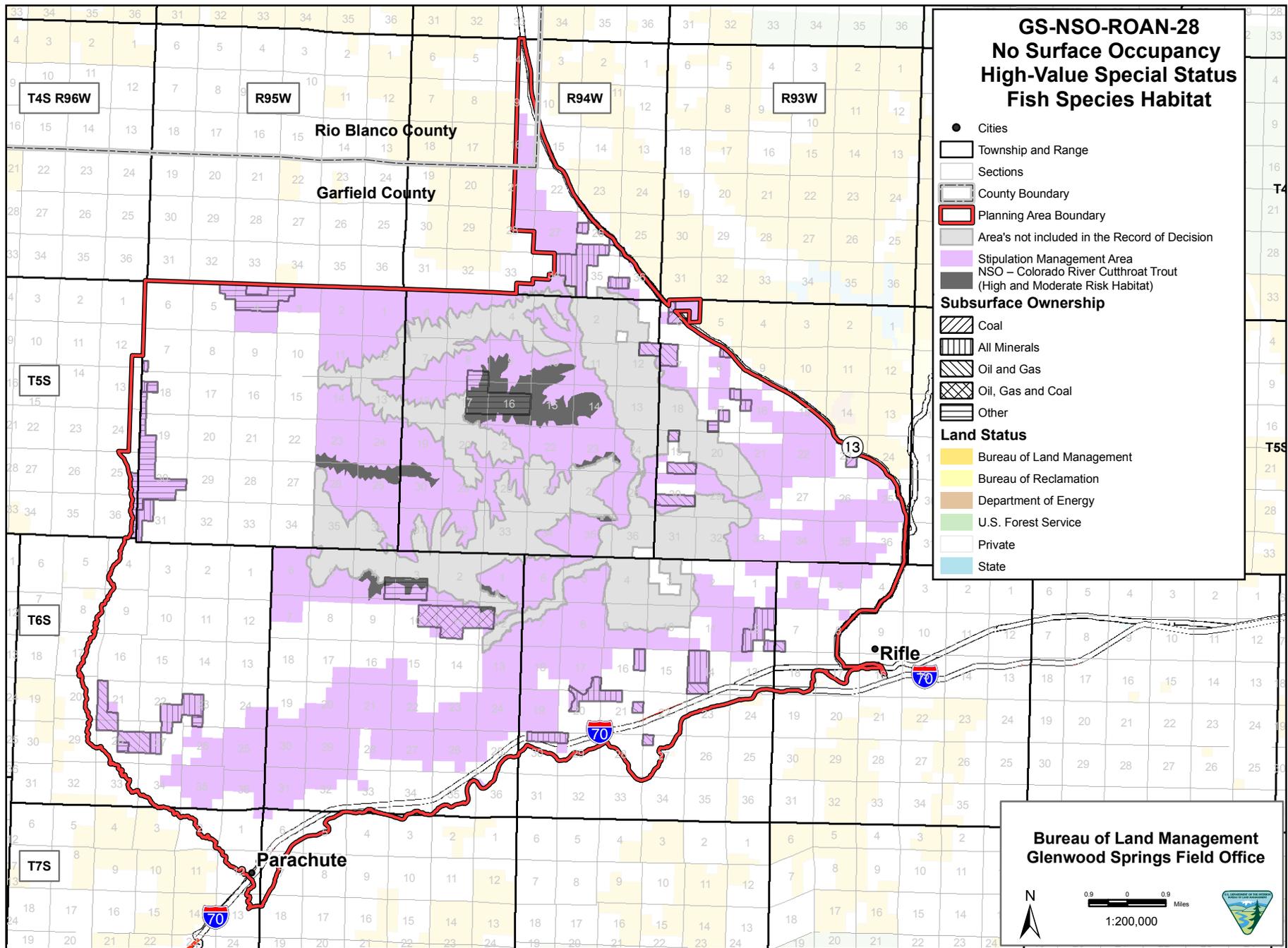
1 0 1 Miles

1:200,000



# GS-NSO-ROAN-28 No Surface Occupancy High-Value Special Status Fish Species Habitat

- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area  
NSO – Colorado River Cutthroat Trout  
(High and Moderate Risk Habitat)
- Subsurface Ownership**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State



**Bureau of Land Management  
Glenwood Springs Field Office**

N  
0.9 0 0.9 Miles  
1:200,000

# GS-NSO-ROAN-29 No Surface Occupancy Colorado River Corridor

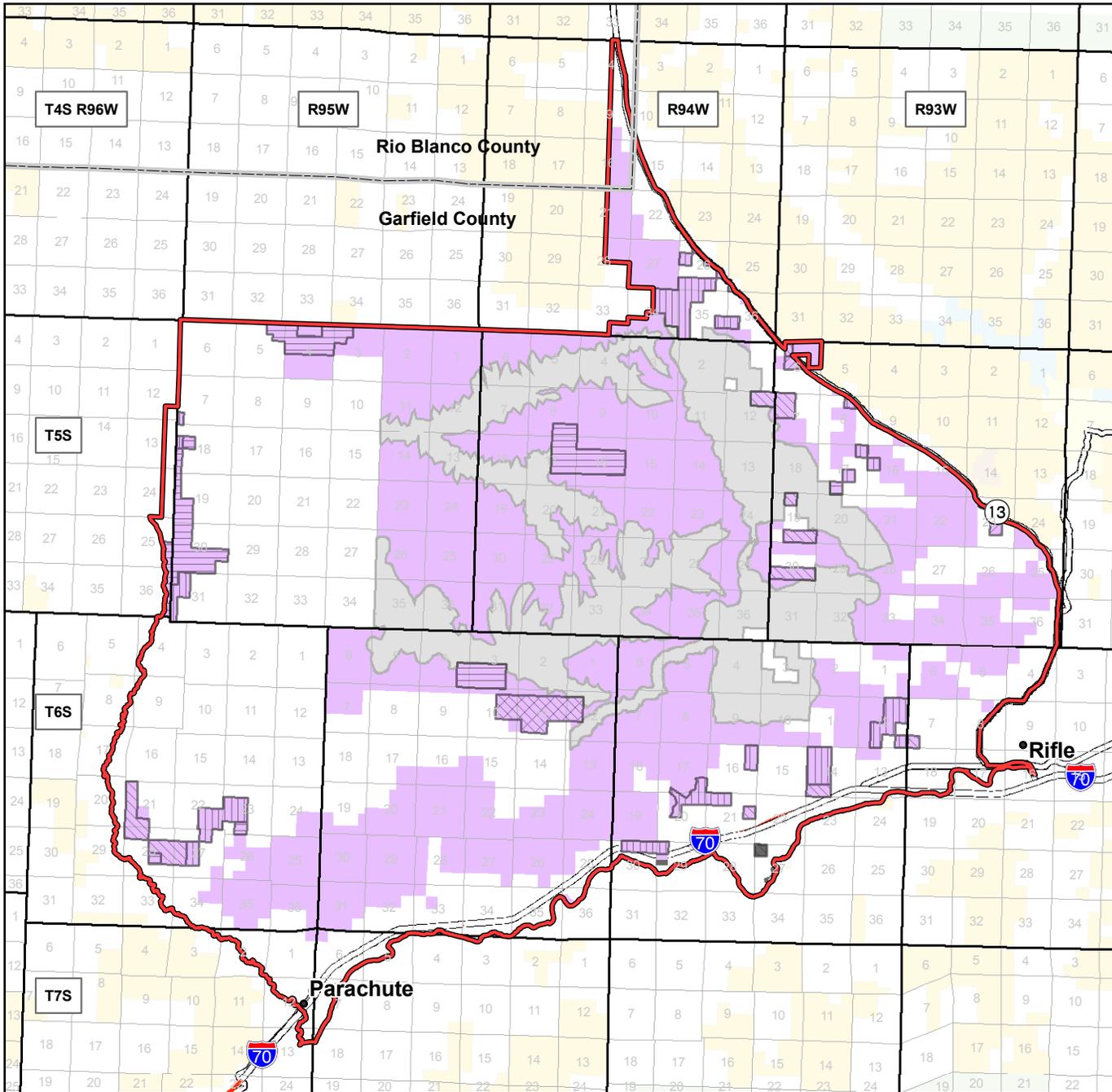
- Cities
- Township and Range
- Sections
- County Boundary
- Planning Area Boundary
- Area's not included in the Record of Decision
- Stipulation Management Area
- NSO – Colorado River Corridor

### Subsurface Ownership

- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other

### Land Status

- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



**Bureau of Land Management  
Glenwood Springs Field Office**

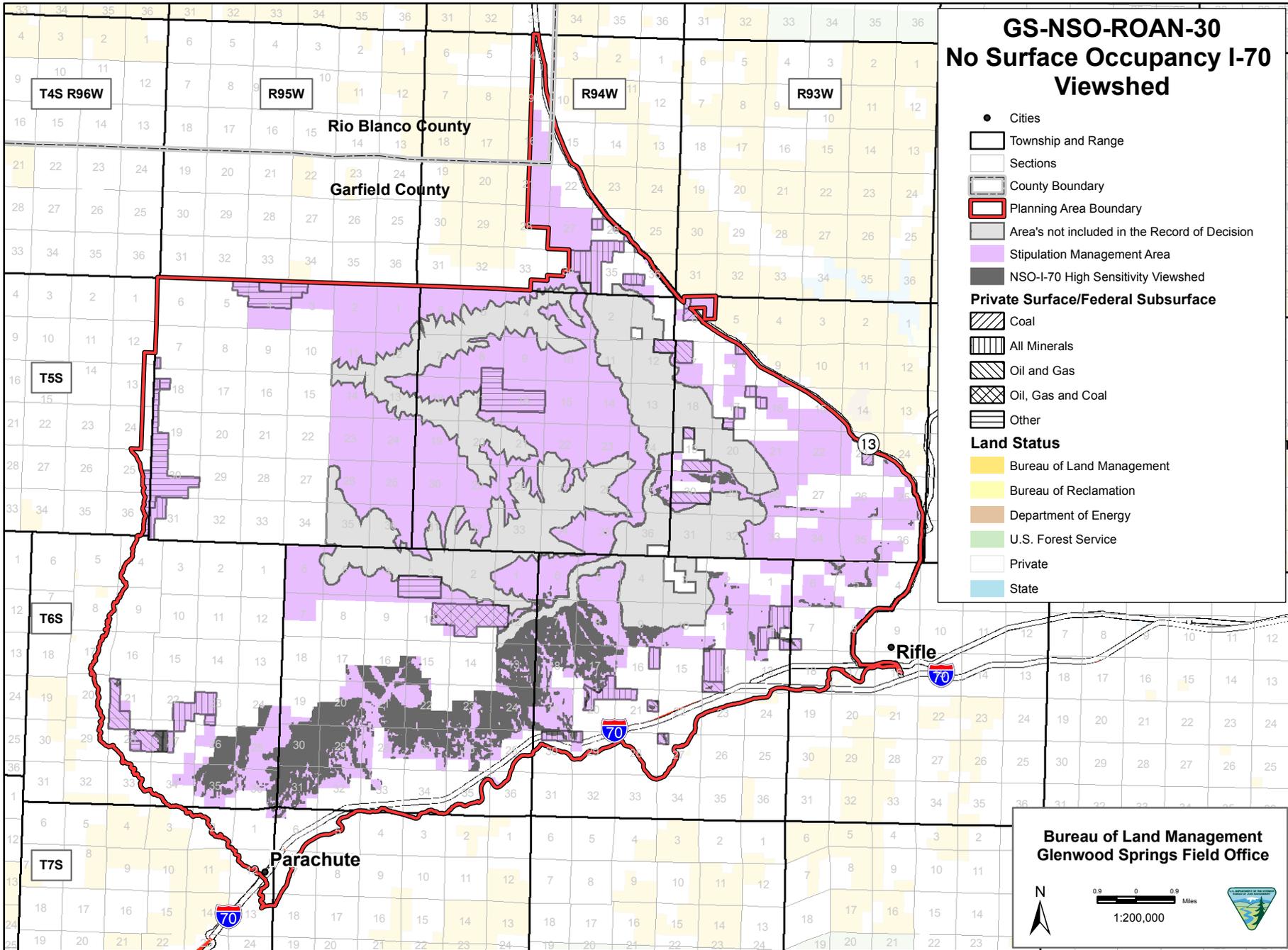
N

0.9 0 0.9 Miles

1:200,000

# GS-NSO-ROAN-30 No Surface Occupancy I-70 Viewshed

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - NSO-I-70 High Sensitivity Viewshed
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



**Bureau of Land Management  
Glenwood Springs Field Office**

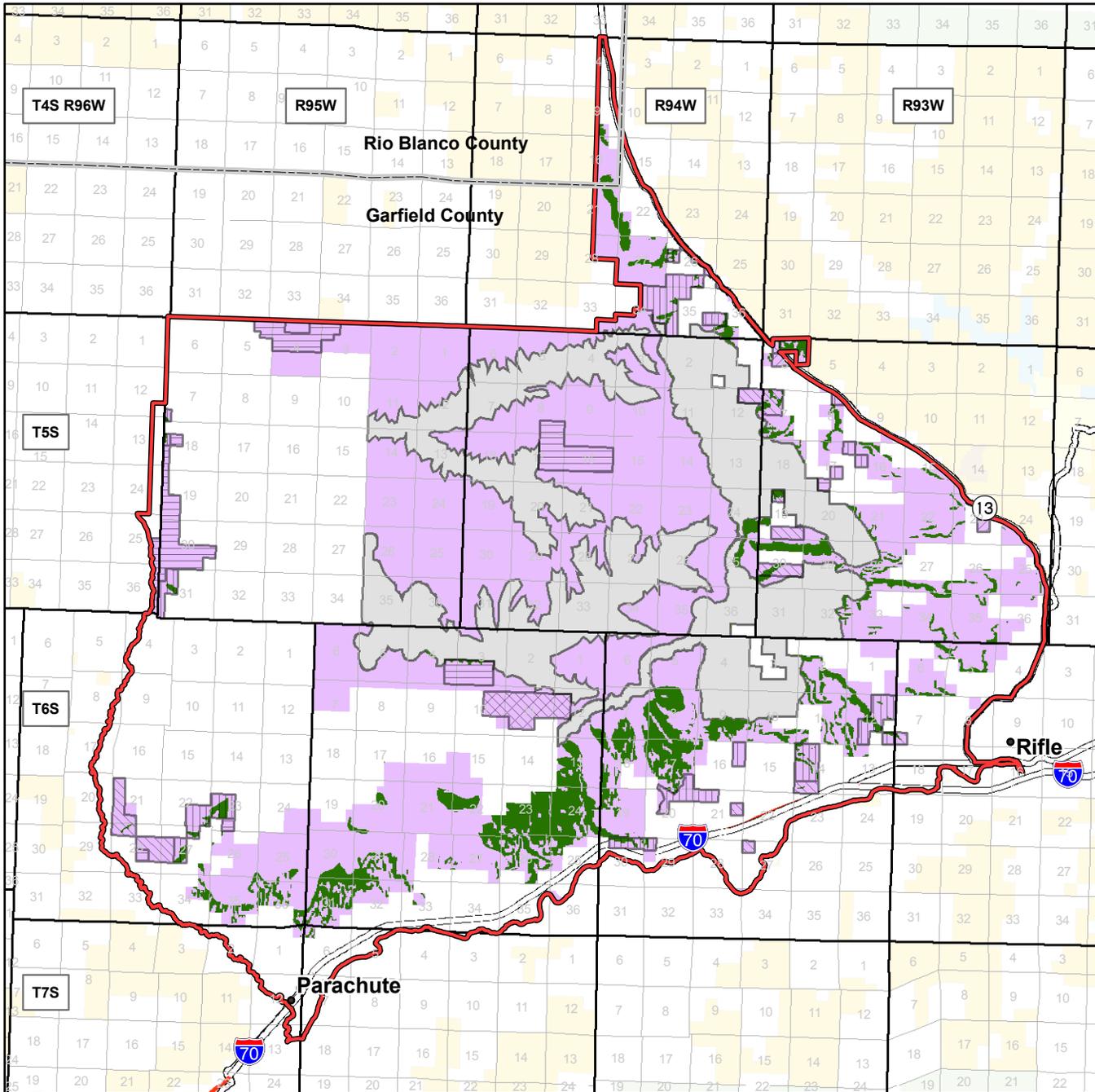
N

0.9 0 0.9 Miles

1:200,000

**GS-CSU-ROAN-04  
Controlled Surface Use  
Erosive Soils ( on slopes > 30 % )**

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - CSU Erosive Soils ( on slopes > 30 % )
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



**Bureau of Land Management  
Glenwood Springs Field Office**

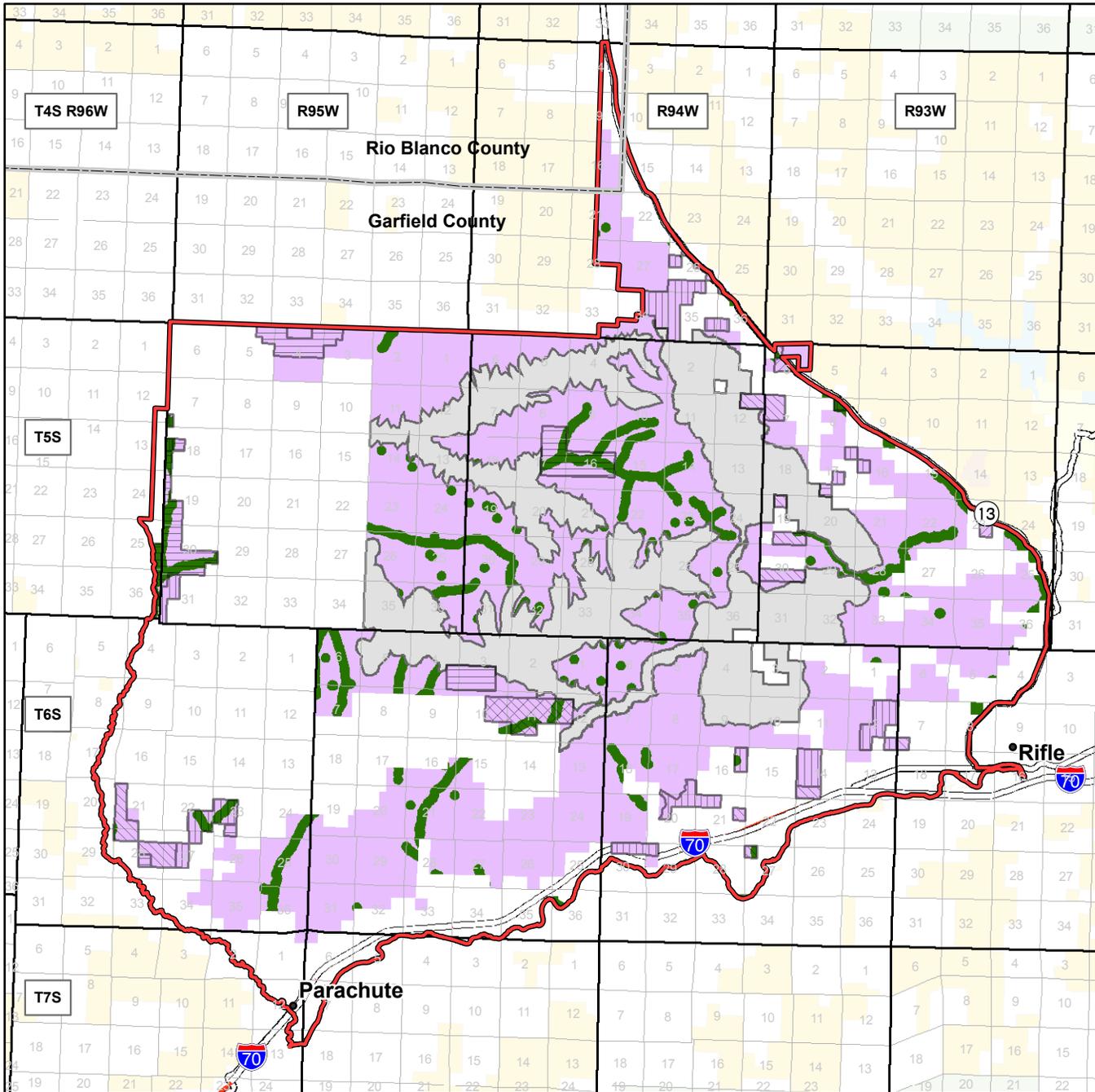
N

0 0.5 1 Miles

1:200,000

**GS-CSU-ROAN-07  
Controlled Surface Use  
Riparian and Wetland Habitat**

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - CSU - Riparian and Wetland Areas
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



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Glenwood Springs Field Office**

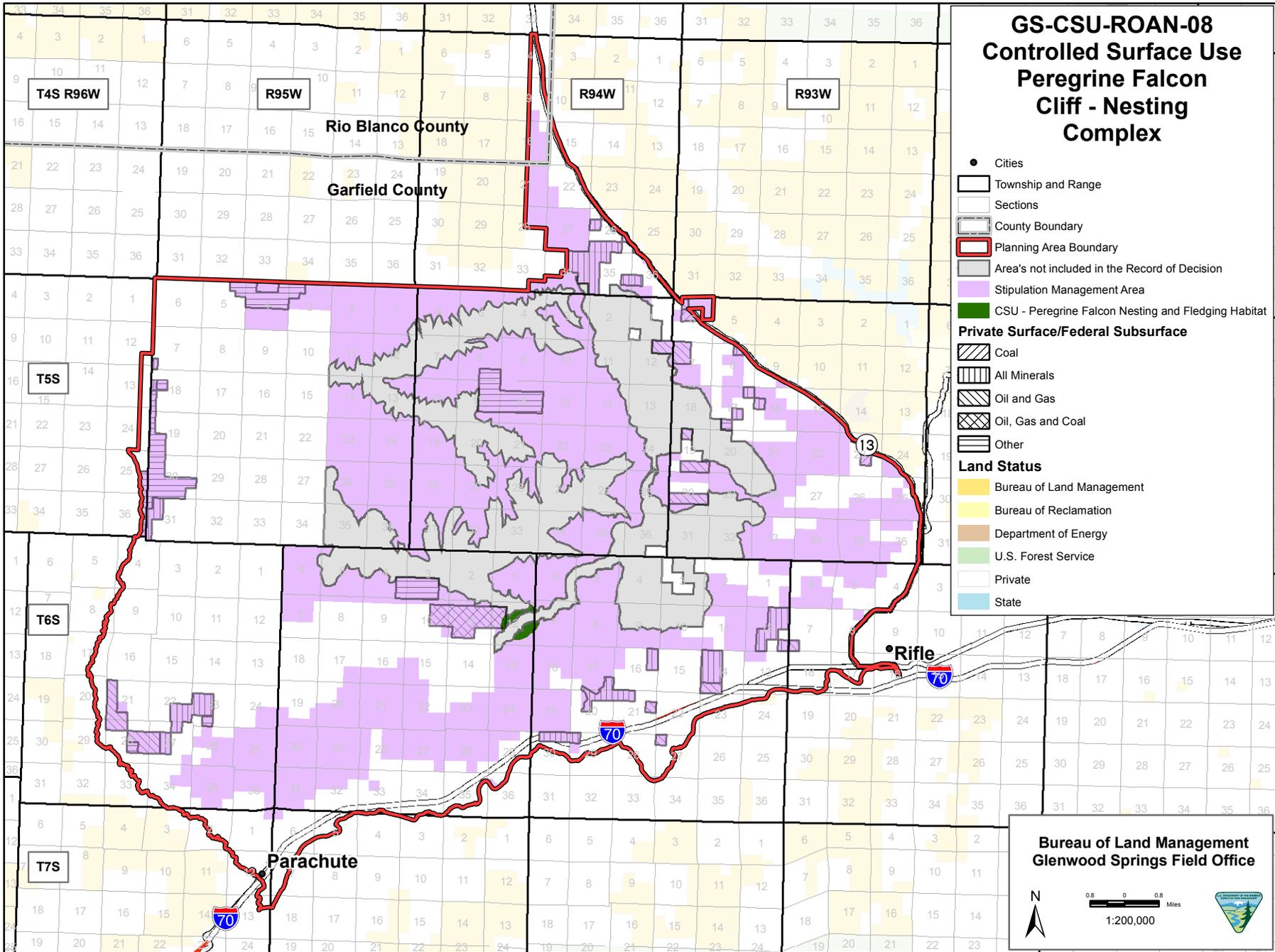
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0.8 0 0.8 Miles

1:200,000



# GS-CSU-ROAN-08 Controlled Surface Use Peregrine Falcon Cliff - Nesting Complex



- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - CSU - Peregrine Falcon Nesting and Fledging Habitat
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State

**Bureau of Land Management  
Glenwood Springs Field Office**

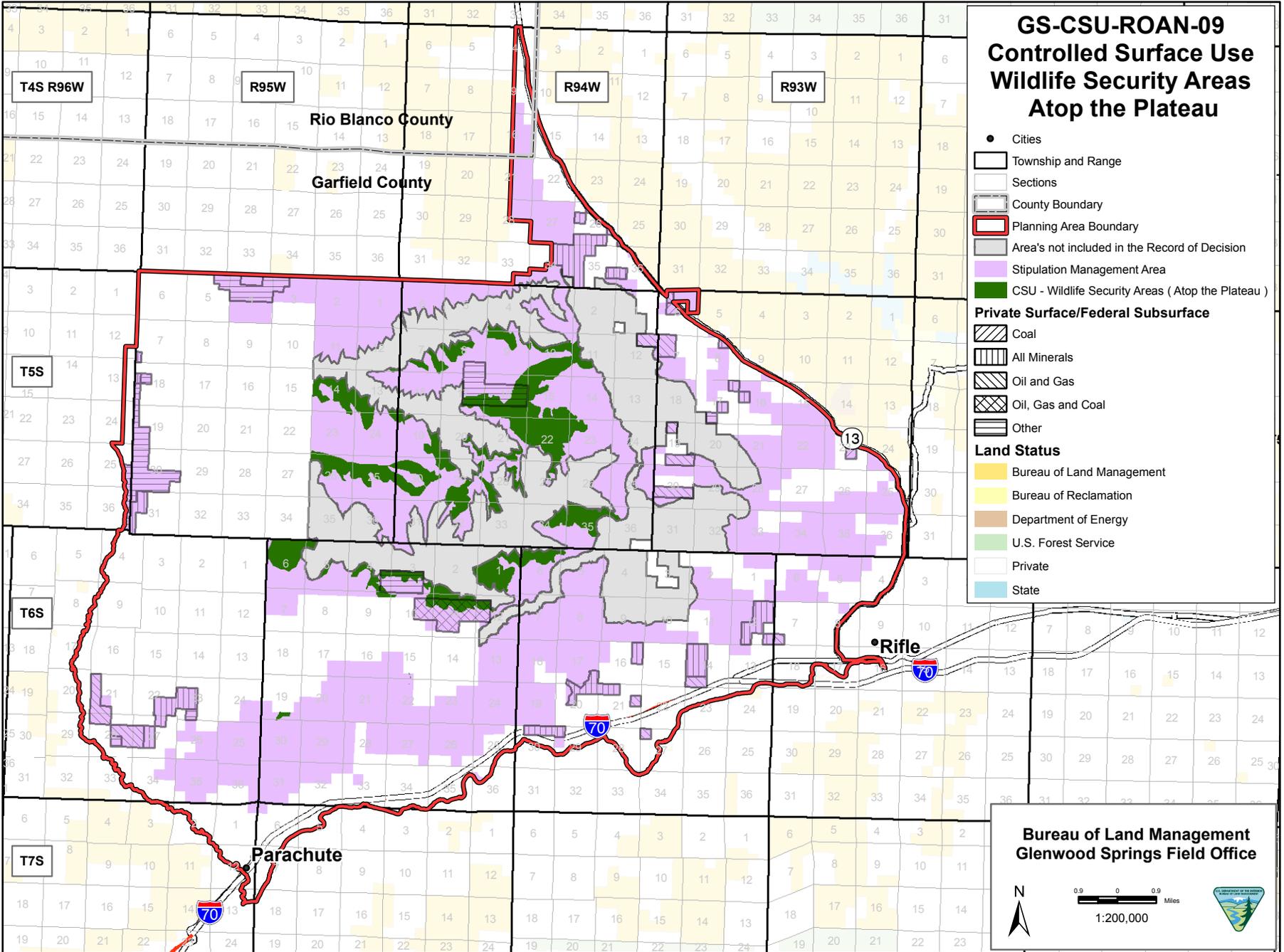
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0.8 0 0.8 Miles

1:200,000



# GS-CSU-ROAN-09 Controlled Surface Use Wildlife Security Areas Atop the Plateau



- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ CSU - Wildlife Security Areas ( Atop the Plateau )

**Private Surface/Federal Subsurface**

- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other

**Land Status**

- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State

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Glenwood Springs Field Office**

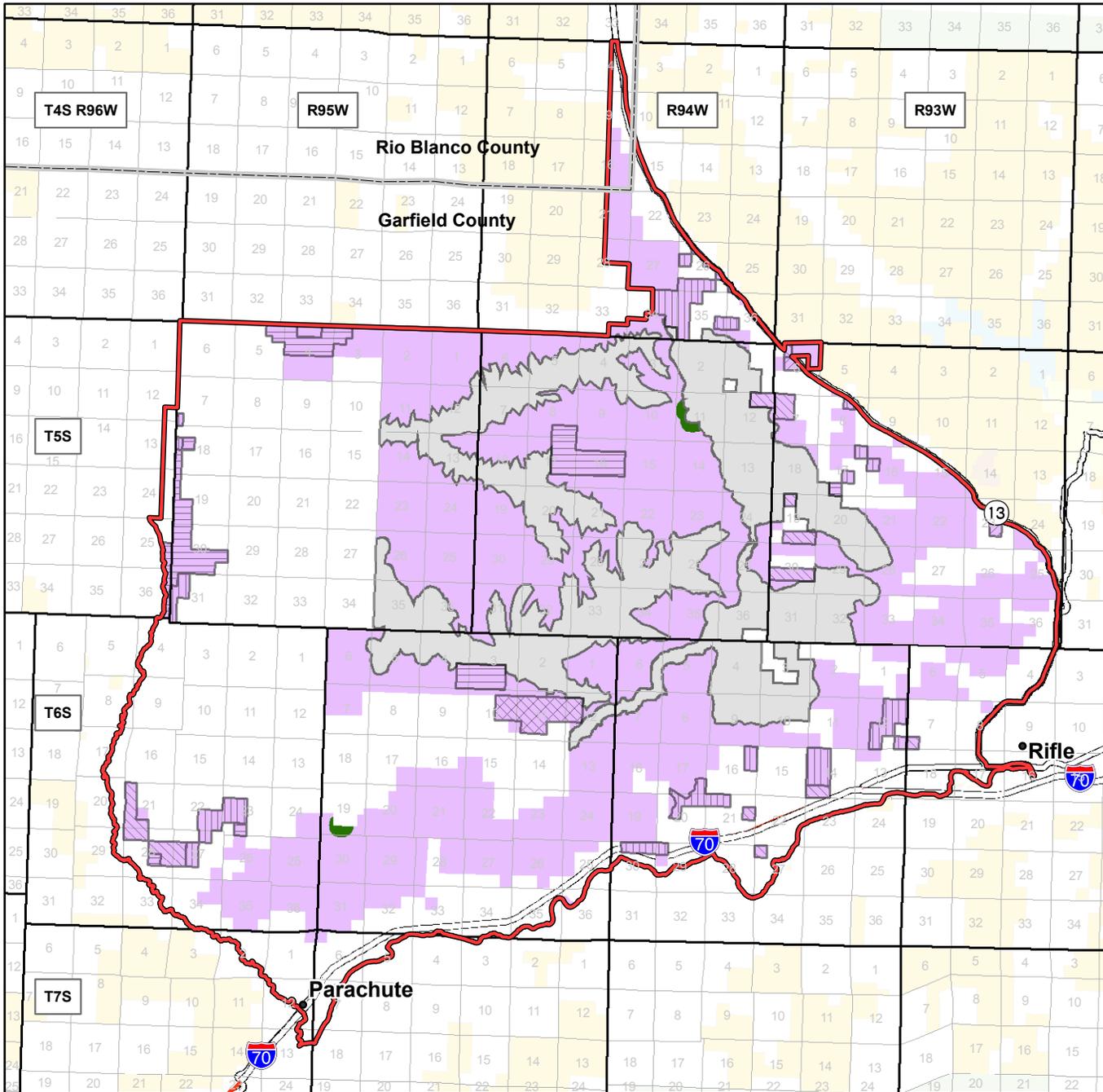
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0.9 0 0.9 Miles

1:200,000

# GS-CSU-ROAN-10 Controlled Surface Use Big Game Migration Corridors

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ CSU - Big Game Migration Corridors
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State



**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.8 0 0.8 Miles

1:200,000

**GS-CSU-ROAN-11  
Controlled Surface Use  
Sensitive Bat Species Habitat**

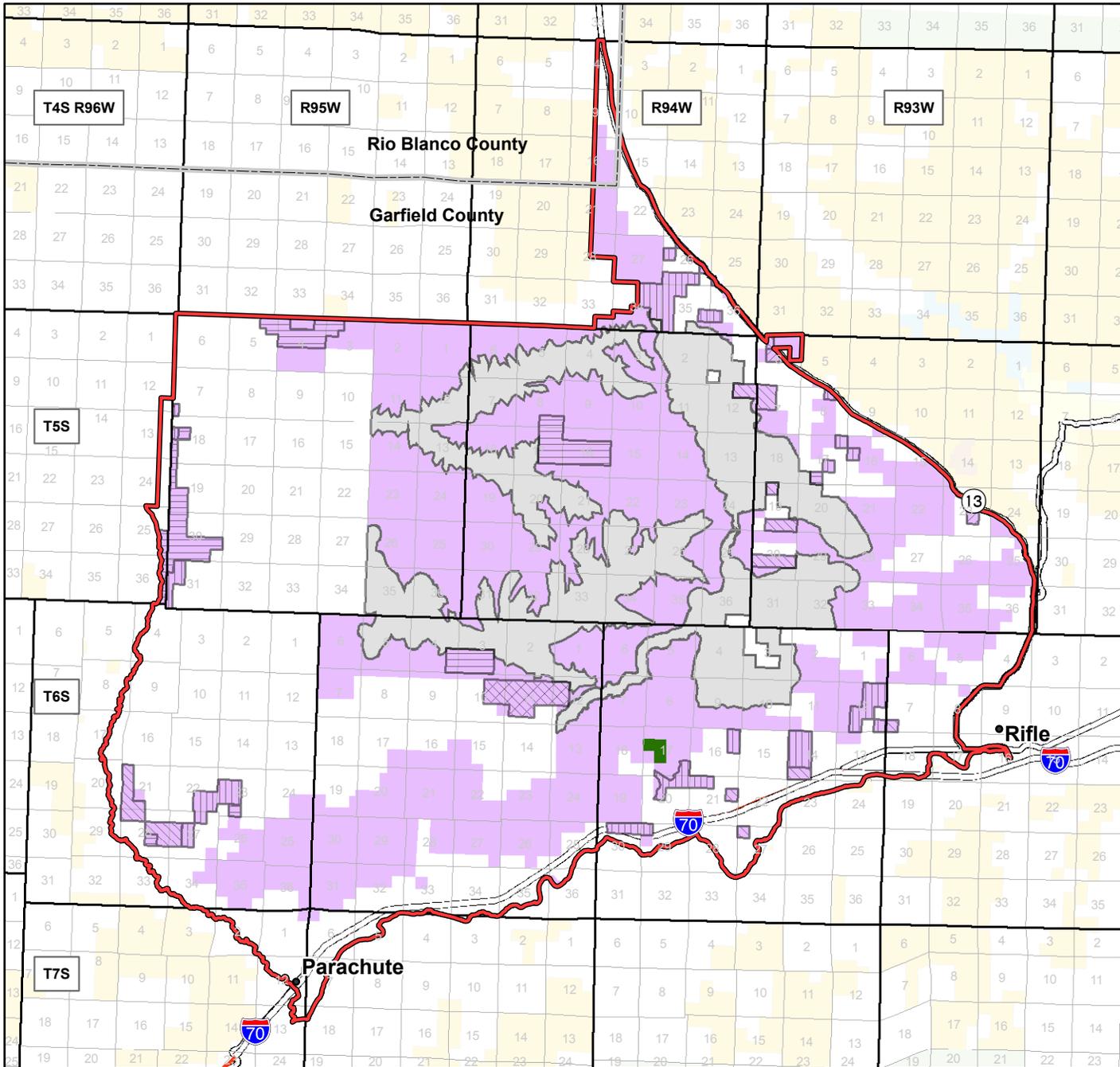
- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ CSU - Bat Habitat

**Private Surface/Federal Subsurface**

- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other

**Land Status**

- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State



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Glenwood Springs Field Office**

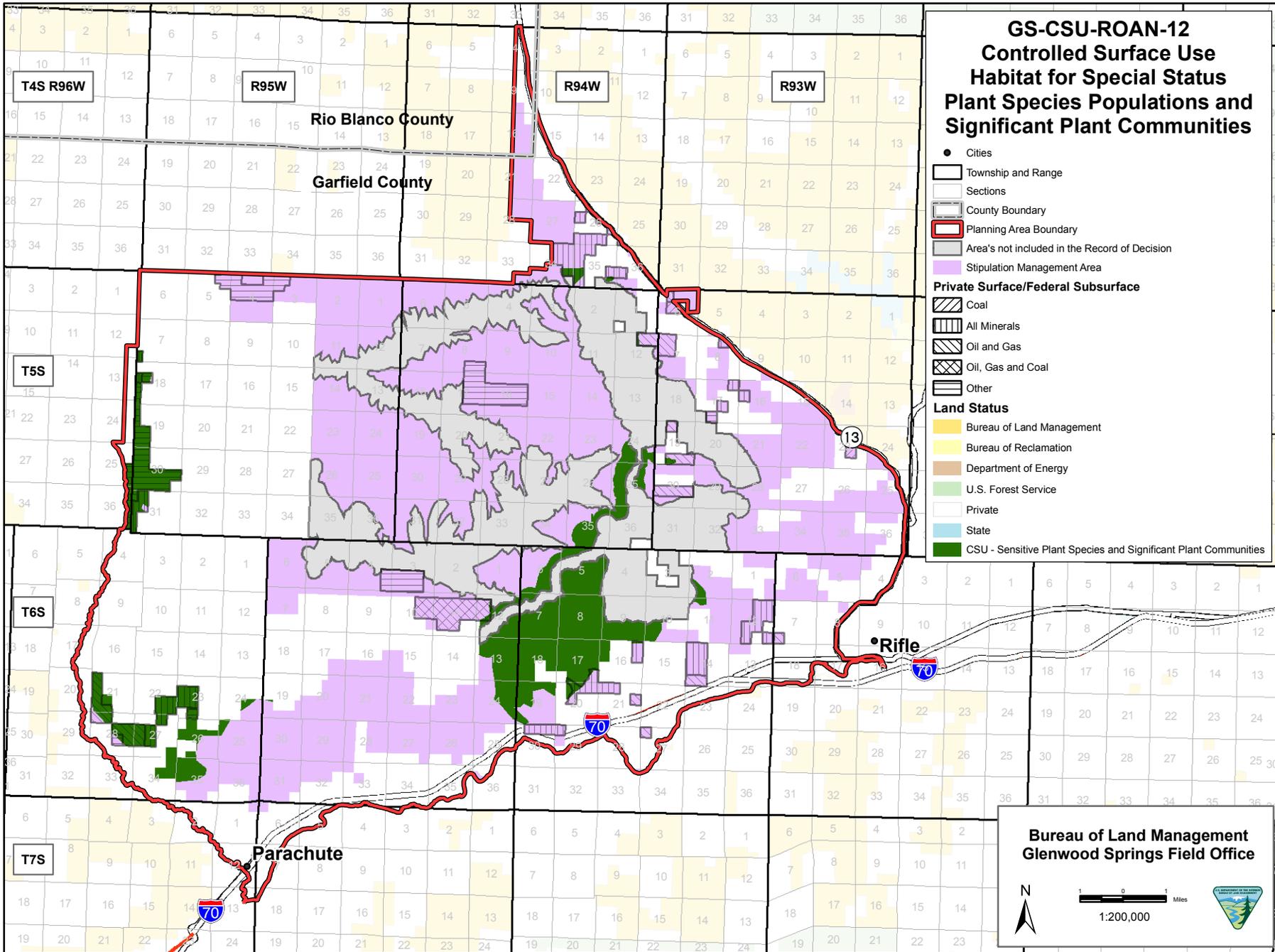
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0.5 0 0.5 Miles

1:200,000

# GS-CSU-ROAN-12 Controlled Surface Use Habitat for Special Status Plant Species Populations and Significant Plant Communities

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State
  - CSU - Sensitive Plant Species and Significant Plant Communities



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N

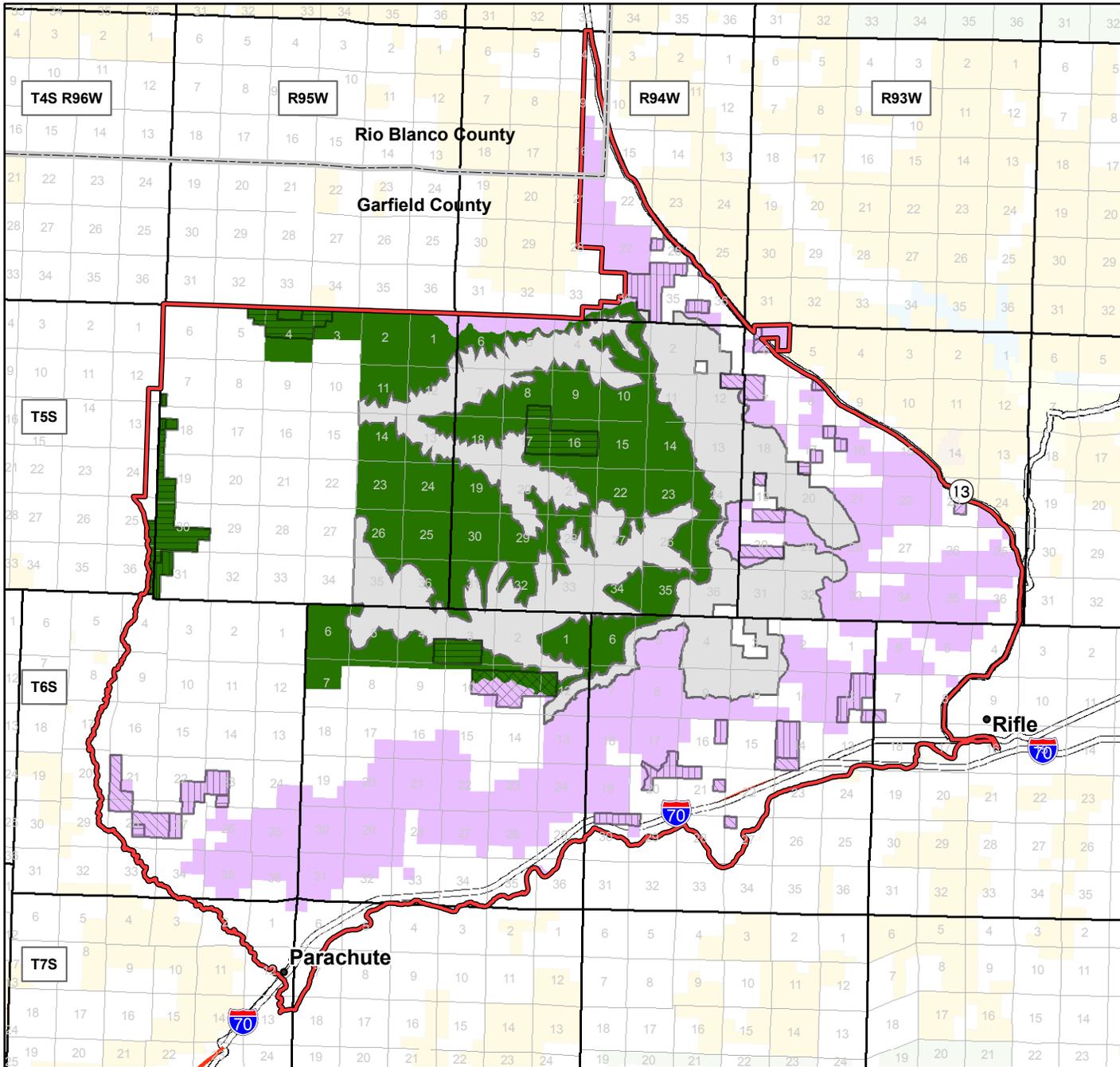
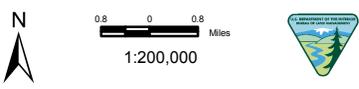
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1:200,000

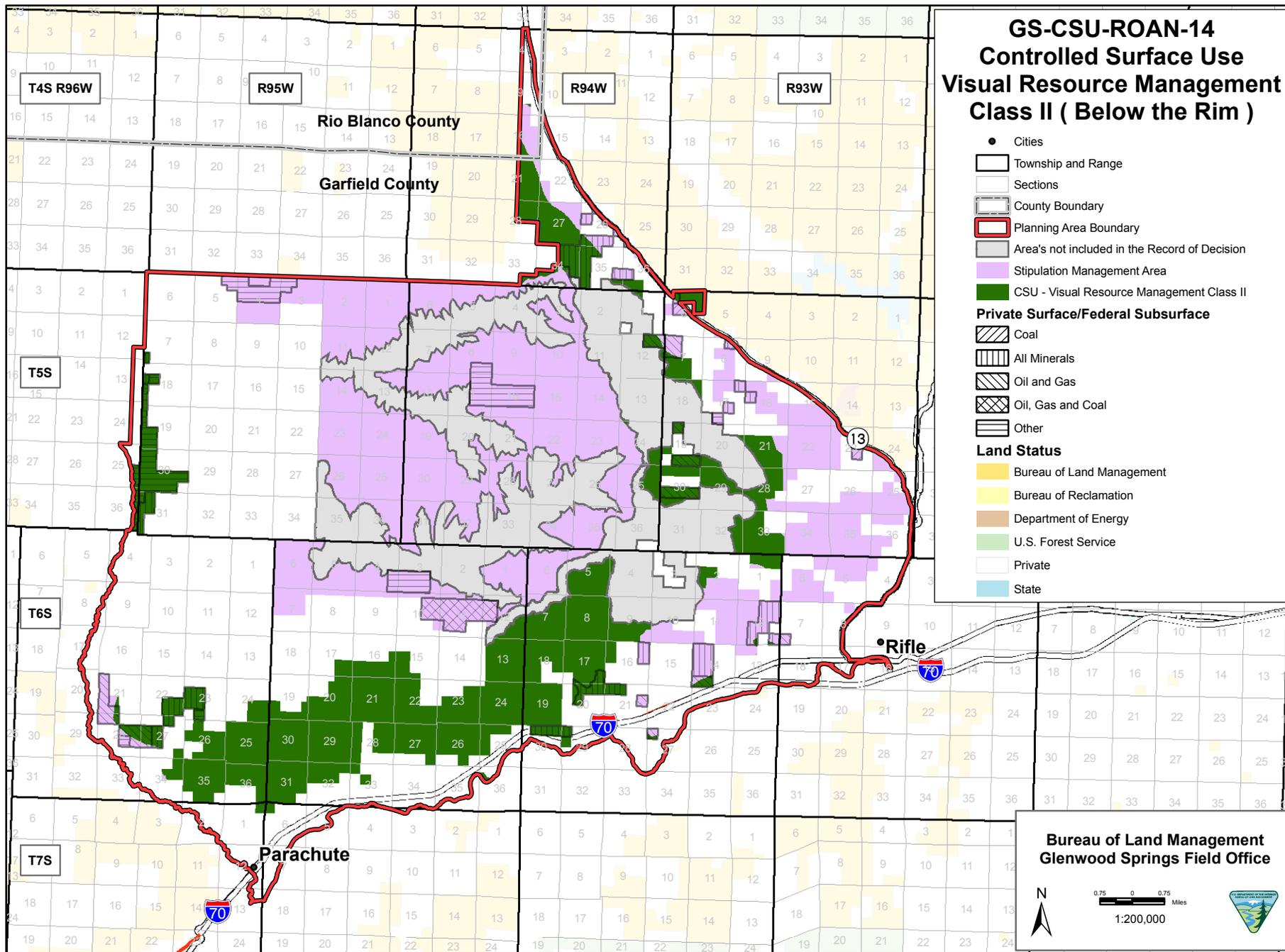
# GS-CSU-ROAN-13 Controlled Surface Use Parachute Creek High Value Watershed and Watershed Management Area

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ CSU - Parachute Creek Watershed Management
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State

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Glenwood Springs Field Office**



# GS-CSU-ROAN-14 Controlled Surface Use Visual Resource Management Class II ( Below the Rim )



- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - CSU - Visual Resource Management Class II
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State

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Glenwood Springs Field Office**

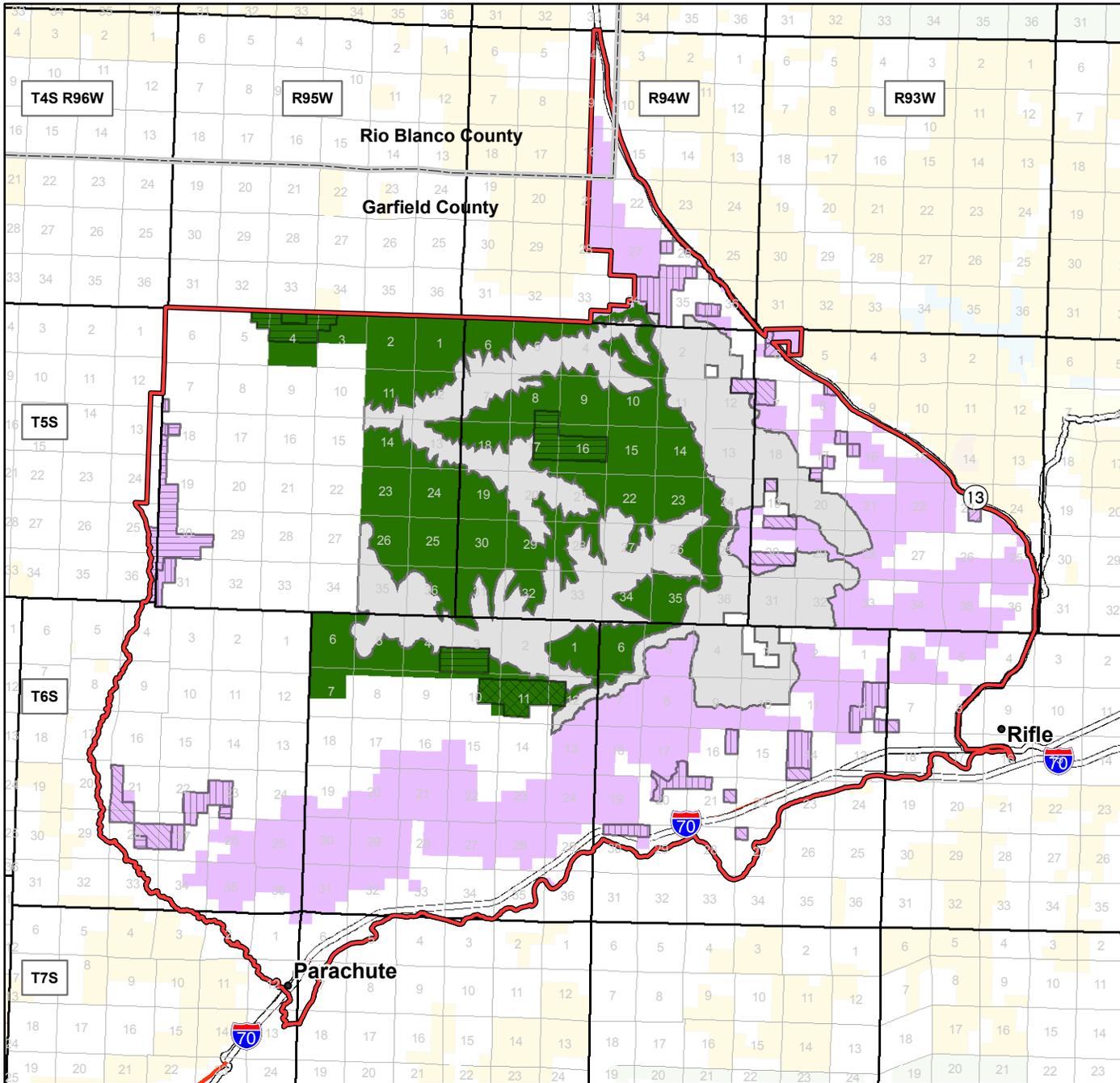
N

0 0.75 Miles

1:200,000

**GS-CSU-ROAN-15  
Controlled Surface Use  
Visual Resource Management  
Class III ( Atop the Plateau )**

- Cities
  - Township and Range
  - Sections
  - County Boundary
  - Planning Area Boundary
  - Area's not included in the Record of Decision
  - Stipulation Management Area
  - CSU - Visual Resource Management Class III
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State



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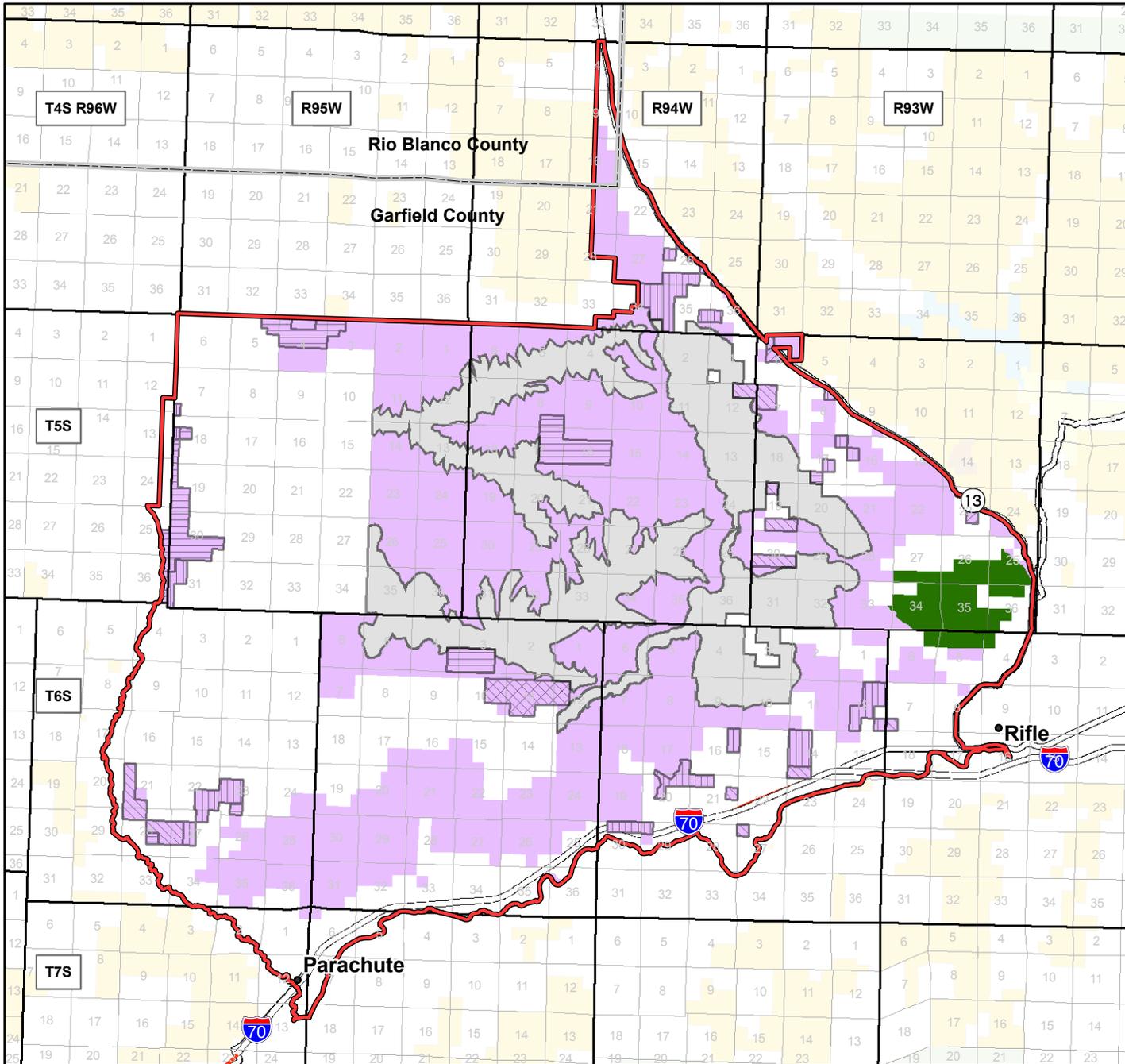
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0.9 0 0.9 Miles

1:200,000

# GS-CSU-ROAN-16 Controlled Surface Use Hubbard Mesa Off-Highway-Vehicle Riding Area

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ CSU - Hubbard Mesa Off-Highway-Vehicle Riding Area
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State



**Bureau of Land Management  
Glenwood Springs Field Office**

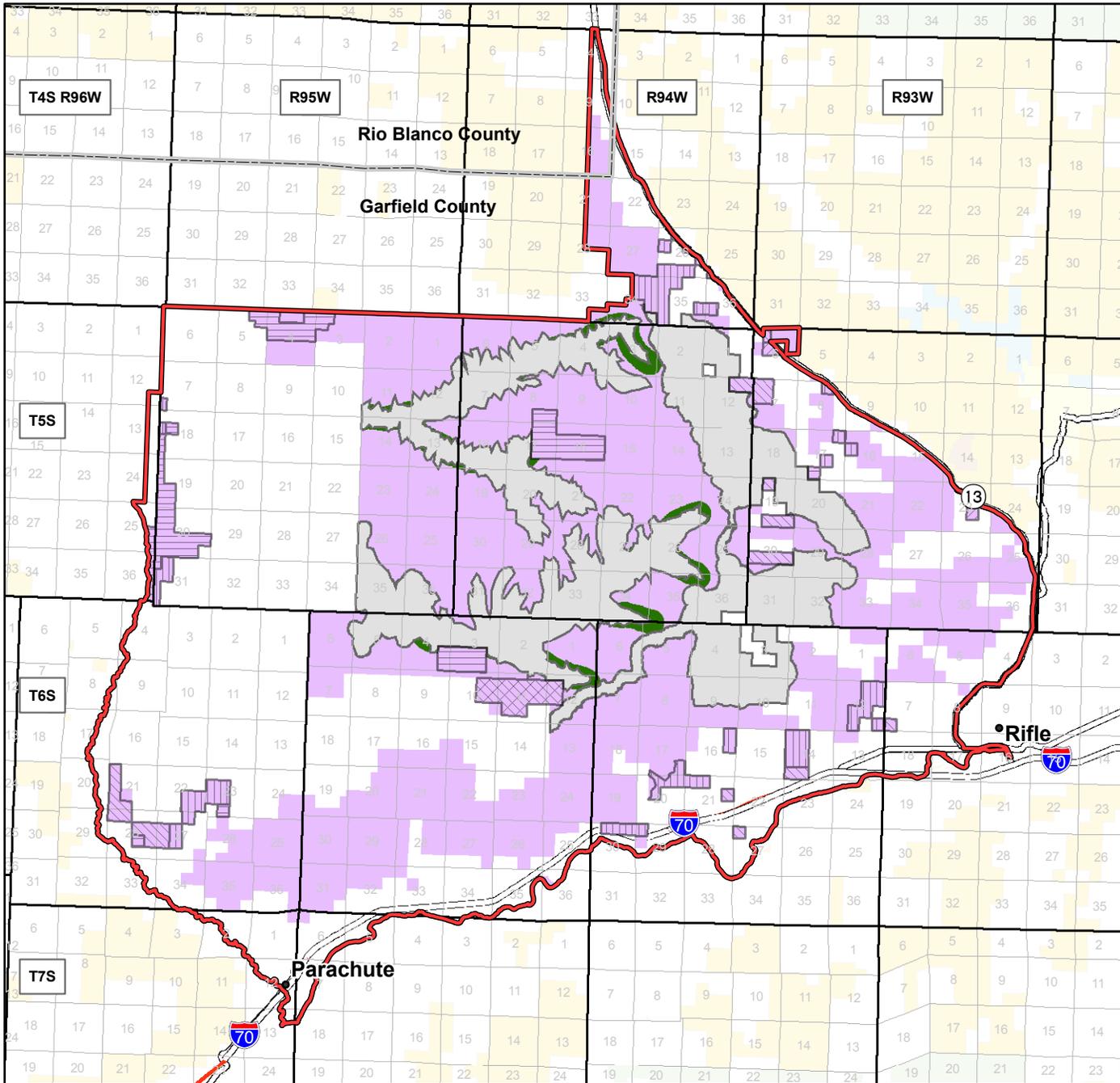
N

0 0.5 1 Miles

1:200,000

# GS-CSU-ROAN-17 Controlled Surface Use Wild and Scenic River Eligibility Corridor

- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - ▭ CSU - Wild and Scenic River Eligibility Corridor
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- ▭ Bureau of Land Management
  - ▭ Bureau of Reclamation
  - ▭ Department of Energy
  - ▭ U.S. Forest Service
  - ▭ Private
  - ▭ State



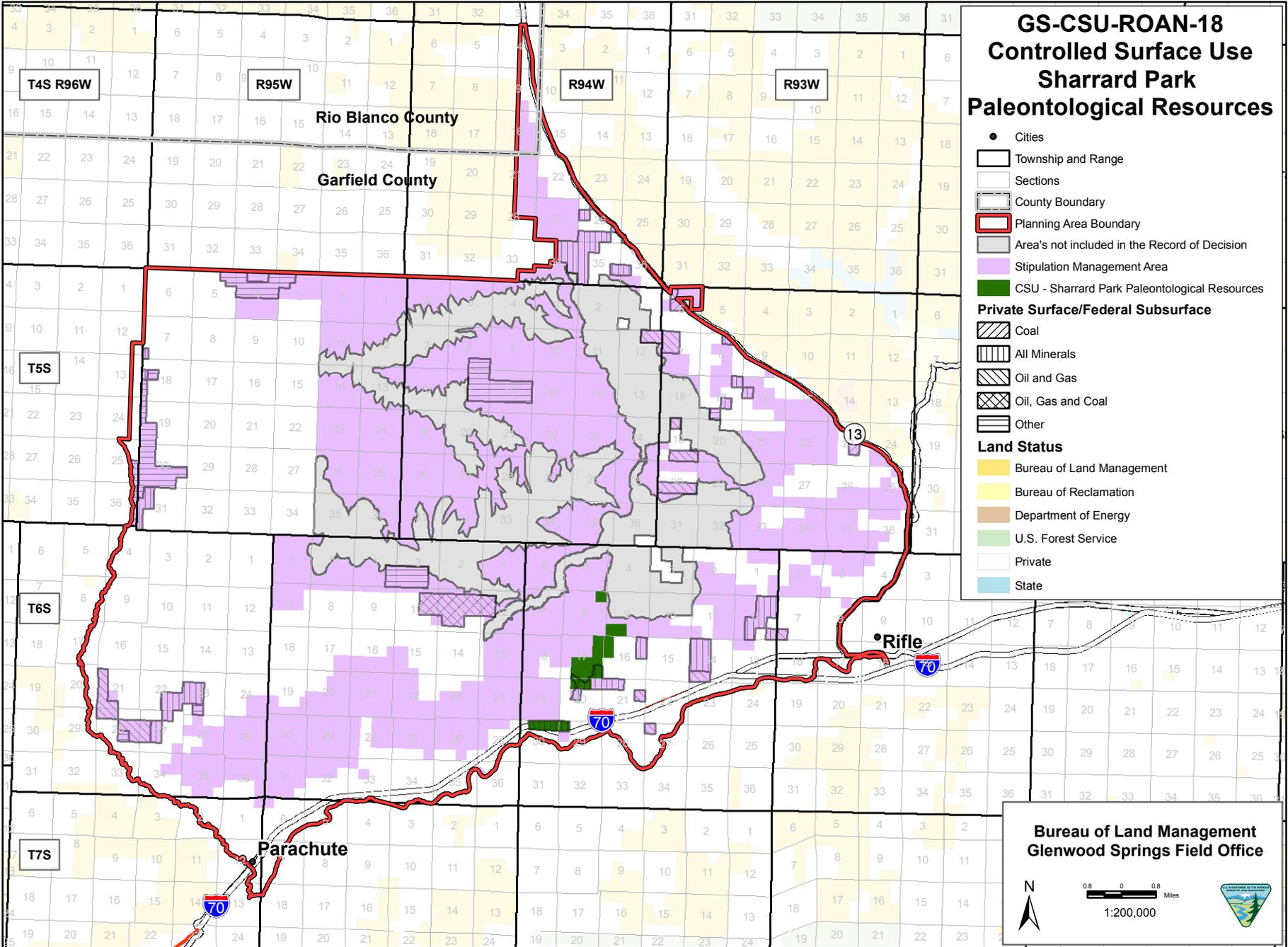
**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.9 0 0.9 Miles

1:200,000

# GS-CSU-ROAN-18 Controlled Surface Use Sharrard Park Paleontological Resources



- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ CSU - Sharrard Park Paleontological Resources
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Energy
- ▭ U.S. Forest Service
- ▭ Private
- ▭ State

**Bureau of Land Management  
Glenwood Springs Field Office**

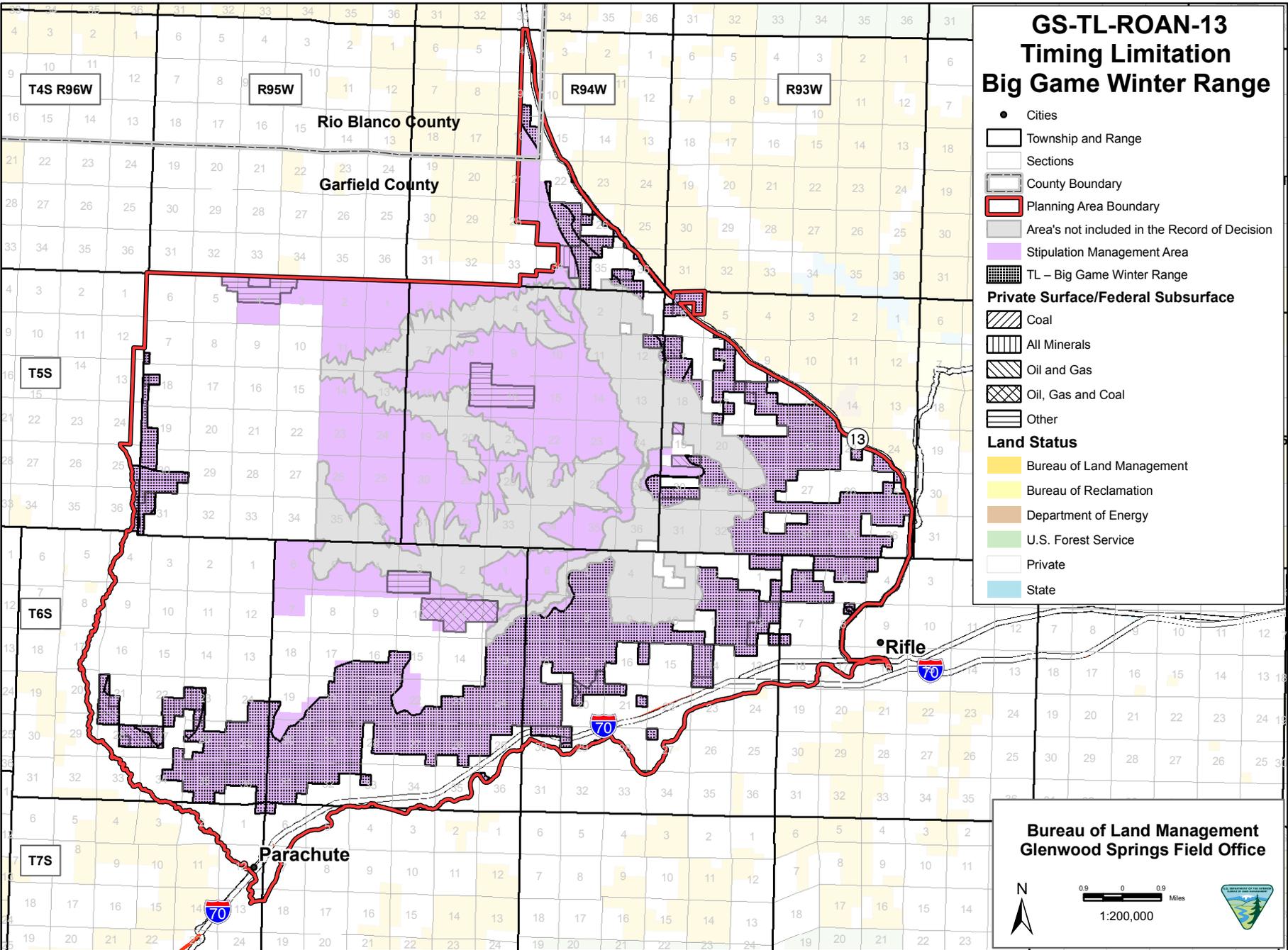
N

0.8 0 0.8 Miles

1:200,000

# GS-TL-ROAN-13 Timing Limitation Big Game Winter Range

- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ TL – Big Game Winter Range
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



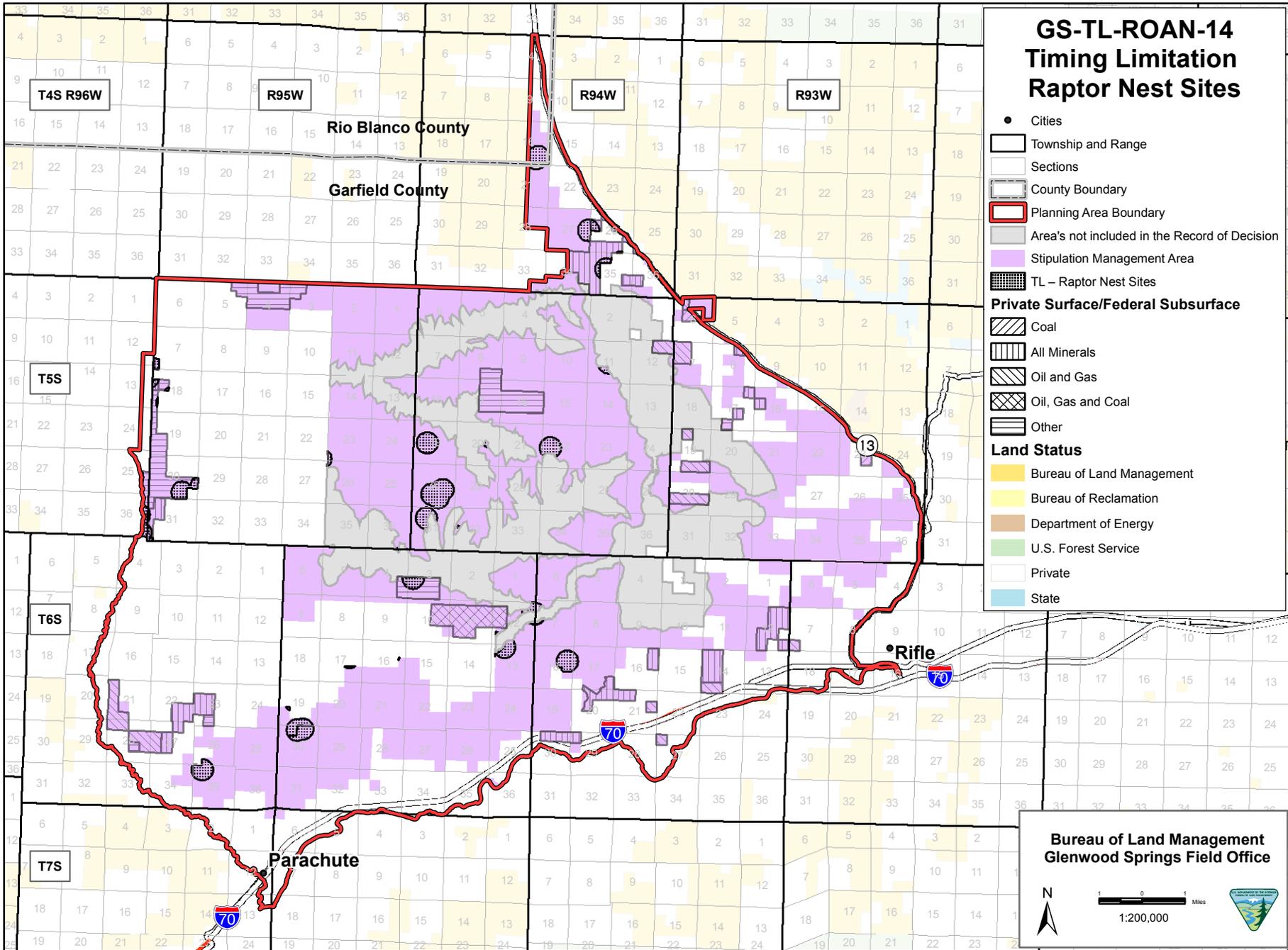
**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.9 0 0.9 Miles

1:200,000

# GS-TL-ROAN-14 Timing Limitation Raptor Nest Sites



- Cities
  - ▭ Township and Range
  - ▭ Sections
  - ▭ County Boundary
  - ▭ Planning Area Boundary
  - ▭ Area's not included in the Record of Decision
  - ▭ Stipulation Management Area
  - TL - Raptor Nest Sites
- Private Surface/Federal Subsurface**
- ▨ Coal
  - ▨ All Minerals
  - ▨ Oil and Gas
  - ▨ Oil, Gas and Coal
  - ▨ Other
- Land Status**
- Bureau of Land Management
  - Bureau of Reclamation
  - Department of Energy
  - U.S. Forest Service
  - Private
  - State

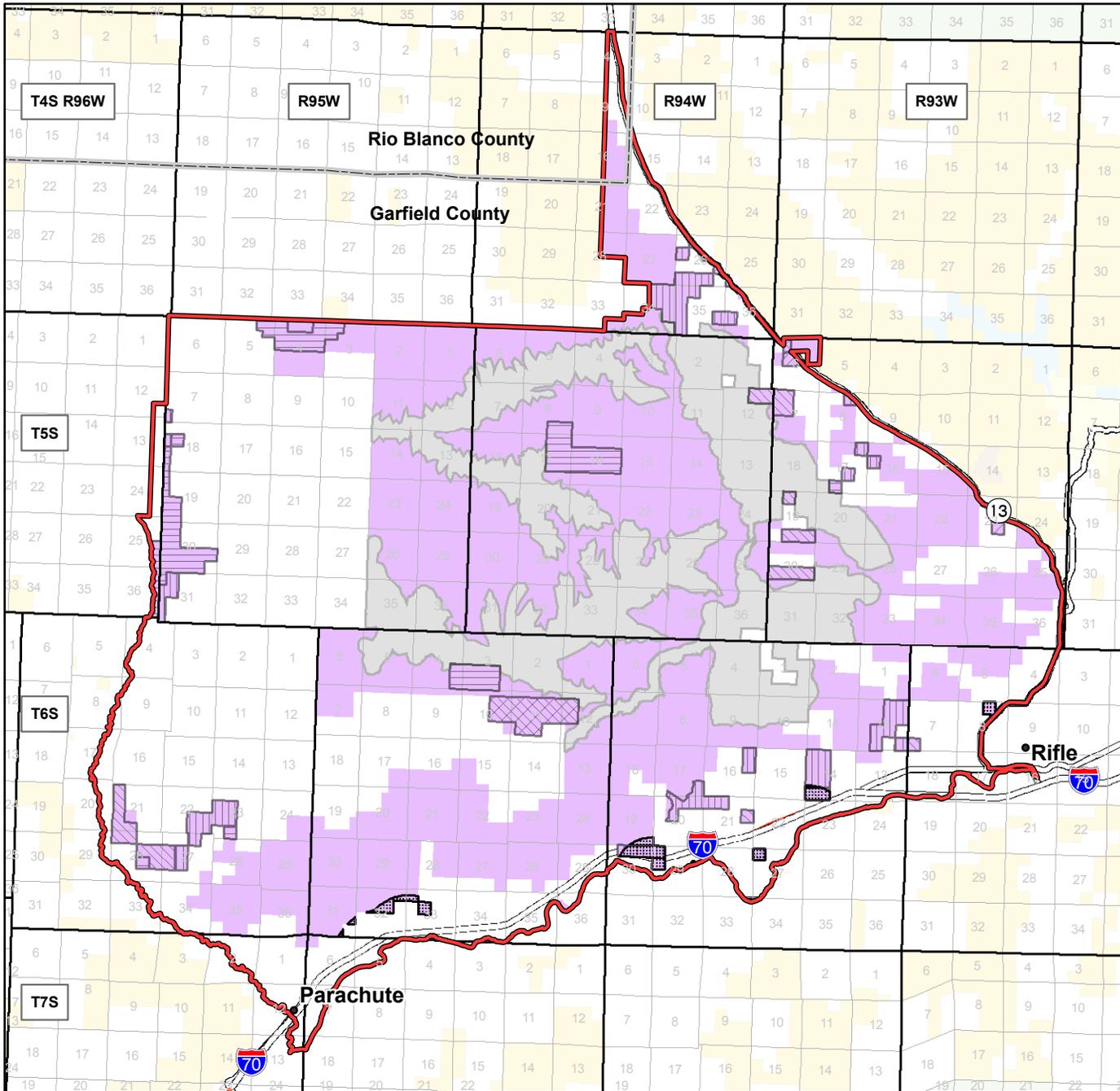
**Bureau of Land Management  
Glenwood Springs Field Office**

N

1:200,000

# GS-TL-ROAN-15 Timing Limitation Bald Eagle Nesting and / or Winter Roost Sites

- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ TL – Bald Eagle Nesting and Winter Roost Sites
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



**Bureau of Land Management  
Glenwood Springs Field Office**

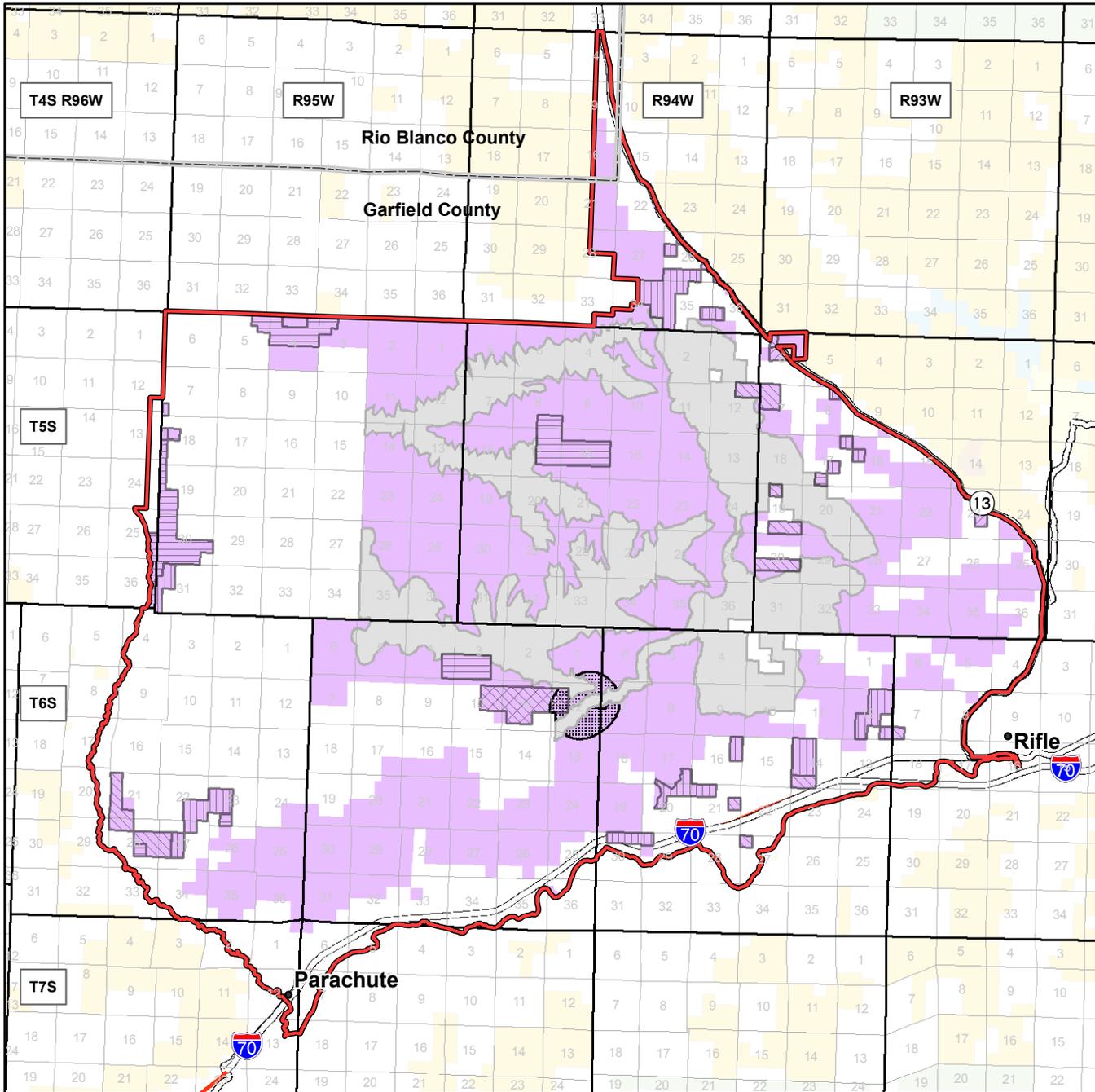
N

0.8 0 0.8 Miles

1:196,672

# GS-TL-ROAN-16 Timing Limitation Peregrine Falcon Cliff - Nesting Complex

- Cities
- ▭ Township and Range
- ▭ Sections
- ▭ County Boundary
- ▭ Planning Area Boundary
- ▭ Area's not included in the Record of Decision
- ▭ Stipulation Management Area
- ▭ TL - Peregrine Falcon Nesting and Fledging Habitat
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State



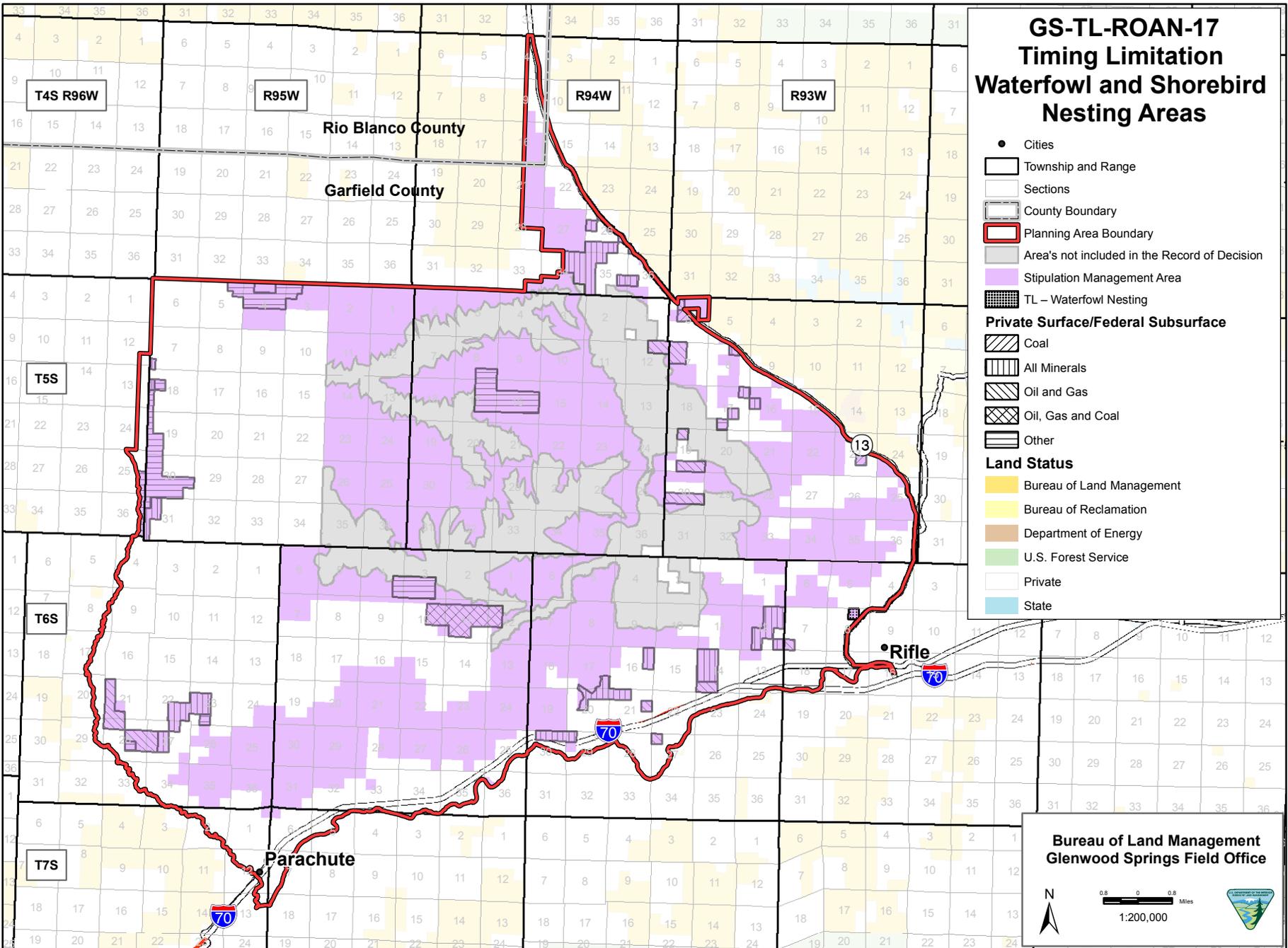
**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.9 0 0.9 Miles

1:200,000

# GS-TL-ROAN-17 Timing Limitation Waterfowl and Shorebird Nesting Areas



- Cities
- Township and Range
- Sections
- County Boundary
- Planning Area Boundary
- Area's not included in the Record of Decision
- Stipulation Management Area
- TL – Waterfowl Nesting
- Private Surface/Federal Subsurface**
- ▨ Coal
- ▨ All Minerals
- ▨ Oil and Gas
- ▨ Oil, Gas and Coal
- ▨ Other
- Land Status**
- Bureau of Land Management
- Bureau of Reclamation
- Department of Energy
- U.S. Forest Service
- Private
- State

**Bureau of Land Management  
Glenwood Springs Field Office**

N

0.8 0 0.8 Miles

1:200,000

## **Appendix G**

### **U.S. Fish and Wildlife Service Section 7 Letter**





# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, Colorado 81506-3946

RECEIVED  
BUREAU OF LAND MGMT.  
GLENWOOD SPRINGS, CO.

2007 FEB 9 PM 3 08

IN REPLY REFER TO:  
ES/CO:BLM/GSFO  
TAILS 65413-2007-F-0036

February 7, 2007

## Memorandum

To: Field Manager, Bureau of Land Management, Glenwood Springs Field Office,  
Glenwood Springs, Colorado

From: Western Colorado Supervisor, Fish and Wildlife Service, Ecological Services, Grand  
Junction, Colorado *Allen R. Puster*

Subject: Roan Plateau Resource Management Plan

This responds to your January 8, 2007, letter requesting consultation under section 7 of the Endangered Species Act for the Roan Plateau resource management plan amendment (RMPA). We received the final biological assessment for the RMPA on January 9, 2007. As documented in the biological assessment, you have determined that the RMP may affect, but is not likely to adversely affect, the Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), and bald eagle (*Haliaeetus leucocephalus*). You have also determined that the RMP would involve the depletion of water from the upper Colorado River watershed, which may affect the four endangered Colorado River fish: Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha*), and bonytail (*Gila elegans*).

Under the proposed RMPA, a total of 44,267 acres of lands not currently available for oil and gas leasing within the Roan Plateau planning area would be made available. The proposed RMPA also includes land use and resource management actions associated with other minerals, grazing and range management, recreation, motorized or mechanized travel, fire, and resource protection or restoration, among other issues. The need for the RMPA and associated environmental impact statement arose because of the transfer of management responsibility for Naval Oil Shale Reserves (NOSRs) No. 1 and 3 from the U.S. Department of Energy (DOE) to the Bureau of Land Management (BLM) for the stated purpose of making those lands available for oil and gas leasing and development within the context of multiple-use, sustained-yield management.

Because you have determined that the proposed RMPA would not affect the black-footed ferret (*Mustela nigripes*), southwestern willow flycatcher (*Empidonax trailii extimus*), Dudley Bluffs (=Piceance) twinpod (*Physaria obcordata*), and Uinta Basin hookless cactus (*Sclerocactus glaucus*), consultation and concurrence are not necessary on these species. The biological assessment also includes treatment of Federal candidate species and species that we have been

petitioned to include on the list of threatened and endangered species. We applaud the inclusion of the protections outlined in the biological assessment for these species. However, because these species are not included on the list of threatened and endangered species at this time, they are not addressed in this memorandum (other than the technical assistance provided below). Should any of these species become listed as threatened or endangered at a future date, consultation under section 7 of the Endangered Species Act should be initiated at that time.

You have requested our concurrence with your determination that the Roan Plateau RMPA may affect, but is not likely to adversely affect the Canada lynx, bald eagle, and Mexican spotted owl. We concur with your determination for these three species based on the following:

### Lynx

- 1) The Roan Plateau is isolated to some degree from other areas containing suitable habitat for the lynx.
- 2) The Roan Plateau contains a relatively small amount of potentially suitable lynx habitat compared to that needed to support lynx residency. Long-term use of the planning area by lynx is not expected (for these reasons, lynx habitat was not mapped within the planning area during the lynx habitat mapping effort for the Glenwood Springs Field Office resource area).
- 3) We have no records of lynx within the planning area. We are aware of some lynx activity recorded by satellite adjacent to the planning area near Piceance Creek. This activity was likely from a transitory individual moving through the area.
- 4) Most of the relatively small habitat patches within the planning area that may be suitable for lynx are protected by a no surface occupancy provision (NSO). Furthermore, only one percent of the area on top of the Roan Plateau could be disturbed at any one time.

### Bald Eagle

- 1) Long-term ground disturbing activities would be prohibited within 0.5 mile of the Colorado River and within bald eagle winter range, as mapped by the Colorado Division of Wildlife, which primarily occurs along the Colorado River. The most sensitive and important bald eagle habitats in or adjacent to the planning area are found along the Colorado River.
- 2) A 0.25 mile buffer prohibiting long-term ground-disturbing activities would be placed around all bald eagle nest and roost sites. Additionally, a 0.5 mile seasonal buffer prohibiting ground-disturbing activities would be placed around bald eagle nest and roost sites. This protective buffer would apply to other actions with the potential to disturb nesting or roosting eagles as well, such as geophysical exploration.

### Mexican Spotted Owl

- 1) The Mexican spotted owl has not been documented in the planning area, or in Garfield County. The nearest Mexican spotted owl observations are from Pitkin and Moffat counties.

- 2) Classic or prime Mexican spotted owl habitat is rare within the planning area. Potentially suitable habitat may exist within the Magpie Gulch Area of Critical Environmental Concern (ACEC) or along the perennial streams on top of the Plateau; however, these areas are protected by an NSO stipulation.
- 3) A 0.25 mile buffer prohibiting long-term ground-disturbing activities would be placed around any Mexican spotted owl nest. Additionally, a 0.5 mile seasonal buffer prohibiting ground-disturbing activities would be placed around Mexican spotted owl nests during the nesting season. This protective buffer would apply to other actions with the potential to disturb nesting spotted owls, such as geophysical exploration.

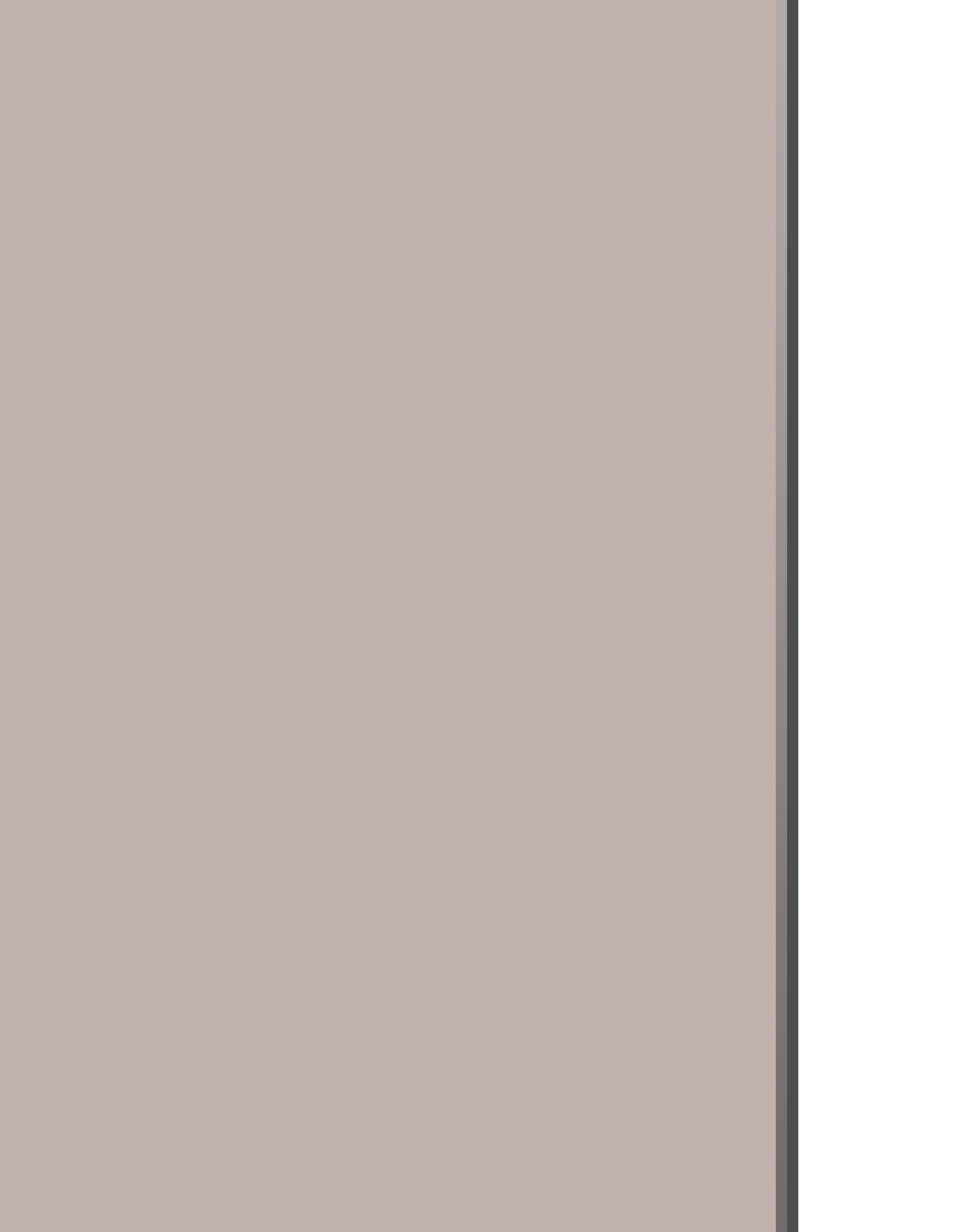
The Service concurs with your determination that water depletions associated with activities proposed under the Roan Plateau RMPA would adversely affect the Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), humpback chub (*Gila cypha*), and bonytail (*Gila elegans*) and their designated critical habitats. Projected water depletions associated with the project (83.6 acre-feet/year) are less than 100 acre-feet/year and can be addressed by the programmatic biological opinion issued to the BLM on June 13, 1994 (amended March 2, 2000 and September 27, 2005) for small water depletions caused by BLM authorized activities in the Colorado River basin in Colorado (biological opinion number ES/GJ-6-CO-94-F017). This biological opinion does not require individual consultation for each small depletion project but it does require the BLM to provide the Service an annual report of all water depletions associated with BLM authorized activities. Therefore, the Glenwood Springs Field Office should include the depletions associated with the Roan Plateau RMPA in the annual report to the BLM State Office.

You have provided various protections for both listed and non-listed species, and their habitats, in the Roan Plateau RMPA. We would like to commend you for these protective measures and add our support. We have two additional recommendations for resource protection that we have not found in the RMPA. First, although candidate and sensitive plant species would be protected from long-term ground-disturbing activities, it appears that they may not be fully protected from actions involving short-term disturbance (e.g., pipeline installation, geophysical exploration). We recommend that they be protected from all actions involving ground disturbance. Second, although various stipulations in the plan would serve to protect water quality, details regarding water quality testing and monitoring appear to be lacking. We recommend that surface water be regularly tested to ensure that its quality is being maintained in the face of increased natural gas extraction. For example, water samples could be periodically taken in the primary creeks on the Roan Plateau prior to leaving BLM land (i.e., East Fork and East Middle Fork of Parachute Creek and Ben Good Creek). The water should be tested for contaminants potentially associated with hydrocarbon extraction and surface disturbance in this area, such as total hydrocarbons, salinity, sediment load, possibly selenium, etc. This way, water quality impacts could be identified and corrective actions taken, if necessary. Water quality maintenance is important for the Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), which lives in these streams, as well as the endangered Colorado River fish occurring downstream.

No further consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended, is required at this time. If you become aware of new information regarding the design or timing of the proposed project or the occurrence of listed species in the vicinity of the project area, we recommend that you contact us as soon as possible to assess any potential impacts to listed species and the need for further consultation.

If you have any questions, please contact Creed Clayton of my staff at (970) 947-5219.

CClayton:BLMGSFORoanPlateauRMPADepletion&CL.doc:020707



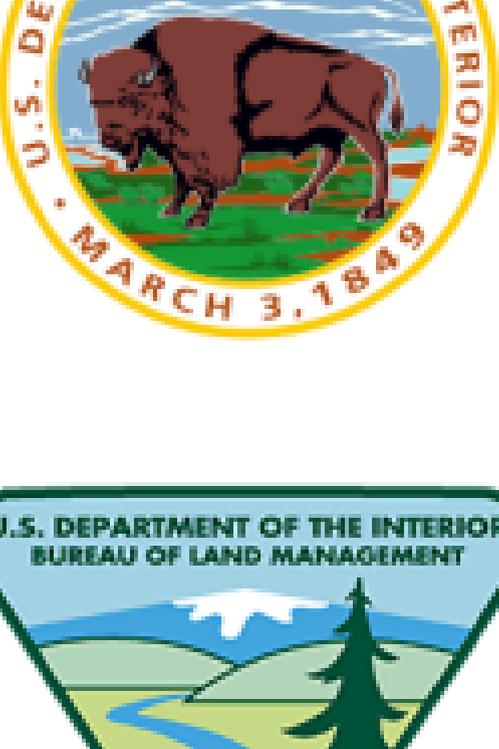
# **GLENWOOD SPRINGS FIELD OFFICE**

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## **Record of Decision**

**for the Approval of Portions of the Roan Plateau**

**Resource Management and Environmental Impact Statement**



**MAY 2007**