BLM

Miles City Field Office
Approved Resource Management Plan

Attachment 9

From the Record of Decision and Approved Resource Management Plan Amendments for the Rocky Mountain Region including the Greater Sage-Grouse Sub-Regions of: Lewistown, North Dakota, Northwest Colorado, and Wyoming and the Approved Resource Management Plans for: Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota, and Worland

Prepared by
US Department of the Interior
Bureau of Land Management
Miles City Field Office, Montana

September 2015

MISSION STATEMENT

The BLM manages more than 245 million acres of public land, the most of any Federal agency. This land, known as the National System of Public Lands, is primarily located in 12 Western states, including Alaska. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. The BLM's mission is to manage and conserve the public lands for the use and enjoyment of present and future generations under our mandate of multiple-use and sustained yield. In Fiscal Year 2014, the BLM generated $5.2 billion in receipts from public lands.

BLM/MT/PL-15/010+1610

State Director Recommendation for Approval

I hereby recommend for approval the Miles City Resource Management Plan.

Jamie E. Connell, Montana/Dakotas State Director

Sept 15, 2015
Date

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L Mitigation Measures and Conservation Actions
M Monitoring
N Reclamation
O Recreation
P Special Designation Areas
Q Biological Opinion

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ACEC	area of critical environmental concern
AO	Authorized Officer
AQRV	air quality related value
APD	application for permit to drill
ARMP	Approved Resource Management Plan
AUM	animal unit month
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CBNG	coal bed natural gas
CFR	Code of Federal Regulations
cm	centimeters
COA	condition of approval
COT	USFWS Conservation Objectives Team
CSU	controlled surface use
EA	environmental assessment
EDRR	early detection rapid response
EIS	environmental impact statement
ERMA	extensive recreation management area
ESA	Endangered Species Act
FEIS	final environmental impact statement
FIAT	Fire and Invasive Species Team
FLPMA	Federal Land Policy and Management Act
GHG	greenhouse gas
GIS	geographic information system
GHMA	greater sage-grouse general habitat management area(s)
GRSG	Greater Sage-Grouse
IM	instruction memorandum
Km	kilometer
kV	kilovolt
LWC	Lands with Wilderness Characteristics
mbf	thousand board feet
MCFO	Miles City Field Office
MD	management decisions
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish, Wildlife, and Parks
MLP	master leasing plan
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NSO	no surface occupancy
OHV	off-highway vehicle
PFC	proper functioning condition

	Full Phrase
PHMA	greater sage-grouse priority habitat management area(s)
PRMP	proposed resource management plan
RCA	reserve common allotment
RDF	required design feature
RHMA	greater sage-grouse restoration habitat management area(s)
RMP	resource management plan
ROD	record of decision
ROW	right-of-way
SFA	sagebrush focal area(s)
SRMA	special recreation management area
SRP	special recreation permit
TMA	travel management area
U.S.C.	United States Code
USDA	United States Department Of Agriculture
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRM	visual resource management
WO	Washington Office, Bureau of Land Management
WSA	Wilderness Study Area

CHAPTER 1
INTRODUCTION

The purpose of this Approved Resource Management Plan (ARMP) is to approve the Bureau of Land Management (BLM) management decisions on approximately 2.75 million acres of BLM-administered surface and 10.6 million acres of BLM-administered minerals in the Miles City Field Office (MCFO; **Table 1-1**). The regulations for making and modifying land use plan decisions, which comprise a resource management plan (RMP), are found in 43 Code of Federal Regulations (CFR), Part 1600. Land use plan decisions consist of (1) desired outcomes (goals and objectives) and (2) allowable uses and management actions. This ARMP replaces the land use plan decisions in the 1996 Big Dry RMP (BLM 1996) and the 1985 Powder River RMP (BLM 1985) for the planning area.

1.1 DESCRIPTION OF THE PLANNING AREA

The record of decision (ROD) approving the RMP provides a framework for future management direction and appropriate use on BLM-administered lands in the following eastern Montana counties: Carter, Custer, Daniels, Dawson, Fallon, Garfield, McCone, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Treasure, Wibaux, and portions of Big Horn and Valley.

1.2 PURPOSE AND NEED

The purpose of the RMP is to provide a single, comprehensive land use plan to guide management of BLM-administered lands in the MCFO. This plan provides goals, objectives, land use allocations, and management direction for the BLM-administered surface and mineral estate based on multiple use and sustained yield, unless otherwise specified by law (Federal Land Policy and Management Act [FLPMA] Section 102[c], 43 United States Code [USC], Section 1701 et seq.)

This comprehensive plan is needed to address competing resource uses and values in the same area. In addition, the following conditions have changed since the original RMPs were approved:

- Changed ecological, socioeconomic, institutional, and regulatory conditions
- New laws, regulations, and policies that supersede previous decisions
- Changing user demands and activities
- Changing tolerance or acceptance of impacts

Table 1-1
Lands in the Planning Area

County	Total County Acres	BLM-Administered Surface Acres and Percentage of Total County Surface Acres	BLM-Administered Mineral Acres and Percentage of Total County Mineral Acres
Big Horn[1]	636,274	27,272 (4%)	360,903 (57%)
Carter	2,143,093	503,790 (24%)	1,108,318 (52%)
Custer	2,427,607	332,459 (14%)	722,874 (30%)
Daniels	912,751	200 (<1%)	387,058 (42%)
Dawson	1,525,192	62,016 (4%)	642,972 (42%)
Fallon	1,038,500	115,261 (11%)	257,423 (25%)
Garfield	3,102,325	493,491 (16%)	1,583,753 (51%)
McCone	1,717,078	200,808 (12%)	857,968 (50%)
Powder River	2,110,893	255,875 (12%)	1,180,600 (56%)
Prairie	1,115,213	447,462 (40%)	614,137 (55%)
Richland	1,345,067	51,601 (4%)	813,708 (60%)
Roosevelt	1,516,468	4,197 (<1%)	334,457 (22%)
Rosebud	3,217,234	230,056 (7%)	649,658 (20%)
Sheridan	1,090,439	261 (<1%)	847,306 (78%)
Treasure	629,854	748 (<1%)	35,615 (6%)
Valley[2]	720,382	0 (0%)	0 (0%)
Wibaux	568,346	26,033 (5%)	214,240 (38%)
Total	25,816,716	2,751,530	10,610,990

Source: Public Land Statistics publication 2013

[1]Big Horn County is split between the Miles City and Billings Field Offices.
[2]Valley County ownership in the planning area includes only a portion of the Fort Peck Indian Reservation.

The RMP was also prepared to incorporate consistent objectives and conservation measures for the management of Greater Sage-Grouse (GRSG) habitat. These conditions also drive the need for an inclusive comprehensive plan that provides updated and clear direction to both the BLM and the public. The RMP also incorporates appropriate management actions and practices to conserve, enhance, and restore GRSG habitat on BLM-administered land.

The BLM has prepared this ARMP for plans containing GRSG habitat. This is needed to respond to the United States Fish and Wildlife Service's (USFWS's) March 2010 "warranted, but precluded" Endangered Species Act (ESA) listing decision. Inadequacy of regulatory mechanisms was identified as a significant threat in the finding. The USFWS identified the principal regulatory mechanisms for the BLM and the United States Forest Service (Forest Service) as conservation measures embedded in land use plans. Changes in management of GRSG habitats are necessary to avoid the continued decline of populations across the species' range. This ARMP focuses on areas affected by threats to GRSG habitat identified by the USFWS in the March 2010 listing decision and in the USFWS Conservation Objectives Team (COT) report (USFWS 2013).

The major threats to GRSG and its habitat identified in BLM-administered lands in the Miles City planning area are the following:

- Wildfire—loss of large areas of GRSG habitat due to wildfire
- Invasive species—conversion of GRSG habitat to cheatgrass-dominated plant communities
- Conifer invasion—encroachment of pinyon or juniper into GRSG habitat
- Infrastructure—fragmentation of GRSG habitat due to development, such as rights-of-way (ROWs) and renewable energy development
- Grazing—loss of habitat components due to improper livestock grazing
- Hard rock mining—fragmentation of GRSG habitat due to mineral exploration and development
- Fluid mineral development—fragmentation of GRSG habitat due to mineral exploration and development
- Human uses—fragmentation of GRSG habitat or modification of GRSG behavior due to human presence and activities
- Climate change–fragmentation of GRSG habitat due to climate stress

One of the purposes for the ARMP is to identify and incorporate appropriate conservation measures in existing land use plans to conserve, enhance, and restore GRSG habitat by reducing, eliminating, or minimizing threats to GRSG habitat. The BLM will consider such measures in the context of its multiple use and sustained yield mandates under FLPMA.

Because the BLM administers a large portion of GRSG habitat in the affected states, changes in GRSG habitat management are anticipated to have a considerable beneficial impact on present and future GRSG populations.

1.3 PLANNING CRITERIA

The following planning criteria are the constraints or ground rules that guided and directed the preparation of the RMP. Planning criteria used in the development of the RMP are as follows:

1. The RMP will be prepared collaboratively with federal, local, and state governments. While collaborators may recommend a preferred decision to the BLM, the BLM will retain its decision-making authority.
2. The RMP will be completed in compliance with FLPMA and all other applicable laws.
3. The planning process will include preparation of an environmental Impact Statement (EIS) that will comply with National environmental Policy Act (NEPA) standards.
4. The proposed RMP will comply with all applicable laws, regulations, and policies.
5. The scope of analysis will be consistent with the level of analysis supporting approved plans and in accordance with BLM-wide standards and program guidance.
6. The RMP will incorporate by reference all analyses, as appropriate from amendments that have been made to the RMPs, including the ROD, Oil and Gas Amendment, Billings-Powder

River-South Dakota Resource Management Plans/Environmental Impact Statements (BLM 1994) and the Final Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans (BLM, Montana Board of Oil and Gas Conservation, and Montana Department of Environmental Quality [MDEQ] 2003).

7. The RMP revision will incorporate by reference all appropriate prior Wilderness Study Area (WSA) findings in the planning area.
8. The RMP will incorporate the requirements of the interagency reference guide entitled Reasonably Foreseeable Development Scenarios and Cumulative Effects Analysis Developed by the Rocky Mountain Federal Leadership Forum on NEPA, Oil and Gas, and Air Quality (BLM 2002).
9. Mitigation measures and conservation actions, such as those for road drainage, fire rehabilitation, and other activities, will be considered as potential mitigation measures.
10. Resource allocations must be reasonable, achievable, and measurable and must be within available technological constraints.
11. The lifestyles and concerns of area residents will be recognized in the RMP.
12. American Indian Consultation and Coordination: close coordination will take place to see that the Tribes' needs are considered and analyzed and that the BLM fulfills its trust responsibilities.
13. The planning process will include early consultation meetings with the USFWS during the development of the RMP.
14. The RMP will recognize the State of Montana's responsibility to manage wildlife populations, including such uses as hunting and fishing, within the planning area.
15. The RMP will result in determinations as required by special program and resource-specific guidance detailed in Appendices C and D of the BLM's Planning Handbook.
16. Decisions in the plan will strive to be compatible with the existing plans and policies of adjacent local, state, tribal, and federal agencies as long as the BLM decisions conform with legal mandates on managing public lands.
17. The RMP will establish new guidance and will identify existing guidance that the BLM will rely on when managing public lands and minerals in the planning area.
18. Geospatial data will be automated within a geographic information system (GIS) to facilitate discussions of the affected environment, alternative formulation, analysis of environmental consequences, and display of the results.
19. The National Greater Sage-grouse Habitat Conservation Strategy (US DOI 2004) requires that impacts on sagebrush habitat and sagebrush-dependent wildlife species (including GRSG) be analyzed and considered in the BLM's land use planning efforts for public lands with GRSG and sagebrush habitats.
20. The BLM will use the Western Association of Fish and Wildlife Agencies Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004) and other appropriate resources to identify GRSG habitat requirements.

1.4 ISSUES ADDRESSED

The following issues were identified during the public scoping period. Management actions designed to address the issues or resolve conflicts are described and analyzed in the RMP. The MCFO Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) includes changes as a result of comments received on the Draft RMP/EIS.

A notice of availability announcing the release of the Draft RMP/EIS was published in the *Federal Register* on March 8, 2013, initiating a 90-day public comment period that ended on June 5, 2013. During the 90-day comment period, the public was provided the opportunity to review and comment on the Draft RMP/EIS. The BLM received 196 submissions, which included approximately 853 substantial comments. The BLM held eight public meetings in the planning area.

The PRMP/FEIS includes changes as a result of comments received on the Draft RMP/EIS, which assisted the BLM in refining the discussion of these issues.

Issue 1: How will vegetation be managed on BLM-administered lands to achieve healthy ecosystems, while providing for a broad range of multiple uses?

This issue highlights concerns over managing vegetation resources and communities. There is considerable interest in ensuring that vegetation management provide a range of commodity uses (such as timber and forest products, mineral development, and livestock grazing), while maintaining or restoring vegetation communities (such as riparian and wetland communities) to provide other resource values, such as high quality wildlife and aquatic habitat. In addition, the management of weeds and other nonnative invasive species was identified as a critical part of public land management.

Issue 2: How will BLM-administered lands be managed to provide wildlife habitat and to conserve and recover special status animal species and priority species?

This issue identified concerns on how the RMP will focus on a multispecies, ecosystem approach to managing habitat for wildlife, fish, and special status plants and animals. Specifically the issue focused on how the BLM would Conserve habitat that supports viable populations of all native species. How habitat needs to be managed to accommodate natural disturbances such as fire, herbivory, and insect outbreaks; diverse vegetative communities need to be maintained and provided; and how uses need to be managed in a manner that conserves and enhances ecological processes.

Issue 3: How should the BLM manage motorized public travel to meet the needs for public access and resource uses, while minimizing user conflicts and impacts on air, soil, watersheds, vegetation, wildlife, and other resource values?

The issue focused on how the BLM would manage the travel and off-highway vehicle (OHV) use in a balanced approach to provide sustainable local economic benefits to minimize or mitigate user conflict, safety concerns, and resource impacts.

Issue 4: How should recreation management accommodate the full range of recreation enjoyed by the public on BLM-administered lands?

This issue focused on the need to set direction for recreation management in light of Increased demands on developed recreation sites and the need for new strategies to improve management efficiency, appropriate services, facilities, and public experiences; The need for special recreation permits (SRPs) to better protect natural resources, minimize user conflicts, and The need to classify recreation settings using the recreation setting characteristics system and modify existing special recreation management areas (SRMAs) to provide a wide range of appropriate activities that foster beneficial experiences for the public.

Issue 5: Which areas, if any, should be managed with special designations? How should they be managed to protect values that warrant their special designation status?

This issue resulted in eight new areas being nominated and reviewed for the special designation classification as areas of critical environmental concern (ACECs). In addition to the new nominations, the BLM also evaluated the management for the 16 current ACECs to determine if the ACECs meet the original relevant criteria, importance criteria or require special management. Finally, the issue brought forth the management of national trails to protect their resource values and characteristics. The reevaluation of the suitability of rivers in the planning area for inclusion in the National Wild and Scenic River System. The inclusion of the five WSAs that are in the planning area.

Issue 6: Which areas, if any, qualify for a master leasing plan (MLP)? How should they be managed to minimize conflicts between fluid mineral development and other resources?

The MLP issue was introduced in the Washington Office (WO) Leasing Reform Instruction Memorandum (IM) 2010-117 (BLM 2010a). This IM promotes a proactive approach to planning for oil and gas development. It provides additional planning, analysis, and decision-making that may be necessary prior to oil and gas leasing because of changing circumstances, updated policies, and new information. To determine whether circumstances warrant additional planning and analysis, WO-IM-2010-117 lists numerous criteria to be considered. The criteria are discussed in the IM's Chapter 3, in the Minerals Section, and the analysis for MLPs is in the Chapter 4 Minerals section.

Issue 7: How can the BLM incorporate climate change adaptation or responses into its land management practices?

This issues surrounding climate change present a new challenge to the BLM in its ongoing efforts to address its mission. Although the size, scope, and timing of these effects is difficult to predict, this phenomenon is expected to affect a wide variety of resources, such as water, vegetation, and wildlife) and resource uses, such as livestock grazing and mineral development. Adapting land management practices to address climate change is likely to involve the following:

Recognizing resource impacts that are caused by climate change (rather than normal weather variability); Identifying management actions and best management practices (BMPs) that can reduce impacts on resources and resource uses; and implementing these management actions and BMPs.

Issue 8: How will the exploration and development of BLM-administered minerals be managed in the planning area?

This issue identified the following needs:

To provide direction on how BLM-administered minerals would be managed; to ensure areas available for mineral development are compatible with other resources and resource uses; to provide exploration and development are conducted in an environmentally sound manner, and, Where possible, to conserve significant or unique geological features.

Additionally, tied to this issue is how BLM-administered land would be managed to provide for the transportation of these minerals from one area to another.

1.4.1 Issues Considered But Not Analyzed Further

During scoping, several commenters raised concerns that are beyond the scope of this RMP or that referred to the BLM planning process and implementation. Additionally, several issues were raised that are of concern to the public but that are governed by existing laws and regulations (e.g., water quality). Where law or regulation already dictates certain management, alternatives were not developed.

Policy or administrative actions are those that the BLM implements because they are standard operating procedure, because federal law requires them, or because they are BLM policy. Administrative actions do not require a planning decision to implement; therefore, they were eliminated from detailed analysis in this RMP.

The Miles City Field Office Resource Management Plan and Environmental Impact Statement Final Scoping Report provides a comprehensive list of issues outside the scope of the RMP or issues addressed through administrative or policy action (Parametrix 2005). The scoping report is online at http://www.blm.gov/style/medialib/blm/mt/field_offices/miles_city/rmp/scopingreport.Par.92962.File.dat/Final_RMP_Scoping_Report.pdf

Some major issues were considered but not analyzed because they were inconsistent with existing laws or higher-level management direction or because they were beyond the scope of this RMP. These issues are listed below.

Issue: The numbers of hunting permits issued should be changed.

Response—Decisions on the number of hunting permits and other hunting regulations are the responsibility of Montana Fish, Wildlife, and Parks (MFWP).

Issue: The BLM should engage in prairie dog extermination.

The BLM maintains and manages wildlife habitat to help ensure self-sustaining populations and a natural abundance and diversity of wildlife, including prairie dogs, on public lands. Control opportunities are prescribed within the Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002).

Issue: Hunting and fishing should be recognized as historic, and traditional uses in the Upper Missouri River Breaks National Monument should be included in current and future management plans.

Response—The Upper Missouri River Breaks National Monument is not in the planning area.

Issue: Provide equitable distribution of firefighting resources across the state.

Response—Staffing is an administrative decision, and such decisions are not made in land use plans.

Issue: The Charles M. Russell National Wildlife Refuge should be returned to BLM management.

Response—Any decision about the modification or revocation of existing withdrawals that added or withdrew lands to the National Wildlife Refuge System would require an act of Congress and are outside the scope of this RMP.

Issue: Detailed surveys of proposed development areas should be conducted before any development occurs.

Response—Site-specific analysis will take place when the individual projects are implemented.

Issue: Water from Fort Peck should remain in Montana.

Response—The decision on the disposition of water from the Fort Peck Dam and Reservoir is the responsibility of the United States Army Corps of Engineers.

Issue: Include specific measurable terms and conditions for livestock grazing in riparian areas, uplands, and wildlife and fisheries habitat.

Response—The decision to include other terms and conditions on grazing permits or leases to help achieve management objectives, to provide for proper range management, or to assist in the orderly administration of public rangelands are made at the allotment- and permit-specific level. These decisions are incorporated at the individual permit renewal level and not in the RMP.

Issue: Prime and Unique Farmlands:

Response—Prime farmland is those agricultural lands best suited to producing food, forage, feed, fiber, and oilseed crops. Although soils considered prime farmlands (if irrigated) occur in the planning area, the unavailability of dependable water in these areas prevents their classification as prime farmland. Therefore, there are no classified prime farmlands on BLM-administered lands in the planning area.

CHAPTER 2
APPROVED RESOURCE MANAGEMENT PLAN FOR GREATER SAGE-GROUSE (GRSG)

2.1 DESCRIPTION OF GRSG HABITAT MANAGEMENT AREAS

The decision area for GRSG habitat management in this ARMP is BLM-administered lands in GRSG habitat management areas, including surface and split-estate lands with BLM subsurface mineral rights. GRSG habitat on BLM-administered lands in the decision area consists of lands allocated as priority habitat management areas (PHMA), general habitat management areas (GHMA), and restoration habitat management areas (RHMA; see **Figure 2-1**, Miles City Decision Area for Greater Sage-Grouse Habitat Management Areas on BLM-Administered Lands, and **Table 2-1** and **Table 2-2**).

PHMA and GHMA are defined as follows:

- PHMA—BLM-administered lands identified as having the highest value to maintain sustainable GRSG populations. The boundaries and management strategies for PHMA are derived from and generally follow the preliminary priority habitat boundaries identified in the Draft RMP/EIS. PHMA largely coincide with areas identified as priority areas for conservation in the COT report.
- GHMA—This is BLM-administered lands where some special management will apply to sustain GRSG populations. The boundaries and management strategies for GHMA are derived from and generally follow the preliminary general habitat boundaries identified in the Draft RMP/EIS.
- RHMA—These are BLM-administered lands where maintaining populations is a priority; another priority is achieving a balance between ongoing and future resource use so that enough quality habitat is maintained to allow some residual population in impacted areas to persist.

Sagebrush focal areas (SFA) are a subset of PHMA. The SFA were derived from GRSG stronghold areas described in a USFWS memorandum to the BLM titled Greater Sage-Grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes (USFWS 2014). The

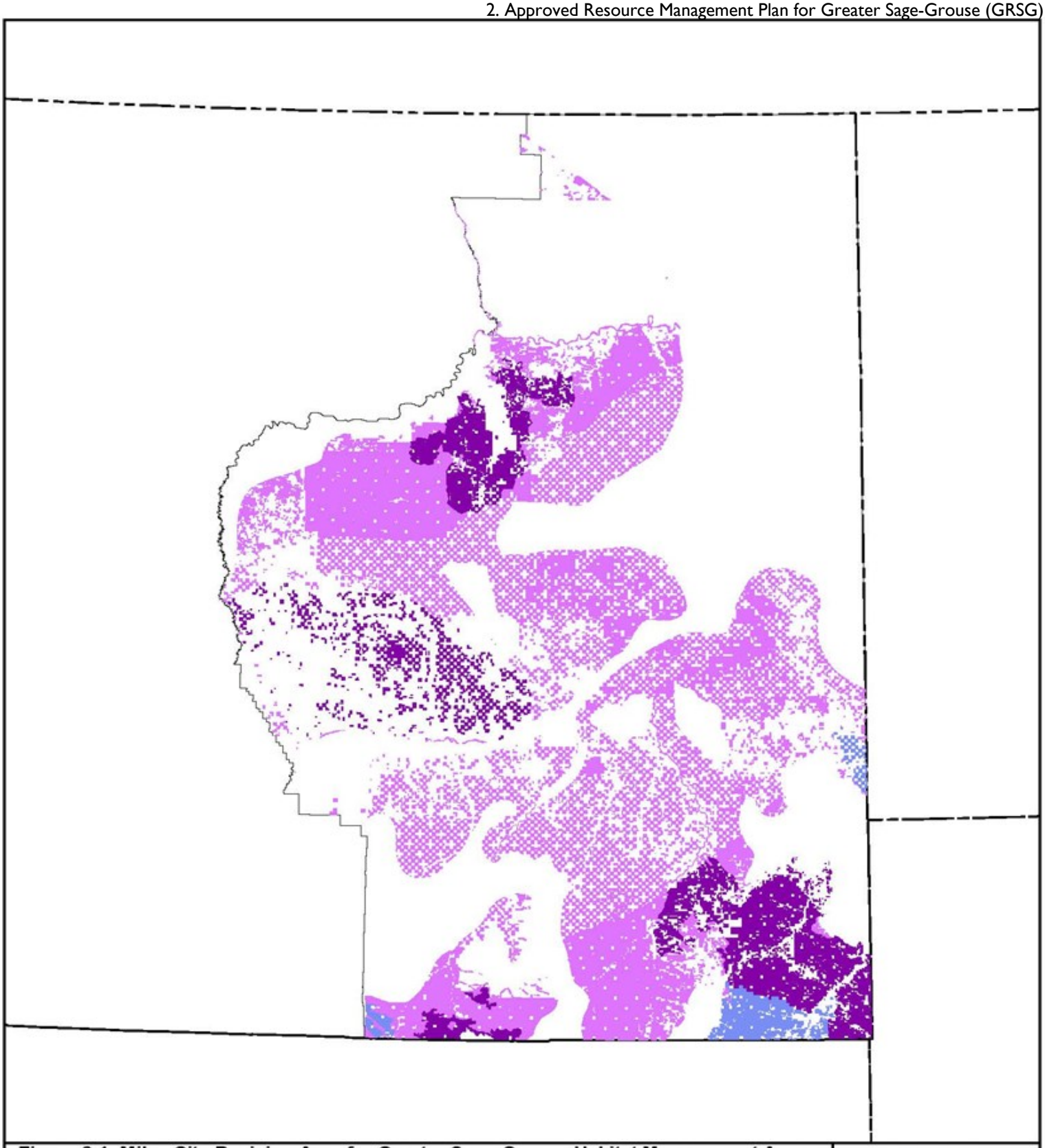

Figure 2-1: Miles City Decision Area for Greater Sage-Grouse Habitat Management Areas on BLM Administered Lands

Legend

- Priority Habitat Management Areas (PHMAs)
- General Habitat Management Areas (GHMAs)
- Restoration Habitat Management Areas (RHMAs)
- Planning Area Boundary
- State Boundary

N W E S

0 20 40 Miles

September 2015

Map Area

WA OR ID MT ND SD WY NE NV UT CO KS CA AZ NM TX OK

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

Table 2-1
Acres of PHMA, GHMA and RHMA in the ARMP Decision Area

Surface Land Management	PHMA	RHMA	GHMA
BLM-Administered surface estate	817,000	87,000	1.5 million
BLM-administered mineral estate	1.32 million	198,000	2.7 million

Source: BLM GIS 2015a

Table 2-2
Acres of GRSG Habitat By County in the Decision Area (BLM-Administered Surface Lands Only)

County Name	ARMP			
	PHMA	RHMA	GHMA	Total (BLM-Administered Acres in County)
Big Horn	2,703	2,901	14,340	27,272
Carter	368,886	64,098	48,257	503,790
Custer	3,277	0	280,810	332,459
Daniels	0	0	0	200
Dawson	0	0	33,838	62,016
Fallon	0	20,317	80,707	115,261
Garfield	150,622	0	222,815	493,491
McCone	86,849	0	113,732	200,808
Powder River	56,152	0	147,938	255,875
Prairie	0	0	423,189	447,462
Richland	0	0	748	51,601
Roosevelt	0	0	61	4,197
Rosebud	148,162	0	54,269	230,056
Sheridan	0	0	0	261
Treasure	562	0	141	748
Valley	0	0	0	0
Wibaux	0	0	19,729	26,033
Grand Total	**817,213**	**87,316**	**1,440,574**	**2,751,530**

Source: BLM GIS 2015a

memorandum and associated maps identify areas that represent recognized strongholds for GRSG that have been noted and referenced as having the highest densities of GRSG and other criteria important for the persistence of the species. While there is an area in the Miles City planning area that the USFWS recognizes as a stronghold, that area is already managed as a WSA and is not identified as an SFA.

Within the MCFO planning area, GRSG PHMA are not further refined into biologically significant units (BSUs) for GRSG. The GRSG PHMA are themselves the BSU for GRSG. A BSU for this plan is the summary of all the PHMA within a GRSG population, as delineated in the COT report. These BSUs are used solely for calculating the human disturbance threshold and, in some ARMPs and ARMPAs, the adaptive management habitat triggers.

2.2 MILES CITY GRSG CONSERVATION SUMMARY

The ARMP identifies and incorporates measures to conserve, enhance, and restore GRSG habitat by avoiding, minimizing, and compensating for unavoidable impacts of threats to GRSG habitat. The ARMP addresses threats to GRSG and its habitat identified by the National Technical Team and the USFWS in the March 2010 listing decision, as well as those threats described in the USFWS's COT report. In accordance with that report, the USFWS identified threats by GRSG population across the range and stated whether the threats are present and widespread, present but localized, or unknown for that specific population.

Table 2-3 identifies the GRSG populations and the threats identified in the COT in the Miles City planning area.

Table 2-3
Threats to GRSG in the Miles City Subregion as Identified by the Conservation Objectives Team

GRSG Identified Populations from the COT Report Applicable to the Miles City Subregion	Unit Number	Isolated Small Size	Sagebrush Elimination	Agriculture Conversion	Fire	Conifers	Weeds/Annual Grasses	Energy	Mining	Infrastructure	Improper Grazing	Free-Roaming Equids	Recreation	Urbanization
Dakotas (ND, SD)	1	Y	L	L	Y	U	L	Y	Y	Y	L	N	N	N
Powder River Basin (WY)	3	N	L	N	L	L	Y	Y	Y	Y	Y	N	Y	L
Yellowstone Watershed (MT)	4	N	L	Y	L	L	Y	Y	N	Y	Y	N	L	N

Source: USFWS 2013

Threats are characterized as Y = threat is present and widespread, L = threat present but localized, and U = unknown.

Table 2-4 provides a crosswalk as to how the ARMP for the Miles City planning area addresses the threats from the COT report.

The ARMP also identifies measures that are designed to conserve, enhance, and restore GRSG habitat. It applies the following summarized management decisions, subject to valid existing rights, to other uses and resources:

- Providing a framework for prioritizing areas in PHMA and GHMA for wildfire, invasive annual grass, and conifer treatments
- Requiring specific design features for certain land and realty uses
- Implementing a disturbance cap to limit disturbance in PHMA
- Including GRSG habitat objectives in land health standards
- Adjusting grazing practices as necessary, based on GRSG habitat objectives, land health standards, and ecological site potential

Table 2-4
Key Components of the Miles City ARMP Addressing COT Report Threats

Threats to GRSG and its Habitat (from COT Report)	Key Components of the Miles City ARMP
All threats	• Implement the adaptive management plan, which allows for more restrictive land use allocations and management actions to be implemented if habitat or population hard triggers are met. • Require and ensure mitigation that provides a net conservation gain to GRSG for actions that result in habitat loss and degradation. • Monitor implementation and effectiveness of conservation measures in GRSG habitats according to the habitat assessment framework.
All development threats, including mining, infrastructure, and energy development	• PHMA—implement a human disturbance cap of 3% at the BSU and project area scale. • PHMA—Implement a density cap of an average of 1 energy and mining facility per 640 acres. • Apply buffers based on project type and location to address impacts on leks when authorizing actions in GRSG habitat. • Apply required design features (RDFs) when authorizing actions in GRSG habitat. • Minimize the effects of infrastructure projects, including siting, using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Energy development—fluid minerals	• PHMA—Open to fluid mineral leasing subject to no surface occupancy (NSO) stipulation without waiver or modification and with limited exception. • GHMA—Open to fluid mineral leasing subject to NSO within 0.6 mile and controlled surface use (CSU) stipulation within 2 miles of an occupied lek. • Prioritize the leasing and development of fluid mineral resources outside GRSG habitat.
Energy development—wind energy	• PHMA—Exclusion area (not available for wind energy development under any conditions) • GHMA—Avoidance area (may be available for wind energy development with special stipulations)
Energy development—solar energy	• PHMA—Exclusion area (not available for solar energy development under any conditions) • GHMA—Avoidance area (may be available for solar energy development with special stipulations)
Infrastructure—major ROWs	• PHMA—Avoidance area (may be available for major ROWs with special stipulations) • GHMA—Avoidance area (may be available for major ROWs with special stipulations)
Infrastructure—minor ROWs	• PHMA—Avoidance area (may be available for minor ROWs with special stipulations)
Mining—locatable minerals	• Apply RDFs to locatable minerals consistent with applicable law.
Mining—nonenergy leasable minerals	• PHMA—Closed area (not available for nonenergy leasable minerals)

Table 2-4
Key Components of the Miles City ARMP Addressing COT Report Threats

Threats to GRSG and its Habitat (from COT Report)	Key Components of the Miles City ARMP
Mining—salable minerals	• PHMA—Closed area (not available for salable mineral development) with a limited exception (may remain open to free use permits and expansion of existing active pits if criteria are met)
Mining—coal	• PHMA is essential habitat for GRSG for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).
Improper livestock grazing	• Prioritize the review and processing of grazing permits/leases in PHMA. • Include in the NEPA analysis for renewals and modifications of grazing permits and leases specific management thresholds, based on the GRSG habitat objectives table, land health standards, and ecological site potential to allow adjustments to grazing that have been subjected to NEPA analysis. • Prioritize field checks in PHMA to ensure compliance with the terms and conditions of grazing permits.
Free-roaming equid (wild horses and burros) management	• Not applicable; not present in the planning area
Range management structures	• Allow range improvements that do not impact GRSG or that provide a conservation benefit to GRSG, such as fences for protecting important seasonal habitats.
Recreation	• PHMA—Do not construct new recreation facilities.
Fire	• GHMA—Prioritize suppression where wildfires threaten PHMA. • PHMA—Prioritize suppression immediately after life and property to conserve the habitat.
Nonnative, invasive plant species	• Treat sites in PHMA and GHMA that contain invasive species infestations through integrated pest management.
Sagebrush removal	• PHMA—Maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6). • Ensure that all BLM use authorizations contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives for GRSG.
Pinyon and juniper expansion	• Remove conifers encroaching into sagebrush habitats, in a manner that considers tribal cultural values, prioritizing occupied GRSG habitat.
Agricultural conversion and exurban development	• Retain GRSG habitat in federal management.

2.3 GOALS, OBJECTIVES, AND MANAGEMENT DECISIONS FOR GRSG HABITAT

This section of the ARMP presents the goals, objectives, land use allocations, and management actions established for protecting and preserving GRSG and its habitat on public lands managed by the BLM in the MCFO planning area. A *Monitoring Framework* is also included (**Appendix D**, GRSG Monitoring Framework) to describe how the implemented program decisions monitored.

Many of these goals, objectives, and management actions identified in this section can also be found in Section 3.0 of this ARMP for other resources and/or program areas (e.g., Physical Resources) and have been consolidated in this section to depict how the agency will manage GRSG habitat.

Table 2-5
Summary of Allocation Decisions by GRSG Habitat Management Areas

Resource	PHMA	RHMA	GHMA
Land Tenure	Retain	Retain	Retain
Solar	Excluded	Excluded	Avoid
Wind	Excluded	Excluded	Avoid
Major ROWs	Avoid	Avoid	Avoid
Minor ROWs	Avoid	Allowed with design features	Allowed with design features
Oil and Gas	Open to fluid mineral leasing subject NSO stipulation without waiver or modification, and with limited exception.	Open to fluid mineral leasing and surface occupancy and use is subject to design features to minimize disturbance to GRSG habitat in the Cedar Creek Area (CSU) and in the West Decker and South Carter Area oil and gas leasing is open and surface occupancy and use is prohibited (NSO).	Open to fluid mineral leasing subject to NSO within 0.6 miles and CSU stipulation within 2 miles of an occupied lek.
Salable Minerals	Closed to new	Allowed with design features	Allowed with design features
Locatable Minerals	Apply RDFs	Apply RDFs	Apply RDFs
Travel Management	Limited	Limited	Limited
Livestock Grazing	Open	Open	Open

2.3.1 Special Status Species

GRSG Habitat

Goal 1: *Provide for the conservation, enhancement, restoration, and connectivity of the Northern Great Plains mixed grass prairie and shrubland, capable of supporting sustainable populations of GRSG and other wildlife species.*

Objective 1: Maintain, improve and increase sagebrush habitats to sustain sagebrush obligates and other sagebrush dependent species.

Objective 2: Conserve GRSG habitat while promoting movement and genetic diversity

Objective 3: Priority will be given to leasing and development of fluid minerals outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 United States Code (U.S.C.) 226(p) and 43 CFR, Part 3162.3-1(h).

Objective 4: Where a proposed fluid mineral development on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other proponents to avoid, minimize and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessees, operators, or other proponent in developing an application for permit to drill (APD) for the lease to avoid and minimize impacts on GRSG or its habitat and will ensure that the best information about the GRSG and its habitat informs and helps to guide development of such Federal leases.

Management Decisions (MD)

MD 1: In all GRSG habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.

MD 2: Will follow the adaptive management strategy outlined in **Appendix H**, GRSG Adaptive Management Strategy. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.

Sage Grouse Habitat – General Habitat Management Areas

Goal 1: *Maintain or increase habitat needed for GRSG through the management of surface disturbing and disruptive activities, including the loss and distribution of sagebrush habitat.*

Objective 1: Conserve GRSG habitat while promoting movement and genetic diversity.

Management Decisions (MD)

MD 1: Major ROWs (100 kv and over for high voltage transmission lines and 24 inch in width and over for large pipelines) and renewable energy ROWs will avoid GRSG GHMA (1,395,000 acres).

Minor ROWs will be allowed with design features to protect breeding, nesting and brood rearing in GRSG GHMA (1,365,000 acres).

Other surface-disturbing and disruptive activities (including Mineral Material Sales) will be allowed with design features to protect breeding, nesting, and brood-rearing GRSG habitat (1,365,000 acres).

Oil and gas leasing is open and surface occupancy and use is prohibited within 0.6 miles of the perimeter of leks (NSO) (61,000 acres).

In addition, surface occupancy and use within 2 miles of leks is restricted or prohibited. Prior to such activities, a plan to mitigate impacts on nesting GRSG or their habitat will be prepared by the proponent and implemented upon approval, by the Authorized Officer (AO) (CSU) (652,000 acres).

In undertaking BLM management actions and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the United States geological Survey (USGS) Report (see **Appendix B**, GRSG Conservation Buffer).

Sage Grouse Habitat – Priority Habitat Management Areas

Objective 1: Maintain or increase GRSG habitat over the long-term, recognizing valid existing rights.

Objective 2: Restore degraded GRSG habitat.

Objective 3: Manage permitted uses while providing GRSG habitat for the long-term.

Management Decisions (MD)

MD 1: Where deemed effective, water developments will be managed to reduce the spread of West Nile virus (see **Appendix C**, GRSG Required Design Features).

MD 2: At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR, Part 3461.5. PHMA is essential habitat for maintaining GRSG for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).

MD 3: PHMA is managed according to the following prescriptions:

Renewable Energy ROWs will be excluded within GRSG priority areas (817,000 acres).

PHMA are closed to new mineral material sales. However, these areas remain "open" to free use permits and the expansion of existing active pits, only if the following criteria are met:

- The activity is within the PHMA BSU and area disturbance cap.
- The activity is subject to the provisions set forth in the mitigation framework (**Appendix F**, GRSG Regional Mitigation Strategy).
- All applicable required design features are applied; and (if applicable) the activity is permissible under the specific subregional screening criteria.

Oil and gas leasing is open and surface occupancy and use is prohibited within sage grouse priority areas (NSO (1,329,000 acres).

No waivers or modifications to a fluid mineral lease no-surface occupancy stipulation will be granted. The AO may grant an exception to a fluid mineral lease no-surface occupancy stipulation only where the proposed action:

i. Will not have direct, indirect, or cumulative effects on GRSG or its habitat; or,

ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and will provide a clear conservation gain to GRSG.

Exceptions based on conservation gain (ii) may only be considered in (a) PHMA of mixed ownership where federal minerals underlie less than fifty percent of the total surface, or (b) areas of the public lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid Federal fluid mineral lease existing as of the date of this RMP revision. Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts.

Any exceptions to this lease stipulation may be approved by the AO only with the concurrence of the State Director. The AO may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfied (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly.

Major (high voltage transmission lines and large pipelines) and minor ROWs will avoid GRSG priority areas (817,000 acres).

In undertaking BLM management actions, and consistent with valid and existing rights and law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the USGS Report *Conservation Buffer Distance Estimates for Greater Sage-grouse – A Review (Open File Report 2014-1239)*, in accordance with **Appendix B**, GRSG Conservation Buffer.

If the 3% anthropogenic disturbance cap is exceeded on lands (regardless of land ownership) within GRSG PHMA in any given BSU, then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the Mining Law of 1872, as amended, valid existing rights, etc.) will be permitted by BLM within GRSG PHMA in any given BSU until the disturbance has been reduced to less than the cap.

If the 3% anthropogenic disturbance cap is exceeded on lands (regardless of land ownership) or if anthropogenic disturbance and habitat loss associated with conversion to agricultural tillage or fire exceed 5% within a analysis area in PHMA, then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the Mining Law of 1872, valid existing rights, etc.) will be permitted by BLM within PHMA in a analysis area until the disturbance has been reduced to less than the cap.

If the BLM determines that the State of Montana has adopted a GRSG Habitat Conservation Program that contains comparable components to those found in the State of Wyoming's Core Area Strategy including an all lands approach for calculating anthropogenic disturbances, a clear methodology for measuring the density of operations, and a fully operational Density Disturbance Calculation Tool, the

3% disturbance cap will be converted to a 5% cap for all sources of habitat alteration within an analysis area.

MD 4: Consider the likelihood of development of not-yet-constructed surface-disturbing activities – as defined in Table 2 of the Monitoring Framework (**Appendix D**)—under valid existing rights prior to authorizing new projects in PHMA.

GRSG Habitat – Restoration Areas

Objective 1: Strive for proponents to develop area-wide Habitat Recovery Plans.

Objective 2: Strive for no net loss of GRSG habitat.

Objective 3: Strive for the restoration of previously disturbed landscapes in a manner which increases or improves the quality and quantity of GRSG habitat.

Management Decisions (MD)

MD 1: Surface-disturbing and disruptive activities will be allowed with required design features to minimize disturbance to GRSG habitat (87,000 acres).

Oil and gas leasing is open and surface occupancy and use is subject to design features, to minimize disturbance to GRSG habitat in the Cedar Creek Area (CSU) (22,000 acres).

In the West Decker (11,000 acres) and South Carter Area (164,000 acres) oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

Renewable Energy ROWs will be excluded within all Restoration Areas.

Major ROWs will be avoided and minor ROWs will be allowed with design features.

2.3.2 Vegetation

Objective 5: In all PHMA, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).

Management Decisions (MD)

MD 2: Remove conifers encroaching into sagebrush habitats, in a manner that considers tribal cultural values. Prioritize treatments closest to occupied GRSG habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the Fire and Invasive Species Team (FIAT) report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.

MD 4: Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species.

2.3.3 Wildland Fire Management and Ecology

Fuels Management/Prescribed Fire

Management Decisions (MD)

MD 3: If prescribed fire is used in GRSG habitat, the NEPA analysis for the Burn Plan will address:

- why alternative techniques were not selected as a viable options;
- how GRSG goals and objectives will be met by its use;
- how the COT Report objectives will be addressed and met;
- a risk assessment to address how potential threats to GRSG habitat will be minimized.

Prescribed fire as vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that will protect GRSG habitat in PHMA (e.g., creation of fuel breaks that will disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).

Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat will need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality.

Wildfire Management

Management Decisions (MD)

MD 1: The BLM will prioritize fire management activities according to potential risks to life and property across the planning area. Wildfires adjacent to or near wildland urban or industrial interface will have the highest priority for fire suppression. In PHMA, prioritize suppression, after life and property, to conserve the habitat. In GHMA, prioritize suppression where wildfires threaten PHMA.

2.3.4 Livestock Grazing

Management Decisions (MD)

MD 3: The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (ex., fire) and legal obligations.

MD 4: The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMA will include specific management thresholds based on GRSG Habitat Objectives Table and Land Health Standards (43 CFR, Part 4180.2) and ecological site potential and one or more

defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.

MD 5: Allotments within PHMA, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.

MD 6: At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments (RCAs) or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR, Part 4110.2-3.

2.3.5 Lands and Realty

Management Decisions (MD)

Land Tenure

MD 5: Lands classified as PHMA and GHMA for GRSG will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the GRSG or (2) the agency can demonstrate that the disposal, including land exchanges, of the lands will have no direct or indirect adverse impact on conservation of the GRSG.

2.3.6 Minerals

Management Decisions (MD)

Fluid Minerals (oil and gas)

MD 8: Where the federal government owns the mineral estate in PHMA and GHMA, and the surface is in non-federal ownership, apply the same stipulations, conditions of approval (COAs), and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.

Where the federal government owns the surface and the mineral estate is in non-federal ownership in PHMA and GHMA, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.

Coal

MD 3: At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR, Part 3461.5. PHMA is essential habitat for maintaining GRSG for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).

2.3.7 Comprehensive Trails and Travel Management

Objective 7: The BLM will strive to complete travel management planning using a developed strategy that sets time frames and prioritizes Travel Management Areas (TMAs). TMAs within the priority GRSG habitat area will strive to be prioritized and completed as funding and staffing allows.

Objective 8: The BLM will create a developed strategy based on information found in the BLM Handbook H-8342, Travel and Transportation. Areas receiving focus and a higher priority will be based on priority GRSG habitat areas, heavily used areas, social conflict concerns, resource concerns, consideration of primary travelers, valid existing rights, visitor recreation experiences, and development for administrative or public access.

Management Decisions (MD)

MD 1: On BLM administered surface, including PHMA and GHMA, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use).

Temporary closure or restriction orders under these authorities are enacted at the discretion of the AO to resolve management conflicts and protect persons, property, and public lands and resources. Where an AO determines that OHVs are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR, Part 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.

2.3.8 Recreation and Visitor Services (SRMAs)

Management Decisions (MD)

MD 1: In PHMA, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development will have a net conservation gain to GRSG habitat (such as concentrating recreation, diverting use away from critical areas, etc.), or unless the development is required for visitor health and safety or resource protection.

2.3.9 GRSG Habitat Objectives

These habitat objectives in **Table 2-6** summarize the characteristics that research has found represent the seasonal habitat needs for GRSG. The specific seasonal components identified in the Table were adjusted based on local science and monitoring data to define the range of characteristics used in this subregion. Thus, the habitat objectives provide the broad vegetative conditions we strive to obtain across the landscape that indicate the seasonal habitats used by GRSG. These habitat indicators are consistent with the rangeland health indicators used by the BLM.

Table 2-6
Miles City Field Office RMP GRSG Habitat Objectives

Attribute	Indicator	Desired Condition
BREEDING, NESTING AND EARLY BROOD-REARING (Seasonal Use Period March 1-June 15)		
Lek Security	Proximity of trees[1]	.65– Km2 (.388 miles) avoidance of coniferous habitats
	Proximity of sagebrush to leks[2]	Adjacent protective sagebrush cover within 328 ft. (100 m) of an occupied lek
Cover	% of seasonal habitat meeting desired conditions[2, 3]	80% of the nesting habitat within 3.1 miles of GRSG leks meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.)
	Sagebrush canopy cover[4, 5, 6, 7, 8, 9, 10, 11]	5-25%
	Sagebrush height[5, 8, 9, 12, 13]	6-31 inches (15-50cm)
	Predominant sagebrush shape[2]	Predominately spreading shape
	Perennial grass cover (such as western wheatgrass)[6, 7, 8, 9, 13]	≥10%
	Perennial grass and forb height (includes residual grasses)[14]	Adequate nest cover based on ecological site potential and seasonal precipitation; 4.4-11.3 inches (11.4-29 cm)
	Perennial forb canopy cover[6, 7, 8, 9, 13]	≥3%
BROOD-REARING/SUMMER[1] (Seasonal Use Period June 16-October 31)		
Cover	% of Seasonal habitat meeting desired condition[2]	>40% of the brood-rearing/summer habitat meets recommended brood habitat characteristics where appropriate, relative to site potential and seasonal precipitation.
	Sagebrush canopy cover[4, 5, 6, 7, 8, 9, 10]	5-25%
	Sagebrush height[8, 9, 12, 13]	6-31 inches (15-50cm)
	Perennial grass canopy cover and forbs[6, 7, 8, 9, 13]	≥10%
	Riparian areas/mesic meadows[15, 16, 17]	Proper Functioning Condition
	Upland and riparian perennial forb availability[2, 8, 9]	Preferred forbs are common with several preferred species present.
WINTER[1] (Seasonal Use Period November 1-February 28)		
Cover and Food	% of seasonal habitat meeting desired conditions[2]	>80% of wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.)
	Sagebrush canopy cover above snow[5,10,12]	>10%
	Sagebrush height above snow[8, 9, 12]	6-31 inches (15-50cm)

[1]Doherty, K.E. 2008. *Sage-grouse and Energy Development: Integrating Science with Conservation Planning to Reduce Impacts*. Doctoral dissertation, the University of Montana (Missoula). Internet website: http://etd.lib.umt.edu/theses/available/etd-03262009-132629 /unrestricted /doherty.pdf.
[2]Stiver, S. J., E. T. Rinkes, D. E. Naugle, 2010. *Sage-Grouse Habitat Assessment Framework.* U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.
[3]Knick, S.T. and J.W. Connelly, 2011. *Greater Sage-grouse, Ecology and Conservation of a Landscape Species and its Habitats*. Studies in Avian Biology No. 38. A Publication of the Cooper Ornithological Society, University of California Press. Berkeley. pp. 1–9.
[4]Herman – Brunson, K.M. 2007. *Nesting and Brood-rearing success and habitat selection of Greater Sage-Grouse and associated survival of hens and broods at the edge of their historic distribution.* M.S. thesis, South Dakota State University, Brookings, SD.
[5]Swanson, C.C. 2009. *Ecology of Greater Sage-grouse in the Dakotas.* Doctor of Philosophy, South Dakota State University, Brookings, SD.
[6]Doherty, K.E., Naugle, D.E., Walker, B.L. 2010. *Greater Sage-Grouse Nesting Habitat: The Importance of Managing at Multiple Scales.* The Journal of Wildlife Management 74 (7):1544-1553. 2010
[7]Hagen, C.A., Connelly, J.W., Schroedeer, M.A. 2007. *A Meta-analysis of Greater Sage-grouse Centrocercus urophasianus Nesting and Brood-rearing Habitats.* Wildlife Biology, 13 (sp1):42-50. 2007
[8]Doherty, K.E., Beck, J.L., Naugle, D.E. 2011. *Comparing Ecological Site Descriptions to Habitat Characteristics Influencing Greater Sage-Grouse Nest Site Occurrence and Success.* Rangeland Ecol Management 64:344-341 1 July 2011 1 DOI:10.2111?REM-D-10-

Table 2-6
Miles City Field Office RMP GRSG Habitat Objectives

00120.1

[9]USDA, NRCS, Montana, *Ecological Site Descriptions.* Accessed January 28, 2014. Internet website: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/technical/landuse/pasture/?cid=nrcs144p2_057024

[10]Foster, M.A, Ensign, J.T., Davis, W.N., Tribby, D.C. 2014. *Greater Sage-Grouse in the Southeast Montana Sage-Grouse Core Area.* Montana Fish, Wildlife and Parks (FWP) in Partnership with USDI Bureau of Land Management. Miles City, MT.

[11]Wright, P. and Wegner, D. 2008. *Mapping Land Cover to Estimate Sage Grouse Habitat Within the Cedar Creek Anticline and Surrounding Study Area.* Contract with Bureau of Reclamation. Technical Memorandum No. 86-68211-09-02. Remote Sensing and GIS Team, Technical Service Center, Bureau of Reclamation. Denver, CO.

[12]Schroeder et al. 1999. *Greater Sage-Grouse (Centrocercus urophasianus*) [Website], The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Accessed February 22, 2011. Internet website: Birds of North America Online: http://bna.birds.cornell.edu/bna /species/425/articles/introduction

[13]Holloran, M.J., Heath, B.J., Lyon, A.G. 2005. *Greater Sage-Grouse Nesting Habitat Selection and Success in Wyoming.* Journal of Wildlife Management 69 (2):638-649. 2005

[14]K.E. Doherty, K.E. Naugle, J.D. Tack, B.L. Walker, J.M. Graham and J.L. Beck. 2014. *Linking conservation actions to demography: grass height explains variation in greater sage-grouse nest survival.* Wildlife Biology 20 (6):320-326. 2014

[15]BLM, 1997. *Record of Decision for Standards for Rangeland Health and Guidelines for Livestock Grazing Management Final Environmental Impact Statement for Montana and North and South Dakota.* August 7, 1997. BLM, Montana State Office. Billings.

[16]Prichard, D., F. Berg, S. Leonard, M. Manning, W. Hagenbuck, R. Krapf, C. Noble, J. Staats, and R. Leinard. 1999. *Riparian Area Management A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas (TR 1737-16).* Prepared for the United States Department of the Interior and the United States Department of Agriculture. BLM, National Applied Resource Sciences Center. Denver, CO.

[17]Prichard, D., 1998. *Riparian Area Management, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas (TR 1737-15).* Prepared for the United States Department of the Interior and the United States Department of Agriculture. BLM, National Applied Resource Sciences Center. Denver, CO.

The habitat objectives will be part of the GRSG habitat assessment to be used during land health evaluations (see **Appendix D**, GRSG Monitoring Framework). These habitat objectives are not obtainable on every acre within the designated GRSG habitat management areas. Therefore, the determination on whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in the table.

All BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made towards meeting them, there will be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use will be adjusted by the response specified in the instrument that authorized the use

CHAPTER 3
APPROVED RESOURCE MANAGEMENT PLAN

3.1 APPROVED RESOURCE MANAGEMENT PLAN INSTRUCTIONS

The ARMP is now the baseline plan for managing the MCFO in eastern Montana.

Once an RMP is approved, a plan may be amended. An amendment is initiated by the need to consider monitoring and evaluation findings, new data, new or revised policy, or a change in circumstances. It may also be initiated by a proposed action that may change the scope of resource uses or the terms, conditions, and decisions of the approved plan. If the BLM proposes to amend the plan, the process would follow the same procedure required for preparing and approving it, but the focus would be limited to that portion of the plan being amended (43 CFR, Part 1610.5-5).

The decisions in this document apply only to BLM-administered surface and mineral estate acres. This will include the BLM-administered mineral estate that is under privately owned land, commonly referred to as split-estate. This document does not include planning or management decisions for lands or minerals owned by private entities, the State of Montana, or local governments or lands or minerals administered by other federal agencies.

The BLM decisions in this document do not change existing rights or authorizations, such terms and conditions of existing oil and gas leases or ROWs; however, post-lease actions or authorizations, such as applications for permit to drill, road ROWs, and pipeline ROWs, could be subject to mitigation measures, as necessary, consistent with the decisions, on a case-by-case basis, and as required through project-specific NEPA analysis or other environmental review. The stipulations or COAs are in accordance with applicable laws, regulations, and if applicable lease terms.

All future resource authorizations and actions in GRSG habitat will conform to or be consistent with the decisions contained in this ARMP. All existing operations and activities authorized under permits, contracts, cooperative agreements, or other authorizations will be modified, as necessary, to conform to this plan within a reasonable time frame. However, this ARMP does not repeal valid existing rights on public lands. This is a claim or authorization that takes precedence over the decisions developed in this plan. If such authorizations come up for review and can be modified, they will also be brought into conformance with this plan.

While the MCFO PRMP/FEIS constitutes compliance with NEPA for the broad-scale decisions made in this ARMP, the BLM will continue to prepare environmental Assessments (EAs) and EISs where appropriate as part of implementation level planning and decision-making.

3.2 GOALS, OBJECTIVES, AND MANAGEMENT DECISIONS

This section presents the goals, objectives, land use allocations, and management actions established for protecting and preserving resources on public lands managed by the BLM in the MCFO.

3.2.1 Air Resources and Climate (AQ)

Goal AQ 1: *Maintain or enhance air quality and air quality related values (AQRVs) in the planning area and at sensitive areas (e.g., Class I areas) in and near the planning area.*

Goal AQ 2: *Reduce greenhouse gas (GHG) emissions when feasible.*

Goal AQ 3: *Evaluate the observed and anticipated long-term dynamic of climate change and minimize the impact of GHGs from s to the degree practicable and reasonably foreseeable.*

Goal AQ 4: *Provide for flexible, adaptable management that allows for timely responses to changing climatic conditions.*

Goal AQ 5: *Maintain or improve the ability of BLM-administered lands to reduce (sequester) atmospheric GHGs.*

Management Decisions (MD)

MD AQ-1: Air resource and climate change monitoring will be conducted as described in **Appendix M**, Monitoring, and in **Appendix I**, Air Resources and Climate.

MD AQ-2: Emission reduction mitigation measures and conservation actions will be considered during project-level planning.

MD AQ-3: Actions that reduced or mitigated GHG emissions such as enhanced energy efficiency, use of lower GHG-emitting technologies, capture or beneficial use of methane emissions, and/or sequestration of carbon dioxide through enhanced oil recovery or other means will be prioritized.

MD AQ-4: The BLM will promote vegetative capture and storage of carbon, with consideration for resource objectives, by using Standards for Rangeland Health and Montana forestry and rangeland mitigation measures and conservation actions guidelines at the planning and implementation levels.

MD AQ-5: The BLM will adjust the timing of BLM-authorized activities as needed to accommodate long-term changes in seasonal weather patterns while considering the impacts on other resources and resource uses.

MD AQ-6: Oil and gas leasing will be open with a CSU stipulation for each diesel-fueled non-road engine with greater than 200 hp design rating.

3.2.2 Cultural Resources (CR)

Goal CR 1: *Identify, preserve, and protect significant cultural resources on BLM-administered lands.*

Goal CR 2: *Ensure cultural resources are available to present and future generations for appropriate uses such as scientific studies, public education and traditional cultural values.*

Objective CR 1: All cultural properties in the planning area will be allocated to one of the following categories: scientific use, conservation for future use, traditional use, public use, experimental use, or discharged from management.

Management Decisions (MD)

MD CR 1: Surface-disturbing activities are allowed in significant cultural sites as long as the activities will not have an adverse effect.

MD CR 2: Oil and gas leasing is open and surface occupancy and use is prohibited with an NSO stipulation that restricts surface-disturbing activities in significant cultural sites.

MD CR 3: Oil and gas leasing is open and surface occupancy and use is prohibited in National Historic Landmarks and historic battlefields (NSO, 4,600 acres).

3.2.3 Fish, Aquatic and Wildlife Habitat, Including Special Status Species (WF)

Goal WF 1: *Provide habitats for well-distributed and diverse fish and wildlife.*

Goal WF 2: *Maintain, enhance, or restore habitats for special status fish and wildlife species to ensure BLM actions do not contribute to the need to list these species.*

Objective WF 1: Maintain or enhance plant communities and habitat needed to maintain or restore fish, aquatic or wildlife populations.

Objective WF 2: Provide sufficient habitat for native wildlife species in order to support viable native wildlife populations.

Objective WF 3: Implement habitat improvement s to restore and/or improve unsatisfactory or declining fish, aquatic and wildlife habitat.

Objective WF 4: Continue to gather habitat data while concurrently monitoring human and natural disturbance dynamics to improve habitat management.

Objective WF 5: Minimize fragmentation of large intact blocks of important wildlife habitat, particularly habitat areas for GRSG and grassland birds.

Objective WF 6: Maintain, improve and increase sagebrush habitats to sustain sagebrush obligates and other sagebrush dependent species.

Objective WF 7: Maintain or reestablish connectivity between and within sagebrush habitats with emphasis on communities occupied by BLM priority species for management.

Management Decisions (MD)

MD WF 1: BLM-authorized activities associated with all resource and resource use programs are subject to mitigation or minimization guidelines as defined in **Appendix L**, Mitigation Measures and Conservation Actions.

MD WF 2: The MCFO will work with the Montana Black-footed Ferret and Prairie Dog Working Groups to identify potential black-footed ferret reintroduction sites in the planning area.

MD WF 3: For migratory bird conservation and to restore, enhance, and maintain habitats for all birds, the BLM will follow **Appendix J**, Fish, Aquatic and Wildlife Habitat Including Special Status Species, which outlines the recommended strategies for migratory birds.

MD WF 4: Predator control is allowed on a case-by-case basis with required design features to achieve resource goals and objectives.

MD WF 5: Low voltage above ground power lines (less than 69 kilovolt [kV]) are allowed with specialized design features.

Big Game Crucial Winter Range

MD WF 6: Surface-disturbing and disruptive activities are allowed in Big Game Crucial Winter Range areas with design features which maintain the functionality of the crucial winter range habitat (760,000 surface acres).

MD WF 7: Oil and gas leasing is open with a CSU stipulation in Big Game Crucial Winter Range areas (1,191,000 acres).

Sharp-tailed Grouse (lek sites and nesting habitat)

MD WF 8: Surface-disturbing and disruptive activities are allowed on and within 2 miles of sharp-tailed grouse lek sites with design features to protect breeding, nesting, and brood-rearing habitats at a level capable of supporting the long-term populations associated with the lek (800,000 acres).

MD WF 9: Oil and gas leasing is open and surface occupancy and use is subject to design features on or within 2 miles of sharp-tailed grouse lek sites to protect breeding, nesting, and brood-rearing habitats at a level capable of supporting the long-term populations associated with the lek (CSU, 1,393,000 acres)

Colonial Nesting Water Birds

MD WF 10: Surface-disturbing and disruptive activities are allowed within 0.5 miles of water bird nesting colonies, with design features to maintain functionality of the water bird nesting colonies habitat (650 acres).

MD WF 11: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.25 miles of water bird nesting colonies (NSO, 270 acres).

MD WF 12: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.5 miles of water bird nesting colonies from April 1 through July 15 (Timing stipulation, 1,100 acres).

Bighorn Sheep Habitat

MD WF 13: Surface-disturbing and disruptive activities are allowed in bighorn sheep habitat with design features to maintain functionality of the bighorn sheep habitat (70,000 acres).

MD WF 14: Oil and gas leasing is open and surface occupancy and use is allowed in bighorn sheep habitat (CSU stipulation, 98,000 acres).

MD WF 15: Domestic sheep and goat grazing, including for invasive species control is available in and within a 14.3 mile buffer area (400,000 acres) with management features to minimize interactions between domestic sheep/goats and bighorn sheep.

Bald Eagles

MD WF 16: Surface disturbing and disruptive activities are allowed within 0.5 miles of bald eagle nest sites active within the preceding 5 years, with design features which will minimize disturbance to the nest site and maintain functionality of the bald eagle habitat (2,000 acres).

MD WF 17: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.5 miles of bald eagle nest sites active within the preceding 5 years (NSO, 1,849 acres).

Raptor Nest Sites: Burrowing Owl, Golden Eagle, Ferruginous Hawk, Swainson's Hawk, Prairie Falcon, Northern Goshawk

MD WF 18: Surface-disturbing and disruptive activities are allowed within 0.5 miles of raptor nest sites active within the past 7 years with design features which maintain the functionality for the raptor nest site and nesting habitat.

MD WF 19: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.25 miles of raptor nest sites active within the preceding 7 years (NSO, 52,000 acres).

MD WF 20: Oil and gas leasing is open and surface use is prohibited within 0.5 miles of active raptor nest sites from March 1 to July 31 (Timing stipulation, 179,000 acres).

Piping Plover Habitat

MD WF 21: Surface-disturbing and disruptive activities are allowed within 0.25 miles of piping plover habitat with design features which maintain the functionality of the piping plover habitat (4,000 acres).

MD WF 22: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.25 miles of piping plover habitat (NSO, 7,000 acres).

Interior Least Tern Habitat

MD WF 23: Surface-disturbing and disruptive activities are allowed within 0.25 miles of interior least tern habitat with design features which maintained the functionality of the least tern habitat (10,000 acres).

MD WF 24: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.25 miles of interior least tern habitat (NSO, 11,000 acres).

Black-footed Ferret Habitat

MD WF 25: Surface occupancy and use is prohibited within 0.25 miles of black-footed ferret habitat (complex of prairie dog towns within 1.5 km of each other comprising a total of at least 1,500 acres) (NSO, 0 acres).

Black-tailed Prairie Dog Habitat

MD WF 26: Control options of black-tailed prairie dog colonies on public lands are subject to the *Conservation Plan for Black-tailed and White-tailed Prairie Dogs in Montana* (Montana Prairie Dog Working Group 2002).

MD WF 27: In the absence of black-footed ferrets, surface-disturbing activities are allowed within black-tailed prairie dog colonies active within the past 10 years with design features which maintain the functionality of the black-tailed prairie dog habitat (11,000 acres).

MD WF 28: Oil and gas leasing is open and surface occupancy and use on prairie dog colonies active within the past 10 years is allowed subject to design features that maintain the functionality of the black-tailed prairie dog habitat (CSU, 29,000 acres).

Pallid Sturgeon Habitat

MD WF 29: Surface-disturbing and disruptive activities are allowed within 0.25 miles of the water's edge of the Yellowstone and Missouri rivers with design features which maintain the functionality of the pallid sturgeon habitat (11,000 acres).

MD WF 30: Oil and gas leasing is open and surface occupancy and use is prohibited within 0.25 miles of the water's edge of the Yellowstone and Missouri rivers (NSO, 10,000 acres).

3.2.4 Forestry and Woodland Products (FOR)

(See also Vegetation for cottonwood management.)

Goal FOR 1: *Promote healthy, resilient, and vigorous forestland communities. Forestland mosaics are managed for diversity of stand structures and species components that complemented other resource values, including (but not limited to) recreation, wildlife, rangelands, fisheries, and wood production.*

Objective FOR 1: Provide woody and non-woody biomass consistent with other resource uses as part of an ecologically healthy system and consistent with the principles of multiple use.

Objective FOR 2: Develop management strategies and implement treatments to improve the health, sustainability, resiliency, and productivity of forests, woodlands, and the desired vegetative community based on scientifically sound principles and an environmentally responsible level of timber sales.

Objective FOR 3: Manage forest vegetation structure, species composition, patch size, pattern, and distribution in a manner that reduces the occurrence of severe wildfires and forest insect and disease outbreaks.

Objective FOR 4: Manage forest resources to maintain and enhance their ability for the long-term sequestration of carbon.

Objective FOR 5: Maintain and promote forest stand structures with large trees appropriate to forest types and successional stages.

Objective FOR 6: Promote forest and woodland vegetation regeneration and recovery on forested lands after management treatments, insect and disease outbreaks, and wildfire events.

Management Decisions (MD)

MD FOR 1: All management activities that will remove dead or live trees will take into consideration other resources values (such as wildlife habitat, watershed health, soils stability, snag recruitment and large tree retention, local economic opportunities, public safety, hazardous fuels, visual integrity, and any other relevant concerns).

MD FOR 2: Forestlands are managed to enhance the health and resiliency of forest and woodland resources and for a diversity of forest products.

MD FOR 3: Sales of forest products are allowed in all areas that supported these products and met management objectives.

MD FOR 4: Sales for saw timber are allowed for sustainable resource health and forest products production.

MD FOR 5: Probable Sale Quantity for commercial saw timber is allowed up to 1100 thousand board feet (mbf)/year.

3.2.5 Invasive Species (INV)

Goal INV 1: *Manage for healthy native plant communities and aquatic systems by reducing, preventing expansion of, or eliminating the occurrence of invasive species.*

Objective INV 1: Plant communities that reflect the potential natural community or the desired plant community appropriate for the ecological site.

Management Decisions (MD)

MD INV 1: Surface-disturbing activities are allowed on BLM-administered lands in areas of invasive species infestation only with approved mitigation measures in place.

MD INV 2: Using Early Detection Rapid Response, treatment areas will be prioritized in publicly accessible areas, riparian areas, emergency stabilization and rehabilitation areas, and special status species habitat areas.

3.2.6 Lands and Realty (LR)

Goal LR 1: *Provide public lands, interests in land, and authorizations for public and private uses while maintaining and improving resource values.*

Goal LR 2: *Adjust public land and mineral ownership to acquire significant resources and consolidate surface or mineral estates to improve management efficiency and accessibility, obtain special designation area inholdings, and enhance significant recreational values.*

Goal LR 3: *Use withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes of the withdrawal.*

Goal LR 4: *Strive to increase and diversify the nation's sources of both traditional and alternative energy resources, improve the energy transportation network, and ensure sound environmental management.*

Goal LR 5: *Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.*

Management Decisions (MD)

MD LR 1: Nine of the communication sites with management plans within the PRMP/FEIS (Chapter 3) are designated as communication sites where applicants for communication site ROWs will be encouraged to locate compatible facilities, with the Fort Peck site being the one exception due to limited space and it is adjacent to a larger communication site nearby on private land.

MD LR 2: Major and Minor ROWs and other realty-related land use authorizations (including testing for pilots for carbon geo-sequestration, see the *Lands and Realty-Renewable Energy Appendix* in the Miles City Proposed RMP/EIS) are excluded on approximately 83,659 surface acres (3%) of the planning area. Major ROWs are avoided on 2,222,701 surface acres (81%) and Minor ROWs and other realty-related land use authorizations are avoided on 858,073 surface acres (31%). On the remaining surface acres in the planning area, Major ROWs are allowed on 445,170 surface acres (16%) and Minor ROWs are allowed on 1,809,798 surface acres (66%).

<u>Land Tenure (Ownership) Adjustment</u>

MD LR 3: Lands or interests in lands will be acquired, from willing parties, by purchase, exchange, revocation of another agency's withdrawal, administrative transfer from another agency, cooperative agreement, or donation. Acquired lands are managed for the highest potential purpose and greatest benefit for which they were acquired and/or managed as similar, surrounding, or adjacent lands are under the approved RMP. This includes any parcels discovered through land status updates, corrections, or updated surveys.

MD LR 4: Before acquiring land or interest through purchase, exchange, donation, or withdrawal relinquishment, the area will be inventoried for hazardous substances or hazardous contamination in accordance with United States Department of Interior (USDI) policy. The BLM will not acquire contaminated real estate except at the direction of Congress, or for good cause with the approval of the Secretary.

MD LR 5: Land tenure adjustments will be considered on a case-by-case basis based on retention, acquisition, and disposal criteria that are found in the *Lands and Realty-Renewable Energy Appendix* in the Miles City Proposed RMP/EIS. The land base is categorized for management into three categories:

- Category 1 retention lands – include 83,160 acres in WSAs which will not be transferred from BLM management by any method during the life of the plan (unless the plan is amended).
- Category 2 retention lands with limited disposal (includes GRSG GHMA and PHMA) – manage the remaining 2,585,535 acres of retention lands which are available to be

considered for limited disposal through all disposal authorities and methods except by sale under Section 203 of FLPMA (unless the plan is amended); and

- Category 3 disposal lands –82,835 acres which are available to be considered for disposal through all disposal methods including sale.

Land identified for disposal under Sections 203 and 206 of FLPMA and identified as such in this plan are classified for disposal under Section 7 of the Taylor Grazing Act of 1934, as amended; under Executive Order 6910 (November 26, 1934); and under 43 CFR, Part 2400.

Lands classified as PHMA and GHMA for GRSG will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the GRSG or (2) the agency can demonstrate that the disposal, including land exchanges, of the lands will have no direct or indirect adverse impact on conservation of the GRSG.

MD LR 6: The BLM will acquire conservation easements to protect important resources or to meet management objectives and based on the criteria found in the *Lands and Realty-Renewable Energy Appendix* in the Miles City Proposed RMP/EIS.

MD LR 7: Easement acquisition, using criteria for acquisition in the *Lands and Realty-Renewable Energy Appendix* in the Miles City Proposed RMP/EIS, is the predominant method of obtaining legal access; reciprocal ROWs are also be a tool for obtaining legal access; condemnation will be a last resort.

Withdrawals

MD LR 8: Approximately 56,000 acres, previously identified in the Big Dry RMP and Powder River RMP areas, are recommended for withdrawal revocation, the remaining withdrawals will be continued; see the PRMP/FEIS Chapter 3, Table 3-35 for more information on withdrawals in the planning area.

MD LR 9: The BLM will consider other agency requests and internal proposals (including temporary segregation for wind and solar ROW applications) for new withdrawals and withdrawal relinquishments, extensions, or modifications on a case-by-case basis.

3.2.7 Lands With Wilderness Characteristics (LWC)

Goal LWC 1: *Protect, preserve, and maintain areas with wilderness characteristics.*

Objective LWC 1: Maintain a high degree of naturalness and provide for outstanding opportunities for solitude or primitive, unconfined recreation

Management Decisions (MD)

MD LWC 1: Lands acquired by exchange within WSAs, such as the Terry Badlands WSA, will be managed the same as the WSA.

MD LWC 2: Manage LWC in Devils Creek (5,236 acres).

MD LWC 3: Do not manage LWC in the following areas due to conflicts with resource values and uses: Ridge 8,184 acres; Whitetail 4,809 acres; Wrangler 5,309 acres; Rough 5,302 acres.

MD LWC 4: Oil and gas leasing is open and surface occupancy and use is prohibited within the LWC area (NSO, 5,236 acres).

MD LWC 5: ROWs will avoid the area (5,236 acres).

MD LWC 6: Surface disturbing activities are allowed if compatible with the retention or enhancement of the area's wilderness characteristics (5,236 acres).

MD LWC 7: LWCs are managed as visual resource management (VRM) Class II (5,236 acres).

MD LWC 8: Mineral material sales and permits are closed (5,236 acres).

MD LWC 9: Geophysical exploration is not allowed (5,236 acres).

MD LWC 10: OHVs are limited to designated routes.

3.2.8 Livestock Grazing (LG)

Goal LG 1: *Provide forage for livestock grazing consistent with other resources and uses as part of an ecologically healthy system consistent with multiple use and sustained yield.*

Goal LG 2: *Utilize grazing activities to manage for the biological integrity of terrestrial and aquatic ecosystems to sustain vegetation, fish, and special status species, while providing for multiple uses of BLM-administered lands.*

Goal LG 3: *Provide opportunities for livestock grazing to support and sustain local communities while providing habitat for native plants, fish, and animals (including special status species) and meeting or exceeding proper functioning condition (PFC) for uplands and riparian areas and Montana's air and water quality standards.*

Objective LG 1: Maintain sustainable forage levels for livestock.

Objective LG 2: Meet rangeland health objectives by using Guidelines for Livestock Grazing Management, such as grazing use, grazing activity plans and systems, range improvements, and vegetation treatments (see **Appendix L**, Mitigation Measures and Conservation Actions).

Management Decisions (MD)

MD LG 1: Allotment management and permit administration will use criteria found in Handbook 1740-1 and WO IM 2009-018 (BLM 2008a) and new criteria outlined in **Appendix K**, Livestock Grazing, and **Appendix M**, Monitoring.

MD LG 2: The BLM will follow the BLM's 1997 Record of Decision for Standards for Rangeland Health and Guidelines for Livestock Grazing Management Final Environmental Impact Statement for Montana and North and South Dakota.

MD LG 3: The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows.

The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.

MD LG 4: The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMA will include specific management thresholds based on GRSG Habitat Objectives Table 7 and Land Health Standards (43 CFR, Part 4180.2) and defined responses that will allow the authorizing officer to make adjustments to livestock grazing without conducting additional NEPA.

MD LG 5: Allotments within PHMA, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.

MD LG 6: At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as RCAs or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR, Part 4110.2-3.

Livestock Grazing Authorization

MD LG 7: Approximately 2,700,000 acres and an estimated 546,496 animal unit months (AUMS) are available for livestock grazing.

MD LG 8: Livestock grazing is unavailable on approximately 140 acres (12 AUMs).

MD LG 9: For allotments in which the Standards for Rangeland Health are not met (including GRSG Habitat), livestock grazing is a causal factor in the failure to meet these standards, and there is no progress towards meeting the Standards in the allotments within 5 years of making management changes, use will be suspended and not re-authorized until Land Health Standards including habitat objectives are attained. Once standards and habitat objectives are met, use will be reauthorized at levels to maintain resource objectives.

Livestock Grazing Authorization – Locatable Mining, Oil and Gas, and Coal

MD LG 10: Livestock grazing will be suspended or cancelled in areas with active locatable mining. Grazing will be reactivated as areas are reclaimed and Standards for Rangeland Health are met.

MD LG 11: In grazing allotments with oil and gas development, grazing will be suspended or cancelled on affected areas. Grazing will be reactivated as areas are reclaimed and Standards for Rangeland Health are met.

MD LG 12: Livestock grazing will be suspended or cancelled during coal development on affected acres. Grazing will be reactivated as areas are reclaimed and Standards for Rangeland Health are met.

Livestock Grazing Authorization – Land Treatments

MD LG 13: Livestock grazing will be deferred or suspended in identified fuels treatment areas until vegetative conditions allow for adequate fuel for a prescribed fire.

MD LG 14: Livestock grazing use will be suspended after a wildfire, prescribed fire or non-fire vegetative treatment until grazing could continue as Standards for Rangeland Health are met.

Livestock Grazing Authorization – RCAs

MD LG 15: RCAs will be designated and managed according to the criteria listed in **Appendix K**, Livestock Grazing.

Livestock Grazing – Permit/Lease Renewals and Transfers

MD LG 16: Grazing preference for permits or leases will be transferred or renewed for grazing allotments meeting Standards for Rangeland Health in which the new grazing permit or lease contains the same mandatory terms and conditions previously authorized. See **Appendix K**, Livestock Grazing, for a screening criteria checklist.

3.2.9 Minerals (MIN)

Goal MIN 1: *Provide opportunities for mineral use in an environmentally responsible manner.*

Management Decisions (MD)

Coal

MD MIN 1: Areas identified in the Big Dry and Powder River RMPs (BLM 1996 and 1985) as acceptable for further consideration for coal leasing are carried forward:

- Powder River RMP: "Future development will come from current leases covering 39,391 acres (3.43 billion tons) those unleased areas determined acceptable for further consideration in the 1979 MFP Update and 1982 Amendment covering 91,700 acres (7.83 billion tons) and unleased areas determined acceptable for further consideration from new planning covering 869,600 acres (54.37 billion tons). The combined total is 1,000,691 acres (65.63 billion tons). Emergency leases will be issued to maintain production or avoid a bypass situation on a case-by-case basis. Exchanges will be considered for existing leases, by direction of legislation, and for leases located in alluvial valley floors. Other exchanges will be considered on a case-by-case basis" (BLM 1985, p. 2); and
- Big Dry RMP: "Pending application of the surface-owner consultation screen, coal will be acceptable for further consideration for leasing or exchange on 580,547 public mineral acres containing 6.18 billion tons of coal" (BLM 1996, p. 12).

MD MIN 2: All coal leasing and coal exchange proposals will be evaluated for their suitability for leasing or exchange.

MD MIN 3: At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR, Part 3461.5. PHMA is essential habitat for maintaining GRSG for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).

Oil & Gas

MD MIN 4: Oil and gas leasing and development is open with an NSO stipulation within existing coal leases with approved mining plans (38,503 acres).

MD MIN 5: BLM-administered oil and gas mineral acres within WSAs are unavailable for leasing (nondiscretionary closures). See the *Lands and Realty-Renewable Energy Appendix* in the Miles City Proposed RMP/EIS for withdrawals (83,000 acres).

MD MIN 6: To resolve drainage situations, lands closed to leasing or unavailable for leasing will be leased with an NSO stipulation. See **Appendix G**, Minerals Stipulations, for more information.

MD MIN 7: BLM-administered oil and gas mineral acres in Makoshika State Park will be leased with an NSO stipulation (5,394 acres).

MD MIN 8: Where the federal government owns the mineral estate in PHMA and GHMA, and the surface is in non-federal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.

Where the federal government owns the surface and the mineral estate is in non-federal ownership in PHMA and GHMA, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.

MD MIN 9: Except for greater sage grouse, coal bed natural gas (CBNG) development will be conducted in accordance with the BLM's 2008 *Record of Decision for the Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings RMP*s (BLM 2008b). All other management, including leasing and GRSG, is found within this ARMP.

MD MIN 10: Oil and gas leasing is open and surface occupancy and use is prohibited with an NSO stipulation on approximately 1,850,000 acres.

MD MIN 11: Oil and gas leasing is open and surface occupancy and use is allowed with a CSU and timing stipulations on approximately 3,645,000 (CSU) and 179,000 (Timing) acres.

MD MIN 12: Oil and gas leasing is open and surface occupancy and use is allowed with lease terms on approximately 987,000 acres.

MD MIN 13: BLM-administered mineral acres within WSAs are closed to oil and gas leasing and development (83,000 acres).

MD MIN 14: Geophysical exploration is not allowed on approximately 151,000 acres and allowed in the remainder of the planning area.

<u>Carter Area (139,000 surface; 283,200 oil and gas acres)</u>

Objective MIN 1: See the Fish, Aquatic and Wildlife Habitat, including Special Status Species, GRSG section; Water Resources; Soil Resources; and Finger Buttes ACEC Special Designation sections for resource condition objectives.

MD MIN 15: No areas are identified for the development of an MLP.

MD MIN 16: Oil and gas leasing will not be phased. Oil and gas leasing is in accordance with the resource actions within the ARMP.

Locatable Minerals

MD MIN 17: Approximately 2.18 million acres are open to mineral location.

Mineral Material

MD MIN 18: Approximately 2,500,000 acres are available to mineral material sales and permits with restrictions applied. Approximately 169,000 acres are closed to mineral material sales and permits.

3.2.10 National Trails (NT)

Goal NT 1: *Conserve, protect, and restore National Trail resources, qualities, values, associated settings and primary use or uses of national trails.*

Objective NT 1: Sustain and enhance the Lewis and Clark Trail to complement its status as a national historic trail emphasizing natural and historical interpretation as part of the National Trail Management Corridor. Effective inventory, planning, management, and monitoring of the trail corridor will occur through management as the Lewis and Clark SRMA.

Objective NT 2: Safeguard the Nature and Purposes; and conserve, protect, and restore the National Trail resources, qualities, values, and associated settings and the primary use or uses of the Lewis and Clark Trail.

Management Decisions

MD NT 1: See the *Lewis and Clark SRMA* section for additional management actions and delineation of the Lewis and Clark National Trail Management Corridor (Map 7).

MD NT 2: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 23,484 acres).

3.2.11 Paleontological Resources (PALEO)

Goal PALEO 1: *Identify, preserve, and protect significant paleontological resources on BLM-administered lands.*

Goal PALEO 2: *Ensure that paleontological resources are available to present and future generations for appropriate uses such as scientific studies and public education.*

Objective PALEO 1: Ensure that proposed land uses initiated or authorized by the BLM avoid inadvertent damage to significant paleontological resources.

Management Decisions (MD)

MD PALEO 1: Surface-disturbing activities are allowed as long as the activities will not impact the quality of significant paleontological localities.

MD PALEO 2: Oil and gas leasing is open and surface occupancy and use is prohibited with an NSO stipulation that restricts surface-disturbing activities in significant paleontological localities.

3.2.12 Recreation (REC)

Goal REC 1: *Provide a diverse array of quality resource-based recreation opportunities while protecting and interpreting the resource values, providing educational opportunities, minimizing recreational use conflicts, and promoting public safety.*

Goal REC 2: *Establish, manage, and maintain quality recreation sites and facilities to balance public demand and protection of public land resources.*

Goal REC 3: *Manage recreation opportunities and experiences to provide a sustained flow of local economic benefits and protect non-market economic values.*

Objective REC 1: Manage reservoirs with fisheries in a manner to provide for quality recreational experiences while minimizing conflicts and conserve resources.

Management Decisions (MD)

MD REC 1: Surface-disturbing and disruptive activities are allowed adjacent to designated sport-fish reservoirs with BLM-approved design features (170 acres). Oil and gas leasing is open and surface occupancy and use in and within 0.25 miles of designated sport-fishing reservoirs is allowed subject to specialized design features to minimize impacts (CSU, 2600 acres).

MD REC 2: The BLM will issue SRPs as appropriate for commercial, competitive, special events and/or organized group activities, subject to guidelines in BLM Handbook 2930, resource capabilities, social conflict concerns, professional qualifications, public safety, and public needs. Changes in demand for permits and resulting impacts will be monitored and future thresholds identified that could lead to limits in the number of permits to minimize impacts on the resource, public safety, and overall visitor satisfaction. All SRP applications and renewals will be reviewed on a case-by-case basis and issued as tools to achieve area specific planning goals, objectives and decisions.

MD REC 3: SRPs for outfitters and guides for hunting are allowed where these permits will not conflict with other BLM permitted uses and BLM Special Designation Area's or Recreation Area's Goals and Objectives. Only one permit for outfitters and guides for hunting will be allowed on any given parcel of BLM administered public land.

3.2.13 Special Recreation Management Areas (SRMAs), Extensive Recreation Management Areas (ERMAs) and Public Lands Not Designated

Objective SRMA 1: Manage SRMAs to enhance a targeted and/or specific set of activities, experiences, benefits, and desired recreation setting characteristics in response to visitor demand to sustain or enhance recreation settings characteristics.

Objective SRMA 2: Manage ERMAs to support and sustain the principal recreation activities and opportunities with the associated quality and conditions as necessary to achieve planning objectives and to address recreation-tourism issues, activities, conflicts and/or particular recreation settings.

Objective SRMA 3: Manage Public Lands not Designated as Recreation Management Areas to meet basic Recreation and Visitor Services and resource stewardship needs.

Objective SRMA 4: Increase awareness, understanding and a sense of stewardship in recreational activity participants so their conduct safeguards cultural and natural resources.

Objective SRMA 5: Ensure that visitors are not exposed to unhealthy or unsafe human created condition.

Objective SRMA 6: Achieve a minimum level of conflict between recreation participants and other resource/resource uses sufficient to enable the achievement of identified land use plan goals, objectives, and actions for a diversity of recreation activity participation.

Objective SRMA 7: Manage to provide a diversity of recreation opportunities and settings; management actions and allowable uses may be necessary to protect resources or investments

Management Decisions (MD)

MD SRMA 1: In PHMA, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development will have a net conservation gain to GRSG habitat (such as concentrating recreation, diverting use away from critical areas, etc.), or unless the development is required for visitor health and safety or resource protection.

MD SRMA 2: The planning area is managed with the following designated acres: SRMAs – 21,948 Acres; ERMAs – 2,200 acres; Public land Not Designated – 2,727,382 acres.

Powder River Depot SRMA (162 acres) PR SRMA

MD PR SRMA 1: Powder River Depot SRMA is no longer designated a SRMA. These lands are already located within the Lewis and Clark Trail SRMA and Powder River Depot ACEC. Management is in accordance to those designations.

Calypso SRMA (71 acres) (no federal mineral ownership) (CALYPSO)

Objective CALYPSO 1: Identify experiences available and differences of the great diversity of topographic, geologic, vegetation, and scenic phenomenon in proximity to the Calypso Trail and Terry Badlands (in relationship to the Calypso SRMA due to the close proximity of the two).

Objective CALYPSO 2: Provide users with opportunities to view, experience, and appreciate examples of cultural and historic use of the Calypso Trail, and examples of the ways the resources on public lands are being managed in harmony with the environment, as an asset to the existing scenic character of the Terry Badlands.

Objective CALYPSO 3: Ensure the SRMA has a minimum adverse effect on adjacent natural scenic, historical and cultural environments and harmonize with the management objectives of land and resource uses which are now or may be occurring on the lands.

Management Decisions (MD)

MD CALYPSO 1: Calypso SRMA continues to be designated a SRMA.

MD CALYPSO 2: A portion of the Hines Allotment (#01669), consisting of 71 acres and 11 AUMs (T. 12 N., R. 50 E., sec. 22), is available for livestock grazing.

MD CALYPSO 3: Range improvements are allowed.

MD CALYPSO 4: ROWs and other land use authorizations are avoided.

MD CALYPSO 5: Geophysical exploration is not allowed.

MD CALYPSO 6: The area is managed according to VRM Class II (71 acres) objectives.

Lewis and Clark Trail SRMA (LEWIS)

Objective LEWIS 1: Manage for public use and enjoyment, while preserving the historic and cultural resources related to the events that occurred during the Lewis and Clark Expedition.

Objective LEWIS 2: Maintain and enhance recreation opportunities for residents and visitors along the trail to accommodate camping, scenery and wildlife viewing, hunting, picnicking, boating, fishing, hiking, and other compatible and dispersed recreational uses in prescribed settings so visitors are able to realize experiences and benefits.

Objective LEWIS 3: Pursue opportunities for partnerships and cooperative management with adjacent property owners and other interested parties.

Management Decisions (MD)

MD LEWIS 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD LEWIS 2: Lewis and Clark Trail continues to be designated a SRMA and the boundary modified to total 14,499 acres.

MD LEWIS 3: Mineral material permits and sales are allowed only when they meet the SRMA objectives.

MD LEWIS 4: ROWs and other land use authorizations are avoided.

MD LEWIS 5: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 12,270 acres).

MD LEWIS 6: Geophysical exploration is allowed.

MD LEWIS 7: The area is managed according to VRM Class II (14,499 acres) objectives.

Howrey Island (592 surface acres, no federal mineral ownership) (HOWREY)

Objective HOWREY 1: Maintain, restore or enhance the area for river-related recreation activities, fisheries, wildlife viewing, hiking, camping, hunting and existing dispersed recreational activities for local residents and visitors to the area.

Objective HOWREY 2: Manage conflicts with other resource values and uses in coordination and cooperation with affected interests.

Management Decisions (MD)

MD HOWREY 1: Howrey Island is designated a SRMA. Howrey Island is removed from ACEC designation.

MD HOWREY 2: The Howrey Island Allotment (#10111), consisting of 592 acres and 200 AUMs, is available for livestock grazing in accordance with the SRMA and resource objectives.

MD HOWREY 3: Range improvements are allowed.

MD HOWREY 4: ROWs and other land use authorizations are avoided.

MD HOWREY 5: Geophysical exploration is not allowed.

MD HOWREY 6: OHV use on the existing road is allowed yearlong from Highway 311 to the Myers Bridge fishing access site. OHV use past this point is closed, except for authorized administrative and permitted uses.

MD HOWREY 7: Closed to the discharge of firearms (rifles, pistols and shotguns) from December 16th through annually, except that shotguns *allowed* during the spring turkey hunting season.

MD HOWREY 8: Wood product sales are allowed to meet resource or recreation goals and objectives.

MD HOWREY 9: The area is managed according to VRM Class II (592 acres) objectives.

Matthews Recreation Area (91 acres, no federal mineral ownership) (MATTHEWS)

Objective MATTHEWS 1: Maintain, restore or enhance the area for water-related recreation activities, fisheries, scenery and wildlife viewing, hiking, camping, hunting, running, bird watching, picnicking, exercising pets, Yellowstone River access, and existing dispersed recreational activities for local residents and visitors to the area.

Objective MATTHEWS 2: Manage conflicts with other resource values and uses in coordination and cooperation with affected interests without risking health and safety.

Management Decisions (MD)

MD MATTHEWS 1: The discharge or use of all firearms or weapons is prohibited within developed area.

MD MATTHEWS 2: Areas outside the developed area will allow shotgun or archery use only.

MD MATTHEWS 3: The discharge or use of pistols or rifles is prohibited within the entire area (91 acres).

MD MATTHEWS 4: Matthews Recreation Area is designated a SRMA.

MD MATTHEWS 5: Matthews Recreation Area is unavailable for livestock grazing except for a grazing authorization for vegetation management (e.g. invasive species control or hazardous fuels reductions).

MD MATTHEWS 6: Range improvements are allowed.

MD MATTHEWS 7: ROWs and other land use authorizations are avoided.

MD MATTHEWS 8: Geophysical exploration is not allowed.

MD MATTHEWS 9: The area is managed according to VRM Class II (91 acres) objectives.

Dean S. Reservoir (162 acres) (DEAN)

Objective DEAN 1: Maintain, restore or enhance the area for recreational activities that include fishing, wildlife viewing, camping, hiking, hunting, camping, sledding, running, exercising pets, picnicking and other dispersed uses.

Objective DEAN 2: Manage conflicts with other resource values and uses in coordination and cooperation with affected interests while in a healthy and safe manner.

Management Decisions (MD)

MD DEAN 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD DEAN 2: Dean S. Reservoir is designated a SRMA.

MD DEAN 3: Mineral material permits and sales are not allowed.

MD DEAN 4: ROWs and other land use authorizations are avoided.

MD DEAN 5: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 162 oil and gas acres).

MD DEAN 6: Geophysical exploration is not allowed.

MD DEAN 7: The area is managed according to VRM Class II objectives.

Pumpkin Creek (PUMPKIN)

Objective PUMPKIN 1: Maintain, restore, or enhance recreation opportunities to accommodate existing and future uses, for a primitive recreational site.

Objective PUMPKIN 2: Maintain or enhance a diversity of recreational opportunities and benefits.

Objective PUMPKIN 3: Manage conflicts with other resource values and uses in coordination and cooperation with affected interests in a healthy and safe manner.

Management Decisions (MD)

MD PUMPKIN PC 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD PUMPKIN 2: The Pumpkin Creek Side, north and east of Highway 59 (approximately 2,200 acres), will be managed as an ERMA. The remaining lands will be managed as public land not designated (approximately 19,006 acres).

MD PUMPKIN 3: The Rogers Allotment (#00509), contained within Pumpkin Creek (19,475 acres), is available for livestock grazing in accordance with resource objectives.

MD PUMPKIN 4: Limited approvals for mineral material permits and sales are allowed for purposes of constructing and maintaining public roads or s.

MD PUMPKIN 5: ROWs and other land use authorizations are avoided.

MD PUMPKIN 6: Oil and gas leasing will be open and surface occupancy and use will be prohibited (NSO) (7,373 acres).

MD PUMPKIN 7: Geophysical exploration is not allowed

MD PUMPKIN 8: The area is managed according to VRM Class II (21,206 acres) objectives.

Glendive Short Pine OHV (GLENDIVE OHV)

Objective GLENDIVE 1: Communicate riding ethics and regulations, promoting designated areas for OHV practice and skill development.

Objective GLENDIVE 2: Maintain, restore, and enhance areas within the OHV SRMA to manage the area for a front and middle country setting.

Objective GLENDIVE 3: Maintain or enhance a diversity of recreational and OHV experiences and benefits.

Objective GLENDIVE 4: Provide OHV trail riding opportunities for all levels of experience in a safe manner that co-exists with other resource uses as well as other dispersed recreational activities.

Management Decisions (MD)

MD GLENDIVE 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD GLENDIVE 2: The Glendive Short Pine OHV Area is designated a SRMA (2,272 acres).

MD GLENDIVE 3: A portion of the Nemitz Individual L Allotment (#01415), consisting of 2,272 acres and 354 AUMs (T. 14 N., R. 55 E., sec 3; sec. 9, E½; sec. 10; and sec. 15) is available for livestock grazing; Sec 21 E½ (outside the SRMA) is available for livestock grazing.

MD GLENDIVE 4: Mineral material permits and sales are not allowed.

MD GLENDIVE 5: ROWs and other land use authorizations are allowed.

MD GLENDIVE 6: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 2,272 acres).

MD GLENDIVE 7: Geophysical exploration is allowed.

MD GLENDIVE 8: The OHV boundary is modified to T. 14N., R. 55E., sec. 3; sec. 9, E½; sec. 10; sec 14, N½ and SE/SE; and sec. 15 (exclude sec. 21, E½).

MD GLENDIVE 9: OHVs are limited to designated routes on all sections; T. 14N. R. 55E. sec. 3; sec. 9, E½; sec 10; sec. 14, N½ and SE/SE; sec. 15.

MD GLENDIVE 10: Firearm use is restricted and allowed only during the State of Montana hunting seasons. The designated shooting area is removed. Firearm use is not allowed at any time in the parking/ramp areas.

MD GLENDIVE 11: The area is managed according to VRM Class III (2,272 acres) objectives.

Terry OHV Area (TERRY)

Management Decisions (MD)

MD TERRY 1: The Terry OHV Area is Public Lands Not Designated as Recreation Management Areas.

MD TERRY 2: OHVs are limited to designated routes on 72 acres (sec. 10).

Strawberry Hill Recreation Area (4,248 acres) (STRAW)

Objective STRAW 1: Maintain, restore, or enhance recreation opportunities to accommodate existing and future uses, including hiking, mountain biking, running, geo-caching, equestrian use, hunting, camping, wildlife viewing, OHV use on existing roads and trails, cross-country skiing, snowmobiling, sledding, and other dispersed use at a primitive site.

Objective STRAW 2: Maintain or enhance a diversity of recreational opportunities and benefits.

Objective STRAW 3: Manage conflicts with other resource values and uses in coordination and cooperation with affected interests in a healthy and safe manner.

Management Decisions (MD)

MD STRAW 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD STRAW 2: Strawberry Hill Recreation Area is designated a SRMA.

MD STRAW 3: The Hay Creek Allotment (#10330), consisting of 3,616 acres and 292 AUMs, is available to livestock grazing.

MD STRAW 4: Mineral material permits and sales are not allowed.

MD STRAW 5: ROWs and other land use authorizations are avoided.

MD STRAW 6: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO) (2,319 acres).

MD STRAW 7: Geophysical exploration is not allowed.

MD STRAW 8: The area will is managed according to VRM Class II (4,248 acres) objectives.

Moorhead Recreation Area (13 acres) (MOOR)

Objective MOOR 1: Maintain or enhance the current campground and facilities as needed or demand arises and funding allows.

Objective MOOR 2: Pursue future opportunities for recreation development as demand arises.

Objective MOOR 3: Mitigate conflict with other resource values and uses as appropriate, in coordination and cooperation with affected interests in a healthy and safe manner.

Management Decisions (MD)

MD MOOR 1: The BLM may conduct a validity examination for any mining claim, including those within the SRMA if surface disturbing operations are proposed on the subject mining claim.

MD MOOR 2: Moorhead Recreation Area is designated a SRMA.

MD MOOR 3: A portion of the Sam's Allotment (#10526), consisting of 10 acres and 3 AUMs (T. 9 S., 48 E., sec. 17 and 18), is unavailable for livestock grazing except for a grazing authorization for vegetation management (e.g. Invasive species control or hazardous fuels reductions).

MD MOOR 4: Mineral material permits and sales are not allowed.

MD MOOR 5: ROWs and other land use authorizations are avoided.

MD MOOR 6: Geophysical exploration is not allowed

MD MOOR 7: Firearm use is closed.

MD MOOR 8: The area is managed according to VRM Class II (13 acres) objectives

3.2.14 Renewable Energy (RE)

Goal RE 1: *Provide opportunities for the development of renewable energy resources (from sources such as wind and solar) while minimizing adverse impacts on other resource values*

Objective RE 1: Provide opportunities for renewable energy development to the extent consistent with other goals, objectives, and requirements of this plan.

Management Decisions (MD)

MD RE 1: Wind and solar are excluded from lands that are part of the National Landscape Conservation System.

MD RE 2: Renewable energy ROWs are avoided on approximately 1,400,514 surface acres (51%); excluded on approximately 1,002,687 surface acres (36%); and allowed on the remaining 348,329 surface acres (13%) in the planning area (see Map 9). Renewable energy ROWs are avoided on 227,727 Wind Power Class 4 and above surface acres (42%); excluded on 282,401 Wind Power Class 4 and above surface acres (51%); and allowed on the remaining 37,028 open Wind Class 4 and above acres (7%) in the planning area. The 37,028 acres of open acres in Class 4 and above are designated as Potential Wind Development Areas. At the discretion of the AO, areas designated as Potential Wind Development Areas could be open for competitive leasing with stipulations from other resources.

3.2.15 Riparian and Wetland Areas (RIP)

Goal RIP 1: *Manage riparian and wetland systems to be healthy, diverse, and functional.*

Objective RIP 1: Improve riparian and wetland areas toward PFC or a higher ecological status.

Management Decisions (MD)

MD RIP 1: Surface-disturbing activities are allowed in and within 300 feet of the boundary of riparian and wetland areas with approved design features to maintain or improve functionality and resiliency.

MD RIP 2: Oil and gas leasing is open and surface occupancy and use is prohibited in riparian and wetland areas (NSO) (147,000 acres).

MD RIP 3: Oil and gas leasing is open and surface occupancy and use is allowed within 300 feet of the boundary of riparian and wetland areas with a CSU stipulation (1,193,000 acres).

MD RIP 4: New spring developments are allowed with specialized design features to maintain or improve the integrity, functionality, and resiliency of the associated wetland, riparian area, stream, or creek.

MD RIP 5: New livestock water developments (e.g. troughs, tanks, etc.) will be located and designed to maintain or improve the integrity, functionality, and resiliency of the associated wetland or riparian area.

3.2.16 Soils (SL)

Goal SL 1: *Maintain or improve the chemical, physical, and biotic properties of soil.*

Objective SL 1: Prevent or limit accelerated soil loss, minimize degradation of soils, and control sedimentation.

Objective SL 2: Maintain or improve adequate vegetation and ground cover (including biological soil crusts and litter) to promote soil health, productivity, and stability.

Management Decisions (MD)

MD SL 1: Reclamation measures for surface-disturbing activities will be implemented as described in **Appendix N**, Reclamation.

MD SL 2: Surface-disturbing activities on sensitive soils are allowed with specialized design features to maintain or improve the stability of the site.

MD SL 3: Oil and gas leasing is open and surface occupancy and use is allowed on sensitive soils with a CSU stipulation (1,874,000 acres).

MD SL 4: Surface disturbing activities on badlands and rock outcrop is allowed with specialized design features to maintain or improve the stability of the site.

MD SL 5: Oil and gas leasing is open and surface occupancy and use is prohibited on badlands and rock outcrop (NSO) (234,000 acres).

3.2.17 Social and Economic Consideration (SE)

Goal SE 1: *Provide for a diverse array of stable economic opportunities in an environmentally sound manner.*

Goal SE 2: *Identify and correct or revise, to the extent possible, disproportionate negative effects on minority or low-income populations in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994).*

Goal SE 3: *Protect humans and the environment from exposure to hazardous materials.*

Management Decisions

MD SE 1: Analyze impacts on socioeconomic, environmental justice and hazardous material resources from the implementation of s in the planning through the NEPA process.

3.2.18 Special Designation Areas, ACECs (ACEC)

(See **Appendix P**, Special Designation Areas, for more information about proposed and current ACECs.)

Goal SD ACEC 1: *Identify and manage ACECs to protect life and safety from natural hazards or to protect and prevent irreparable damage to important historic, cultural, paleontological, or scenic values; fish and wildlife resources; and other natural systems or processes.*

Ash Creek Divide ACEC (7,921 acres), Bug Creek ACEC (3,837 acres), Hell Creek ACEC (19,373 acres), and Sand Arroyo ACEC (9,052 acres) (ACEC)

Objective ACEC 1: Protect the diverse paleontological resource values.

Management Decisions (MD)

MD ACEC 1: The Ash Creek Divide, Bug Creek, Hell Creek, and Sand Arroyo ACECs will continue to be designated ACECs.

MD ACEC 2: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD ACEC 3: Mineral material sales and permits are closed.

MD ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO) on the ACEC and surrounding lands.

MD ACEC 5: Livestock grazing is allowed.

MD ACEC 6: ROWs are avoided in Ash Creek, Bug Creek and Sand Arroyo ACECs

MD ACEC 7: Major ROWs are avoided and Minor ROWs are allowed in the Hell Creek ACEC.

MD ACEC 8: Geophysical exploration is not allowed.

Big Sheep Mountain ACEC (363 acres) (BIG SHEEP ACEC)

Objective BIG SHEEP ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions (MD)

MD BIG SHEEP ACEC 1: The Big Sheep Mountain site will continue to be designated an ACEC.

MD BIG SHEEP ACEC 2: Mineral material sales and permits are closed.

MD BIG SHEEP ACEC 3: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

MD BIG SHEEP ACEC 4: Geophysical exploration is not allowed.

MD BIG SHEEP ACEC 5: ROWs are avoided.

MD BIG SHEEP ACEC 6: Livestock grazing is available within the Pasture 8 Common East Allotment (#00926) and Allotment #01269, consisting of 363 acres and 98 AUMs (T. 15 N., R. 47 E., sec. 28 through 29 and 32 through 33).

MD BIG SHEEP ACEC 7: The area is managed according to VRM Class II (363 acres) objectives.

HOE ACEC (145 acres) (HOE ACEC)

Objective HOE ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions (MD)

MD HOE ACEC 1: The Hoe site will continue to be designated an ACEC.

MD HOE ACEC 2: BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD HOE ACEC 3: Mineral material sales and permits are closed.

MD HOE ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

MD HOE ACEC 5: Geophysical exploration is not allowed.

MD HOE ACEC 6: ROWs are avoided.

MD HOE ACEC 7: A portion of the ACEC is unavailable for livestock grazing (19 acres, 4 AUMs).

MD HOE ACEC 8: The area is managed according to VRM Class II (145 acres) objectives.

Jordan Bison Kill ACEC (160 acres) (JORDAN BISON ACEC)

Objective JORDAN BISON ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions (MD)

MD JORDAN BISON ACEC 1: Jordan Bison Kill site will continue to be designated an ACEC.

MD JORDAN BISON ACEC 2: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD JORDAN BISON ACEC 3: Mineral material sales and permits are closed

MD JORDAN BISON ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

MD JORDAN BISON ACEC 5: Geophysical exploration is not allowed.

MD JORDAN BISON ACEC 6: ROWs are avoided.

MD JORDAN BISON ACEC 7: The area is managed according to VRM Class II (160 acres) objectives.

Powder River Depot ACEC (1,401 acres) (PRDEPOT ACEC)

Objective PRDEPOT ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD PRDEPOT ACEC 1: Powder River Depot will continue to be designated an ACEC.

MD PRDEPOT ACEC 2: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD PRDEPOT ACEC 3: Mineral material sales and permits are closed

MD PRDEPOT ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

MD PRDEPOT ACEC 5: Geophysical exploration is not allowed.

MD PRDEPOT ACEC 6: ROWs are avoided.

MD PRDEPOT ACEC 7: A portion of the ACEC consisting of 19 acres and 5 AUMs (T. 11 N., R. 50 E., sec. 4) is unavailable for livestock grazing except for a grazing authorization for vegetation management (e.g. invasive species control or hazardous fuels reductions).

MD PRDEPOT ACEC 8: The area is managed according to VRM Class I (overlap with WSA, 522 acres) and VRM Class II (879 acres) objectives.

Seline ACEC (80 acres) (SELINE ACEC)

Objective SELINE ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD SELINE ACEC 1: The Seline site will continue to be designated an ACEC.

MD SELINE ACEC 2: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD SELINE ACEC 3: Mineral material sales and permits are closed.

MD SELINE ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited with an NSO stipulation.

MD SELINE ACEC 5: Geophysical exploration is not allowed.

MD SELINE ACEC 6: ROWs are avoided.

MD SELINE ACEC 7: The area is managed according to VRM Class II (80 acres) objectives.

Battle Butte Battlefield ACEC (BATTLE BUTTE ACEC)

Objective BATTLE BUTTE ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD BATTLE BUTTE ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD BATTLE BUTTE ACEC 2: The existing 121 acres plus an additional 199 acres (for a total of 320 acres) of the Battle Butte Battlefield is designated an ACEC and managed as a cultural resource.

MD BATTLE BUTTE ACEC 3: Mineral material sales and permits are closed on the 320-acre ACEC.

MD BATTLE BUTTE ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 320 acres).

MD BATTLE BUTTE ACEC 5: Geophysical exploration is not allowed (320 acres).

MD BATTLE BUTTE ACEC 6: ROWs are excluded.

MD BATTLE BUTTE ACEC 7: The area is managed according to VRM Class II (320 acres) objectives.

Reynolds Battlefield ACEC (REY ACEC)

Objective REY ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD REY ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD REY ACEC 2: The existing 324 acres plus an additional 598 acres (for a total of 922 acres) is designated an ACEC and managed as a cultural resource.

MD REY ACEC 3: Mineral material sales and permits are closed on the 922-acre ACEC.

MD REY ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 869 acres).

MD REY ACEC 5: Geophysical exploration is not allowed on 922 acres.

MD REY ACEC 6: ROWs are avoided.

MD REY ACEC 7: The area is managed according to VRM Class II (922 acres) objectives.

Finger Buttes ACEC (FINGER ACEC)

Objective FINGER ACEC 1: Protect the unique landscape and scenic characteristics.

Management Decisions (MD)

MD FINGER ACEC 1: Finger Buttes will continue to be designated an ACEC

MD FINGER ACEC 2: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD FINGER ACEC 3: Mineral material sales and permits are closed.

MD FINGER ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO).

MD FINGER ACEC 5: ROWs are avoided.

MD FINGER ACEC 6: Geophysical exploration is not allowed.

MD FINGER ACEC 7: The area is managed according to VRM Class II (1,520 acres) objectives.

Piping Plover (PIPING)

Objective PIPING 1: Evaluate the potential threats and needed management actions to protect the piping plover habitat.

Management Decisions (MD)

MD PIPING 1: The Piping Plover area is not designated an ACEC.

MD PIPING 2: Livestock grazing is available.

Howrey Island

See the *Recreation* section, under *SRMAs* and *ERMAs,* and *Howrey Island* and **Appendix P**, Special Designation Areas.

Smoky Butte ACEC (SMOKY ACEC)

Objective SMOKY ACEC 1: Protect the unique geologic resource values.

Management Decisions

MD SMOKY ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD SMOKY ACEC 2: Mineral material sales and permits are closed on the ACEC.

MD SMOKY ACEC 3: Smoky Butte will continue to be designated an ACEC and size will be reduced to 40 acres.

MD SMOKY ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited on the ACEC (40 acres) and surrounding 40 acres (west) (NSO).

MD SMOKY ACEC 5: Geophysical exploration is allowed in accordance with the resource actions within this ARMP.

MD SMOKY ACEC 6: OHVs are limited to designated routes.

MD SMOKY ACEC 7: ROWs are allowed in accordance with the resource actions within this ARMP.

MD SMOKY ACEC 8: The area is managed according to VRM Class III (40 acres) objectives.

Black-Footed Ferret Reintroduction (BLACK-FOOTED FERRET)

Objective BLACK-FOOTED FERRET 1: Evaluate the area's potential as a black-footed ferret reintroduction site.

Management Decisions

MD BLACK-FOOTED FERRET 1: The Black-footed Ferret Reintroduction Area is not designated an ACEC.

Cedar Creek Battlefield Area (1,022 acres) (CEDAR ACEC)

Objective CEDAR ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD CEDAR ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD CEDAR ACEC 2: Cedar Creek Battlefield area is designated an ACEC (1,022 acres).

MD CEDAR ACEC 3: Mineral material sales and permits are closed in the ACEC (1,022 acres).

MD CEDAR ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 1,022 acres).

MD CEDAR ACEC 5: Geophysical exploration is not allowed in the ACEC (1,022 acres).

MD CEDAR ACEC 6: OHVs are limited to designated routes (approximately 4 miles).

MD CEDAR ACEC 7: ROWs are avoided

MD CEDAR ACEC 8: The area is managed according to VRM Class II (1,022 acres) objectives

Flat Creek Paleontological Area (339 acres) (FLAT ACEC)

Objective FLAT ACEC 1: Protect the diverse paleontological resource values.

Management Decisions

MD FLAT ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD FLAT ACEC 2: Flat Creek Paleontological area (339 acres) is designated an ACEC

MD FLAT ACEC 3: Mineral material sales and permits are closed (339 acres).

MD FLAT ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, (339 acres).

MD FLAT ACEC 5: Geophysical exploration is not allowed.

MD FLAT ACEC 6: ROWs are avoided.

Powderville Paleontological Area (POWDER ACEC)

Objective POWDER ACEC 1: Protect the diverse paleontological resource values

Management Decisions

MD POWDER ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD POWDER ACEC 2: Powderville Paleontological Area is designated an ACEC (9,518 acres).

MD POWDER ACEC 3: Mineral material sales and permits are closed.

MD POWDER ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 9,310 acres).

MD POWDER ACEC 5: Geophysical exploration is not allowed.

MD POWDER ACEC 6: OHVs are limited to designated routes.

MD POWDER ACEC 7: ROWs are avoided.

Long Medicine Wheel Area (179 acres) (LONG ACEC)

Objective LONG ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD LONG ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD LONG ACEC 2: 179 acres of the Long Medicine Wheel area are designated ACEC.

MD LONG ACEC 3: Mineral material sales and permits are closed.

MD LONG ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 179 acres).

MD LONG ACEC 5: Geophysical exploration is not allowed.

MD LONG ACEC 6: OHV use is closed except for authorized administrative and permitted uses.

MD LONG ACEC 7: ROWs are excluded.

MD LONG ACEC 8: The area is managed according to VRM Class II (179 acres) objectives.

Walstein Area (WALSTEIN ACEC)

Objective WALSTEIN ACEC 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD WALSTEIN ACEC 1: The BLM may conduct a validity examination for any mining claim, including those within the ACEC if surface disturbing operations are proposed on the subject mining claim.

MD WALSTEIN ACEC 2: Walstein Area is designated an ACEC (1,519 acres).

MD WALSTEIN ACEC 3: Mineral material sales and permits are closed.

MD WALSTEIN ACEC 4: Oil and gas leasing is open and surface occupancy and use is prohibited (NSO, 1,518 acres).

MD WALSTEIN ACEC 5: Geophysical exploration is not allowed.

MD WALSTEIN ACEC 6: OHV use is closed except for authorized administrative and permitted uses.

MD WALSTEIN ACEC 7: ROWs are avoided.

MD WALSTEIN ACEC 8: The area will be managed according to VRM Class II (1,519 acres) objectives.

Yonkee Area (YONKEE)

Objective YONKEE 1: Protect the diverse cultural and historic resource values.

Management Decisions

MD YONKEE 1: See Cultural Resources section for management of the Yonkee Area. Also see **Appendix P**, Special Designation Areas, for relevance and importance.

MD YONKEE 2: Yonkee area is not designated an ACEC.

GRSG Area (GRSG)

Objective GRSG 1: Protect GRSG priority habitat.

Management Decisions

MD GRSG 1: GRSG Habitat –Priority Areas are not designated ACEC. These areas are managed according to actions described under *GRSG Habitat –Priority Areas.*

3.2.19 Travel Management and Off-Highway Vehicle Use (TM)

Goal TM 1: *Provide a balanced approach to travel management that offers a sustained flow of local economic benefits and minimizes or mitigates user conflict, safety concerns, and resource impacts while taking into consideration the unique attributes and values of the various travel management planning areas.*

Objective TM 1: Designate areas as Open, Closed, or Limited for motorized and non-motorized, including over snow vehicles travel to minimize resource impacts and conflicts of use.

Objective TM 2: Utilize an interdisciplinary approach to address resource and administrative access needs for completion of Comprehensive Travel and Transportation Management planning. Consider and address the full range of various modes of travel on public lands, motorized and non-motorized, including over snow vehicles, as well as recreational opportunities and the demands for such uses.

Objective TM 3: Travel management areas and planning are conducted in a manner that will meet, or move toward meeting, Standards for Rangeland Health.

Objective TM 4: The BLM objective for route-specific travel planning within individual Travel Management Areas (TMAs) is to use a systematic process that considered the unique resource issues and social environments of each TMA.

Objective TM 5: The BLM will emphasize management of the transportation system to reduce impacts on natural resources from designated roads, primitive roads, and trails. The BLM will also stress closing and restoring unauthorized user-created roads and trails to prevent resource damage. Ecologically sensitive areas within 300 feet of roads and trails are closed to dispersed camping if resource damage is occurring in these areas.

Objective TM 6: Areas within the planning area will be evaluated and given the highest priority for travel management planning and remaining lands in the planning area in which resource damage or user conflicts needed to be addressed. An implementation plan for 14 TMAs will be initiated; see **Appendix O**, Recreation for Travel Management Areas.

Objective TM 7: The BLM will strive to complete travel management planning using a developed strategy that sets time frames and prioritizes TMAs. TMAs within the priority GRSG habitat area will strive to be prioritized and completed as funding and staffing allows.

Objective TM 8: The BLM will create a developed strategy based on information found in the BLM Handbook H-8342, *Travel and Transportation*. Areas receiving focus and a higher priority will be based on priority GRSG habitat areas, heavily used areas, social conflict concerns, resource concerns, consideration of primary travelers, valid existing rights, visitor recreation experiences, and development for administrative or public access.

Management Decisions (MD)

MD TM 1: On BLM administered surface, including PHMA and GHMA, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use).

Temporary closure or restriction orders under these authorities are enacted at the discretion of the AO to resolve management conflicts and protect persons, property, and public lands and resources. Where an AO determines that OHVs are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR, Part 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.

MD TM 2: Except for site-specific TMAs, the BLM's 2003 Record of Decision, Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota, and South Dakota will be followed in the interim for all lands.

MD TM 3: There are no acres designated as OHV Open Areas.

MD TM 4: Approximately 2,748,730 acres are a limited OHV area designation.

MD TM 5: Approximately 2,800 acres are designated as OHV Closed Areas except for authorized administrative and permitted uses; see *Special Designation Areas:* Long Medicine Wheel, and Walstein ACECs and *Recreation*: portions of Howrey Island.

MD TM 6: Motorized wheeled cross-country travel for big game retrieval is not allowed.

3.2.20 Vegetation (VEG)

Goal VEG 1: *Manage vegetation communities to restore, maintain, or enhance vegetation community health, connectivity, resiliency, and diversity.*

Objective VEG 1: Provide native plant communities that exist in a diversity of plant associations, including trees, shrubs and understory vegetation with sufficient diversity in structure, age class, and species composition, to support nutrient cycling and energy flows.

Objective VEG 2: Maintain shrub overstory in a variety of spatial arrangements and sizes across landscapes.

Objective VEG 3: Provide plant communities that reflect the potential natural community or the desired plant community appropriate for the ecological site.

Objective VEG 4: Provide adequate organic matter (ground litter and standing dead material) in sufficient quantities to control erosion, replenish nutrients, and maintain soil health.

Objective VEG 5: In all GRSG PHMA, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).

Management Decisions (MD)

MD VEG 1: Special status species plant conservation efforts and vegetative manipulation (or prescriptive) treatments (chemical, fire, biological, manual, and mechanical) will be consistent with the guidelines stated in the *Final and ROD Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (BLM 2007a), *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report* (BLM 2007b), http://www.blm.gov/wo/st/en/prog/more/veg_eis.html Chapter 2. Table 2-8.

MD VEG 2: Conifers encroaching into sagebrush habitats will be removed. Prioritize treatments closest to occupied GRSG habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analyses and principles like those included in the FIAT report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.

MD VEG 3: Harvesting of native and nonnative hay is allowed to meet fuels, vegetation or habitat objectives.

3.2.21 Visual Resources (VR)

Goal VR 1: *Maintain scenic qualities consistent with the management of resources and uses.*

Objective VR 1: Manage visual resources according to established guidelines for VRM class objectives.

Management Decisions (MD)

MD VR 1: The visual contrast rating system will be used during project-level planning to determine mitigation measures and conservation actions.

MD VR 2: Oil and gas leasing will be open and surface occupancy and use is prohibited in VRM Class I (NSO).

MD VR 3: Oil and gas leasing will be open and surface occupancy and use will be restricted or prohibited in VRM II (CSU).

MD VR 4: VRM will be managed according to VRM Class 1(83,000 acres), VRM Class II (414,000 acres), VRM Class III (695,000 acres), and VRM Class IV (1,570,000 acres (Map 3).

3.2.22 Water Resources (WR)

Goal WR 1: *Maintain or enhance the beneficial uses of surface water and groundwater.*

Objective WR 1: Support natural surface water flow regimes.

Objective WR 2: Protect water resources from point source and nonpoint source pollution.

Management Decisions (MD)

MD WR 1: The BLM activities conducted will meet or exceed Montana water quality standards.

MD WR 2: Surface-disturbing activities are allowed in 100-year floodplains with specialized design features to minimize impacts on the functionality and resiliency of the floodplain in compliance with Executive Order 11988.

MD WR 3: Oil and gas leasing is open and surface occupancy and use is prohibited on 100-year floodplains (NSO) (96,000 acres).

MD WR 4: Surface-disturbing activities that do not benefit the functionality of the perennial or intermittent stream lake, pond, or reservoir are allowed with specialized design features to ensure that all state water quality standards are met and that all beneficial uses remain fully supported.

MD WR 5: Oil and gas leasing is open and surface occupancy and use is prohibited on perennial or intermittent streams, lakes, ponds, and reservoirs (NSO) (39,000 acres).

MD WR 6: Surface water impoundments are allowed with measures designed to maintain water quality, and riparian and watershed functionality and resiliency.

MD WR 7: Surface-disturbing activities are allowed within State-designated Source Water Protection Areas with specialized design features to minimize impacts on surface or groundwater quality.

MD WR 8: Oil and gas leasing is open and surface occupancy and use is prohibited within State-designated Source Water Protection Areas (NSO) (3,400 acres).

3.2.23 Wilderness Study Areas (WSA)

Goal WSA 1: *Manage WSAs so as not to impair their suitability for preservation as wilderness until Congress either designates them as wilderness or releases them from further study.*

Objective WSA 1: Manage WSAs in accordance with BLM Manual 6330, *Management of Wilderness Study Areas* until Congress either designates these lands as Wilderness or releases them for other purposes.

Management Decisions

MD WSA 1: Under BLM guidance, the BLM does not have the authority to designate new WSAs nor does BLM have the authority to reverse, repeal, or amend existing WSAs.

MD WSA 2: As provided under the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (30 U.S.C. §181), oil and gas leasing within WSAs is closed (83,000 acres).

MD WSA 3: Should any WSA, in whole or in part, be released from consideration, such released lands will be managed in accordance with the goals, objectives, and management prescriptions established in this RMP, unless otherwise specified by Congress in its releasing legislation.

3.2.24 Wildland Fire Management and Ecology (FIRE)

Fuels Management/Prescribed Fire

Goal FIRE 1: *Provide for firefighter and public safety by reducing hazardous fuel loads (risk) within the wildland urban interface.*

Goal FIRE 2: *Protect or sustain the ecological health and function of fire-adapted ecosystems; reduce the risk of high severity wildfires to watersheds and ecosystems; and benefit, protect, maintain, sustain, and enhance natural and cultural resources.*

Management Decisions (MD)

MD FIRE 1: Mechanical thinning of vegetation, biomass removal, and chemical and biological treatments are allowed to reduce hazardous fuels or improve land health.

MD FIRE 2: Fuel treatment s are allowed in areas with high social or natural resource values as well as areas adjacent to wildland urban interface areas considered a priority area for treatment.

If prescribed fire is used in GRSG habitat, the NEPA analysis for the Burn Plan will address:

- why alternative techniques were not selected as a viable options;
- how GRSG goals and objectives will be met by its use;

- how the COT Report objectives will be addressed and met;
- a risk assessment to address how potential threats to GRSG habitat will be minimized.

MD FIRE 3: Prescribed fire as vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire may be used to meet specific fuels objectives that will protect GRSG habitat in PHMA (e.g., creation of fuel breaks that will disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).

MD FIRE 4: Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat will need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality.

MD FIRE 5: Prescribed fire is allowed in the planning area with required design features to meet resource goals and objectives.

MD FIRE 6: Sites in Condition Class 3 (53,000 acres) are not required to have pre-commercial and commercial material removed or treated prior to prescribed fire activities.

3.2.25 Wildland Fire Management (WILDLAND)

Goal WILDLAND 1: *Place public and firefighter safety first in any wildfire management action.*

Goal WILDLAND 2: *Manage wildfire (unplanned ignitions) for the protection of public health, safety, property, and resource values while implementing cost-containment strategies that result in minimum suppression costs.*

Goal WILDLAND 3: *Use a naturally occurring event such as wildfire to enhance vigor, vegetation production, reduce hazardous fuels, and maintain a desired mix of seral stages within the following communities: sagebrush (silver and Wyoming species), forest and grasslands, riparian and wetland areas, and native species communities.*

Goal WILDLAND 4: *Create and maintain landscape-level fuel breaks using fire management, grazing, range improvements, transportation corridors, terrain features, and vegetation communities to provide suppression opportunities.*

Objective WILDLAND 1: Identify areas where fire as a resource benefit could achieve the resource management goals.

Management Decisions (MD)

MD WILDLAND 1: The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. Wildfires adjacent to or near wildland urban or industrial interface have the highest priority for fire suppression. In PHMA, prioritize suppression, after

life and property, to conserve the habitat. In GHMA, prioritize suppression where wildfires threaten PHMA.

MD WILDLAND 2: Fire management units and fire workload areas will be consistent with current wildfire management guidance and delineated and developed based on vegetation types and condition, predominate historical fire regime groups, and management constraints, objectives, and strategies.

MD WILDLAND 3: Management of wildfire to meet multiple objectives is authorized throughout the planning area.

CHAPTER 4
CONSULTATION, COORDINATION, AND PUBLIC INVOLVEMENT

An interdisciplinary team of specialists from the BLM in the Eastern Montana/Dakotas District, MCFO, and the Montana State Office prepared the Miles City RMP. Twenty-eight agencies,[1] including tribal, federal, state, and county governments, participated in developing the document as cooperating agencies. BLM District, field, and state office staff provided technical review and support.

The BLM prepared the PRMP/FEIS in consideration of public comments and input from tribes and cooperating agencies. A notice of availability announcing the release of the PRMP/FEIS was published in the *Federal Register* on May 29, 2015, initiating a 30-day public protest period, which ended on June 29, 2013.

4.1 CONSULTATION AND COORDINATION

4.1.1 Cooperating Agencies

As part of the initiation process for the RMP, the BLM sent letters to Native American Indian tribes and more than 50 federal, state, county, and local agencies, inviting them to participate in the planning process. The BLM held meetings with government agencies and tribes to introduce the project and initiate working relationships among team members and agency personnel.

4.1.2 Native American Indian Tribes

In accordance with the National Historic Preservation Act and in recognition of the government-to-government relationship between tribes and the federal government, the BLM sent letters of introduction to 14 tribal governments to inform them of the RMP revision initiative. It made attempts to conduct government-to-government consultation with the following tribes:

[1] The counties of Big Horn, Carter, Custer, Daniels, Fallon, Garfield, McCone, Powder River, Richland, Rosebud, Sheridan, and Treasure; the Carter, Wibaux, McCone, Garfield, Richland, and Prairie county conservation districts; Prairie County Cooperative State Grazing District; Bureau of Indian Affairs; United States Environmental Protection Agency (USEPA) Region 8; USFWS; Montana Department of Environmental Quality (MDEQ); Montana Department of Natural Resources and Conservation; MFWP; Fork Peck Tribes; and Lower Brule Sioux Tribe

- Fort Peck Tribes
- Lower Brule Sioux Tribe
- Turtle Mountain Band of Chippewa Indians
- Crow Tribe
- Northern Cheyenne Tribe
- Pine Ridge Sioux Tribes
- Standing Rock Sioux Tribes
- Rosebud Sioux Tribe
- Northern Arapaho Tribe
- Eastern Shoshone Tribe
- Cheyenne River Sioux Tribe
- Blackfeet Tribe
- Fort Belknap Community Council
- Chippewa-Cree Tribe of the Rocky Boy's Reservation

As part of the NEPA scoping and consultation process, and as an opportunity to provide comment in accordance with Section 106 of the National Historic Preservation Act, the BLM notified the Montana State Historic Preservation Officer seeking information on concerns with historic properties and land use planning direction included in the ARMP. The BLM has met its obligations under Section 106 of the National Historic Preservation Act, 54 USC, Section 306108, as outlined in the National Preservation Act and the state protocols.

4.1.3 United States Fish and Wildlife Service

As required by Section 7 of the ESA, the BLM initiated consultation with the USFWS and prepared a biological assessment based on the RMP's proposed plan (Alternative E) for USFWS consideration. The BLM's assessment and the response from the USFWS are found in **Appendix Q**, Biological Opinion.

4.2 PUBLIC INVOLVEMENT

During the scoping for and preparation of the RMP, the BLM encouraged formal and informal public input. The 30-day scoping period began when the notice of intent was published in the *Federal Register* on February 4, 2005. The formal scoping period ended March 5, 2005, although comments received after that date were also considered.

The BLM hosted nine public scoping meetings during February and March of 2005 to explain the planning process and to gather input. News releases to local and regional media sources advertised the times and locations of the scoping meetings. The total registered attendance for all nine meetings was 199.

A notice of availability announcing the release of the Draft RMP/EIS was published in the *Federal Register* on March 8, 2013, initiating a 90-day public comment period, which ended on June 5, 2013. During that period, the public was given the opportunity to review and comment on the Draft RMP/EIS.

The BLM held eight public meetings on the Draft RMP/EIS in towns and cities throughout the planning area and received comment letters by mail, e-mail, fax, and in person. The 196 unique comment submissions covered a wide spectrum of thoughts, ideas, opinions, and concerns.

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CHAPTER 5
PLAN IMPLEMENTATION

5.1 IMPLEMENTING THE PLAN

Implementation of an approved BLM RMP is a continuous and active process. Management decisions can be characterized as immediate or one-time future decisions.

Immediate decisions—These are the land use planning decisions that go into effect when the ROD is signed. They include goals, objectives, allowable uses, and management direction; examples are the allocation of lands as open or closed for salable mineral sales, lands open with stipulations for oil and gas leasing, and designated OHV areas. These decisions require no additional analysis and guide future land management actions and subsequent site-specific implementation decisions in the planning area. Proposals for future actions, such as oil and gas leasing, land adjustments, and other allocation-based actions, will be reviewed against these land use plan decisions to determine if the proposal is in conformance with the plan.

One-time future decisions—These are decisions that are not implemented until additional decision-making and site-specific analysis is completed. An example is implementing the recommendations to withdraw lands from locatable mineral entry or development of travel management plans. Future one-time decisions require additional analysis and decision-making and are prioritized as part of the BLM budget process. Priorities for implementing one-time RMP decisions will be based on the following criteria:

- National BLM management direction
- Available resources

The general implementation schedule of one-time future decisions discussed in this ARMP is a period of years, depending on budget and staff availability. After issuing the ROD, the BLM will prepare implementation plans that establish tentative time frames for completing one-time decisions identified in the ARMP. These actions require additional site-specific decision-making and analysis.

This schedule will assist BLM managers and staff in preparing budget requests and in scheduling work. However, the proposed schedule must be considered tentative and will be affected by future funding,

nondiscretionary workloads, and cooperation by partners and external publics. Yearly review of the plan will provide consistent tracking of accomplishments and information that can be used to develop annual budget requests to continue implementation.

5.2 MAINTAINING THE PLAN

The ARMP can be maintained as necessary to reflect minor changes in data. Plan maintenance is limited to further refining or documenting a previously approved decision incorporated in the plan or clarifying previously approved decisions.

The BLM expects that new information gathered from field inventories and assessments, research, other agency studies, and other sources will update baseline data and support new management techniques, best management practices, and scientific principles. Where monitoring shows that land use plan actions or best management practices are not effective, plan maintenance or a plan amendment may be initiated, as appropriate.

Plan maintenance will be documented in supporting records. Plan maintenance does not require formal public involvement, interagency coordination, or the NEPA analysis required for making new land use plan decisions.

5.3 CHANGING THE PLAN

The ARMP may be amended, should conditions warrant. This may become necessary if major changes are needed or if a proposal or action that is not in conformance with the plan needs to be considered. The results of monitoring, evaluation of new data, or policy changes and changing public needs might also require a plan amendment. If several areas of the plan become outdated or otherwise obsolete, a plan revision may become necessary. Plans are amended and revised with public input and the appropriate level of environmental analysis conducted according to the Council on Environmental Quality procedures.

As new information becomes available about GRSG habitat, including seasonal habitats, in coordination with the state wildlife agency and USFWS, and based on best available scientific information, the BLM may revise the GRSG habitat management area maps and associated management decisions through plan maintenance or plan amendment/revision, as appropriate.

The BLM, in coordination with the State of Montana and the USFWS and based on best available scientific information, may revise the management decisions and associated GRSG habitat management area maps. This would come about through plan maintenance decisions and associated GRSG habitat management area maps achieve the shared goal of consistent and effective GRSG management and conservation across all lands, regardless of ownership. This would be the case if the BLM were to find that implementing the Montana GRSG Habitat Conservation Program is effective in meeting management goals and objectives for GRSG conservation.

5.4 PLAN EVALUATION, ADAPTIVE MANAGEMENT, AND MONITORING

Evaluation is a process in which plan and monitoring data are reviewed to see if management goals and objectives are being met and if management direction is sound. Land use plan evaluations determine if decisions are being implemented, if mitigation measures are satisfactory, if there are significant changes in the related plans of other entities, if there is new data of significance to the plan, and if decisions

should be changed through amendment or revision. Monitoring data gathered over time is examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why not. Conclusions are then used to recommend whether to continue current management or to identify what changes need to be made in management practices to meet objectives.

The BLM will use land use plan evaluations to determine if the decisions in the ARMP, supported by the accompanying NEPA analysis, are still valid in light of new information and monitoring data. Evaluations will follow the protocols established by the BLM Land Use Planning Handbook (H-1601-1) or other appropriate guidance in effect at the time the evaluation is initiated. The monitoring framework for this ARMP can be found in **Appendix D**.

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CHAPTER 6
GLOSSARY

Activity plan. A site-specific plan that precedes development. This is the most detailed level of BLM planning (also referred to as project-level or implementation-level planning).

Additionality. The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (Adopted and modified from BLM Manual Section 1794).

Air quality. Based on the amount of pollutants emitted into the atmosphere and the dispersion potential of an area to dilute those pollutants.

Air quality related value (AQRV). A resource identified by the Federal Land Management Agency for one or more federal areas that may be adversely affected by a change in air quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the Federal Land Management Agency for a particular area. AQRV impacts may also include sulfur, nitrogen, acid deposition, and lake acidification.

Allotment. An area of land where one or more livestock operators graze their livestock. Allotments generally consist of BLM-administered lands but may also include other federally managed, state-owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Amendment (plan). The process for considering or making changes in the terms, conditions, and decisions of approved RMPs or management framework plans using the prescribed provisions for resource management planning appropriate to the proposed action or circumstances. Usually only one or two issues are considered that involve only a portion of the planning area.

American Indian tribe. Any American Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing tribal status.

Animal unit month. A standardized unit of measurement of the amount of forage necessary for the complete sustenance of one cow for one month; also the measurement of the permitted use of grazing one animal for one month.

Anticline. An arched, inverted-trough configuration of folded and stratified rock layers.

Application for permit to drill deepen or plug back (APD). The United States Department of the Interior application permit form to authorize oil and gas drilling activities on federal land.

Aquatic. Living or growing in or on the water.

Area of critical environmental concern. An area that needs special management attention to preserve historic, cultural, or scenic values; to protect fish and wildlife resources or other natural systems or processes; or to protect life and provide safety from natural hazards.

Assessment. The act of evaluating and interpreting data and information for a defined purpose.

Authorized Officer. The BLM employee with the delegated authority to make a specific decision.

Authorized use. Uses of public land that may be authorized include agriculture development, residential (under certain conditions), business, industrial, and commercial uses, advertising, research projects, State National Guard maneuvers, and motion picture filming. Recreational concessions are considered business uses and may be authorized by lease. Timber harvest, livestock grazing, mineral extraction, and special recreation events, among other uses, are authorized under other regulations and not under Section 302 of the Federal Land Policy and Management Act.

Avoidance areas. Areas with sensitive resource values in which rights-of-way (ROWs) and surface-disturbing and disruptive activities would be strongly discouraged. ROW avoidance areas may be available for location of ROWs with special stipulations/mitigation.

Avoidance mitigation. Avoiding the impact altogether by not taking a certain action or parts of an action (40 CFR, Part 1508.20[a]); it may also include avoiding the impact by moving the proposed action to a different time or location.

Baseline. The existing condition of a defined area or resource that can be quantified by an appropriate measurement. During environmental reviews, the baseline is considered the affected environment that exists at the time of the review's initiation, and is used to compare predictions of the effects of the proposed action or a reasonable range of alternatives.

Best management practices (BMPs). A suite of techniques that guide or may be applied to management actions to aid in achieving desired outcomes. BMPs are often developed in conjunction with land use plans but they are not considered a land-use-plan decision unless the land use plan specifies that they are mandatory; if not, they may be updated or modified without a plan amendment. BMP measures are applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. BMPs are applied for safe, environmentally responsible resource development by preventing, minimizing, or mitigating adverse impacts and reducing conflicts. BMPs become required actions when they are incorporated into a permit by the proponent or the BLM.

Big game. Large wildlife species often hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

Biological assessment. Gathering and evaluating information on proposed endangered and threatened species and their critical habitat and proposed critical habitat. Required when a management action potentially conflicts with endangered or threatened species, the biological assessment is the method used by federal agencies to enter into formal consultation with the USFWS; it is used to describe a proposed action and consequences to the species potentially affected by the action.

Biologically significant unit. A BSU is the summary of all the priority habitat management areas within a GRSG population, as delineated in the COT report.

Biomass. Vegetative material left over from stand treatments. This term usually refers to material that can be gathered and transported to cogeneration plants and used to produce electricity.

Canopy. The continuous cover formed by tree crowns in a forest consisting of one or several layers.

Canopy cover. The percentage of ground area under an overstory vegetation that would not be impacted by raindrops falling straight down.

Closed. Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs.

Coal. A readily combustible rock containing more than 50 percent weight and more than 70 percent by volume of carbonaceous material, including inherent moisture, formed from compaction and induration of variously altered plant remains similar to those in peat. Differences in the kinds of plant materials (type), in degree of metamorphism (rank), and in the range of impurity (grade) are characteristic of coal and are used in classification.

Coal bed natural gas (CBNG). A clean-burning natural gas found deep inside and around coal seams. The gas has an affinity to coal and is held in place by pressure from groundwater. Mining for coal bed natural gas involves drilling into coal seams and discharging large volumes of groundwater to release the gas. Commonly referred to as coal bed methane.

Code of Federal Regulations (CFR). The official legal tabulation or regulations directing federal government activities.

Community. An assemblage of plant and animal populations in a common spatial arrangement.

Compensatory mitigation. Compensating for the (residual) impact by replacing or providing substitute resources or environments (40 CFR, Part 1508.20).

Compensatory mitigation projects. The restoration, creation, enhancement, or preservation of impacted resources (adopted and modified from 33 CFR, Part 332), such as on-the-ground actions to improve or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements; adopted and modified from BLM Manual Section 1794).

Compensatory mitigation sites. The durable areas where compensatory mitigation projects will occur. (Adopted and modified from BLM Manual Section 1794).

Composition (of forest vegetation). The proportion of each tree species in a stand, expressed as a percentage of the total number, basal area, or volume of all tree species in the stand.

Condition of approval. Conditions or provisions (requirements) under which an APD or a sundry notice is approved.

Conformance. That a proposed action shall be specifically provided for in the land use plan or, if not specifically mentioned, shall be clearly consistent with the goals, objectives, or standards of the approved land use plan.

Conifer. A tree of the order coniferae with cones and needle-shaped or scale-like leaves.

Conservation strategy. A strategy outlining current activities or threats that are contributing to the decline of a species, along with the actions or strategies needed to reverse or eliminate such a decline or threats. Conservation strategies are generally developed for species of plants and animals that are designated as BLM sensitive species or that have been determined by the USFWS or National Marine Fisheries Service to be federal candidates under the Endangered Species Act.

Consistency. The proposed land use plan does not conflict with officially approved plans, programs, and policies of tribes, other federal agencies, and state and local governments to the extent practical within federal law, regulation, and policy.

Contamination. The presence of human-made chemicals or other alterations in the natural soil or water environment (e.g., pesticides, hazardous substances, petroleum, and salts).

Controlled surface use (CSU). Use or occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for NSO or timing stipulations.

Corridor. A wide strip of land within which a proposed linear facility could be located.

Cover. Any form of environmental protection that helps an animal stay alive (mainly shelter from weather and concealment from predators).

Crucial habitat. Parts of the habitat necessary to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on the population, such as breeding or winter habitat.

Crucial winter range. That portion of the winter range that a wildlife species depends on for survival during periods of heaviest snow cover.

Cultural resource. Item of historical, archaeological, or architectural interest; a remnant of human activity.

Cultural resource or cultural property. A definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term

includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses. It may include definite sites or places or traditional cultural or religious importance to specified social or cultural groups. Cultural resources are concrete material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and using for public benefit.

Cumulative impact. The impact on the environment that results from the positive or negative impacts of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency or person performed such actions.

Designated roads and trails. Specific roads and trails where some type of motorized vehicle use is allowed either seasonally or yearlong.

Designated site or area. Cultural resource sites or areas that meet the criteria for allocation for designation for scientific use, conservation use, traditional use (socio-cultural use), public use, or experimental use.

Dispersed or extensive recreation. Recreation of an unstructured type that is not confined to specific locations such as recreation sites. Examples of these activities are hunting, fishing, off-road vehicle use, hiking, and sightseeing.

Disruptive activities. Those uses and activities that are likely to alter the behavior of, displace, or cause excessive stress to wildlife populations occurring at a specific location or time. In this context, disruptive activities refer to those actions that alter behavior or cause the displacement of wildlife such that they compromise reproductive success is negatively affected or the physiological ability to cope with environmental stress. This term does not apply to the physical disturbance of the land surface, vegetation, or features. Examples of disruptive activities are fence construction, noise, and vehicle traffic. The term is used in conjunction with protecting wildlife during crucial life stages (for example, breeding, nesting, and birthing), although it could apply to any resource value. This definition is not intended to prohibit all activities or authorized uses. For example, emergency activities (fire suppression, and search and rescue) or rangeland monitoring, routine maintenance associated with an approved authorization, dispersed recreation (such as hunting and hiking), and livestock grazing are not considered disruptive activities.

Disturbance. Events that alter the structure, composition, or function of terrestrial or aquatic habitats. Natural disturbances include drought, floods, wind, fires, wildlife grazing, and insects and pathogens. Human-caused disturbances include timber harvest, fire, livestock grazing, road construction, and the introduction of exotic species.

Diversity. The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

Drainage (geomorphic). A collective term for all the water bodies that drain a region or all the water features shown on a map.

Drainage (oil and gas). The uncompensated loss of hydrocarbons from federal, tribal or Native American-allotted mineral lands from wells on adjacent nonjurisdictional lands or jurisdictional lands

with lower participation, allocation, royalty rate, or distribution of funds, resulting in revenue losses to federal or American Indian lessors.

Durability (protective and ecological). The maintenance of the effectiveness of a mitigation site and project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations. (Adopted and modified from BLM Manual Section 1794).

Early detection rapid response (EDRR). A process to increase the likelihood that localized invasive populations will be found, contained, and eradicated before they become widely established. EDRR can slow range expansion, avoiding the need for costly long-term control. Effective EDRR depends on the timely ability to answer critical questions, such as the following:

- What is the species of concern and has it been authoritatively identified?
- Where is it located and likely to spread?
- What harm may the species cause?
- What actions (if any) should be taken?
- Who has the needed authorities and resources?
- How will efforts be funded?

Successful EDRR programs are the following:

- Potential threats are being identified in time to allow risk-mitigation measures to be taken
- New invasive species are being detected in time to allow efficient and environmentally sound decisions to be made
- Responses to invasions are effective and environmentally sound and prevent the spread and permanent establishment of invasive species
- Adequate and timely information is being provided to decision-makers, the public, and trading partners concerned about the status of invasive species within an area
- Lessons learned from past efforts are being used to guide current and future efforts. (University of Georgia, USFS, and APHIS 2010).

Easement. A right afforded a person or agency to make limited use of another's real property for access or other purposes.

Ecological condition. The present state of vegetation of a site in relation to the potential natural community for the site. Ecological status is use-independent. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the potential natural community. Four ecological status classes. 0 to 25, 26 to 50, 51 to 75, and 76 to 100. correspond to percent similarity to the potential natural community and are generally called early seral, mid-seral, late seral, and potential natural community, respectively.

Ecological site. A kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and to respond to management.

Ecological status. The present status of vegetation of a range site in relation to the climax or natural potential plant community for the site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for the site.

Ecosystem. Includes all the organisms of an area, their environment, and the linkages or interactions among all of them; all parts of an ecosystem are interrelated. The fundamental unit in ecology, containing both organisms and abiotic environments, each influencing the properties of the other and both necessary for maintaining life.

Emergency stabilization. Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resource, to minimize threats to life or property resulting from the effects of a fire or to repair, replace, or construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within one year following containment of a wildfire.

Emission. Air pollution discharge into the atmosphere, usually specified by mass per unit time.

Endangered species. Those species of plants or animals classified by the Secretary of the Interior or the Secretary of Commerce as endangered, in accordance with Section 4 of the ESA of 1973, as amended. See also *threatened species* and *endangered species*.

Entry. An application to acquire title to public lands.

Environmental assessment. A concise public document that analyzes the environmental impacts of a proposed federal action and provides sufficient evidence to determine the level of significance of the impacts.

Environmental impact statement. A detailed written statement required by NEPA when an agency proposes a major federal action significantly affecting the quality of the human environment.

Exceedance. With respect to a national ambient air quality standard, one occurrence of a measured or modeled concentration that exceeds the specified concentration level of such standard for the averaging period (1-hour, 3-hour, 8-hour, 24-hour, or annual) specified by the standard.

Exception (oil and gas). A one-time exemption to a lease stipulation, determined on a case-by-case basis.

Exclusion areas. Areas with sensitive resource values where ROWs would be prohibited.

Exploration. Building a two-track road to drill test wells for CBNG. See also *Development*.

Extensive recreation management area (ERMA). Areas where significant recreation opportunities and problems are limited and explicit recreation management is not required. Minimal management actions related to the BLM's stewardship responsibilities are adequate in these areas.

Facility, energy or mining. Assets designed and created to serve a particular function and to afford a particular convenience or service that is affixed to specific locations, such as oil and gas well pads and associated infrastructure.

Federal Register. A daily publication that reports presidential and federal agency documents.

Fire regime/condition class (FRCC). An interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments.

Fire regimes. Periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and a real extent.

Floodplain. The lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, such as that area subject to a 1 percent or greater chance of flooding in any given year. The 1 percent annual chance flood is also referred to as the 100-year flood.

Forage. Forms of vegetation available for animal consumption.

Forb. A broad-leaved herb that is not grass or grass like.

Forest. An ecosystem characterized by a more or less dense and extensive tree cover, often consisting of stands varying in characteristics (such as species composition, structure, age class, and associated processes) and commonly including meadows, streams, fish, and wildlife.

Forestland. Land that is now or has the potential of being at least 10 percent stocked by forest trees, based on crown closure, or 16.7 percent stocked, based on tree stocking.

Fragmentation. The splitting or isolating of patches of similar habitat. Habitat can be fragmented by natural events or development activities.

Geographic information system (GIS). A computer system capable of storing, analyzing, and displaying data and describing places on the Earth's surface.

Geophysical exploration. The use of geophysical instruments and methods to determine subsurface conditions by analyzing such properties as specific gravity, electrical conductivity, or magnetic susceptibility.

Goal. A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established periods for achievement.

Grazing relinquishment. The voluntary and permanent surrender by an existing permittee or lessee (with concurrence of any base property lienholders) of their priority (preference) to use a livestock forage allocation on public land as well as their permission to use this forage. Relinquishments do not

require the consent or approval of the BLM, whose receipt of a relinquishment is not a decision to close areas to livestock grazing.

Greater Sage-Grouse habitat. A specific environment or set of environmental conditions suitable for occupancy by GRSG, often typified by the presence of sagebrush. Sage-grouse habitat may be further defined by the season of use (i.e., winter, breeding, and brood-rearing), which each has its own set of different environmental conditions. Each planning area may further define seasonal habitat characteristics based on local ecological conditions.

- Winter. Winter concentration areas are selected by GRSG where sagebrush is 10 to 14 inches above the snow, with a canopy ranging from 10 to 30 percent. Wintering areas may also be on flat to generally southwest-facing slopes or in areas where sagebrush height may be less than 10 inches but the snow is routinely blown clear by wind. In the most severe winter weather conditions, GRSG will often be restricted to tall stands of sagebrush, usually on deeper soils in or near drainages.
- Nesting. The most suitable nesting habitat includes a mosaic of sagebrush with horizontal and vertical structural diversity. A healthy understory of native grasses and forbs provides cover for concealment of the nest and hen from predators, herbaceous forage for pre-laying and nesting hens, and insects as prey for chicks and hens. Preferred nesting cover may vary, depending on local potential habitat conditions.
- Brood-rearing. Early brood-rearing habitat must provide adequate cover (sagebrush canopy cover of 10 to 25 percent preferable) adjacent to areas rich in forbs and insects to ensure chick survival during this period. Typically, mosaics of upland sagebrush and other habitats (e.g., wet meadows or riparian areas) that together provide abundant insects and forbs for hens and chicks. All GRSG gradually move from sagebrush uplands to more mesic areas during the late brood-rearing period (three weeks post hatch) in response to summer desiccation of herbaceous vegetation. These areas provide an abundance of forbs and insects for both hens and chicks. Brood-rearing habitats can include sagebrush habitats as well as riparian areas, wet meadows, and alfalfa or other agriculture fields.

Ground cover. Vegetation, mulch, litter, or rocks.

Groundwater. Subsurface water that is in the zone of saturation. The top surface of the groundwater is the water table. Source of water for wells, seepage, and springs.

Guidelines. Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as BMPs. Guidelines may be identified during the land use planning process, but they are not considered a land-use-plan decision unless the plan specifies that they are mandatory.

Habitat. In wildlife management, the major elements of habitat are considered to be food, water, cover, and living space. The definition includes the following two usages:

- A species-specific environment or environmental conditions suitable for occupancy by that species
- A particular land cover type that provides an environment or environmental conditions suitable for occupancy by many species

Historic. A period wherein nonnative cultural activities took place, based primarily on Euro-American roots, having no origin in the traditional American Indian cultures.

Historic property or historic resource. "Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. The term includes, for purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The term 'eligible for inclusion in the National Register' includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria" (36 CFR, Part 900.2[e]).

Igneous rock. Rock, such as granite and basalt, that solidified from a molten or partially molten state.

Impacts. Environmental consequences (the scientific and analytical basis for comparison of alternatives) as a result of a proposed action. Impacts may be either direct, which are caused by the action and occur at the same time and place, or indirect, which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable or cumulative.

Implementation decisions. Decisions that take action to implement land-use-plan decisions. They are generally appealable to the Interior Board of Land Appeals.

Implementation plan. A site-specific plan written to implement decisions made in a land use plan. An implementation plan usually selects and applies BMPs to meet land use plan objectives. Implementation plans are synonymous with activity plans. Examples of implementation plans are interdisciplinary management plans, habitat management plans, and AMPs.

Indirect effects. Secondary effects that occur in locations other than the initial action or later in time.

Interdisciplinary team. A group of individuals with different training, representing the physical sciences, social sciences, and environmental design arts, assembled to solve a problem or perform a task. The members of the team proceed to a solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions. The number and disciplines of the members preparing the plan vary with circumstances. A member may represent one or more discipline or BLM program interest.

Intermittent stream. A stream that flows only at certain times of the year when it receives water from springs or from some surface source, such as melting snow in mountainous areas. For management purposes, the presence of obligate wetland species or hydric soils may be used to validate the status of streams as intermittent rather than ephemeral.

Invasive species. Organisms that have been introduced into an environment in which they did not evolve. Executive Order 13112 focuses on organisms likely to harm human health or cause economic or environmental harm.

Land use allocation. The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions.

Land use plan. A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land use plan-level decisions developed through the planning process, regardless of the scale at which the decisions were developed.

Lease. A legal document that conveys to an operator the right to drill for oil and gas; the tract of land, on which a lease has been obtained, where producing wells and production equipment are located.

Lease stipulation (oil and gas). Conditions of lease issuance that protect 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. The BLM Authorized Officer has the authority to relocate, control timing, and impose other mitigation measures under Section 6 of the standard lease form. Lease stipulations clarify the BLM's intent to protect known resources or resource values.

Lek. A traditional breeding area for GRSG in which males assemble to establish dominance, display, and breed. Also called dancing grounds or strutting grounds.

Confirmed GRSG lek:

- A minimum of two years with two or more males lekking on-site (preferred)
- One year with two or more males lekking on-site, followed with evidence of lekking (such as vegetation trampling, feathers, and droppings) during the subsequent year.

One of the following subcategories are assigned to a confirmed lek:

- Active. default assignment unless criteria are met for "inactive" or "extirpated"
- Inactive. 10 years with no sign of lek activity and supported by surveys conducted during three or more years over the last 10 years
- Extirpated. habitat changes have caused birds to abandon permanently a lek (e.g., plowing, urban development, and overhead power lines)
- Provisionally confirmed GRSG lek. recent evidence of lekking with or without observed GRSG.
- Unconfirmed GRSG lek. single count with no subsequent survey or a reported lek without supporting survey data.

Lessee. A person or entity holding record title in a lease issued by the United States (see 43 CFR, Part 3160.0-5).

Litter. The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetal material.

Locatable minerals. Minerals or materials subject to disposal and development through the Mining Law of 1872 (as amended). Generally include metallic minerals, such as gold and silver, and other materials not subject to lease or sale.

Management decision. A decision made by the BLM to manage public lands. Include both land use plan decisions and implementation decisions.

Mineral. Any solid or fluid inorganic substance that can be extracted from the earth for profit.

Mineral estate. The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral materials. Widespread deposits of common clay, sand, gravel, or stone that are not subject to disposal under the 1872 Mining Law, as amended.

Minimize. To reduce the adverse impact of an operation to the lowest practical level.

Minimization mitigation. Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR, Part 1508.20 [b])

Mining claim. A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law of 1872 and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, mill site, and tunnel site.

Mitigation measures. Methods or procedures developed for reducing or lessening the impacts of an action. Reducing impacts should include all aspects of the mitigation hierarchy (avoid, minimize, restore, and offset), and appropriate measure may include on- and off-site mitigation. During the environmental review and decision-making process, appropriate mitigation measures will be selected as part of the final decision. These mitigation measures then become a mandatory part of the approved action or permit.

Modification. A change in a plan of operations that requires some level of review by the BLM because it exceeds what was described in the approved plan of operations.

Modification (oil and gas). A change to the provision of a lease stipulation, either temporarily or for the term of the lease.

Monitoring. Specific studies that evaluate the effectiveness of actions taken toward achieving management objectives.

Monitoring plan. The process of tracking the implementation of land use plan decisions.

Multiple use. The management of the public lands and their various resource values, as follows:

- So that they are used in the combination that will best meet the present and future needs of the American people
- Making the most judicious use of the lands for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some lands for less than all of the resources

- A combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historical values
- Harmonious and coordinated management of the various resources without permanent impairment of the productivity of the lands and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or greatest unit output.

National trail management corridor. Allocation established through the land use planning process, pursuant to Section 202 of Federal Land Policy and Management Act and Section 7(a)(2) of the National Trails Systems Act (rights-of-way) for a public land area of sufficient width within which to encompass National Trail resources, qualities, values, and associated settings and the primary use or uses that are present or to be restored.

Net conservation gain. The actual benefit or gain above baseline conditions.

No surface occupancy. Use or occupancy of the land surface is prohibited to protect special values or uses or identified resource values.

Northern Cheyenne reservation. The Northern Cheyenne Reservation, as established by Executive Orders of November 26, 1884, and March 19, 1900.

Obligate wetland species. Plant species that occur almost always (estimated probability greater than 99 percent) under natural conditions.

Overstory. That portion of the trees in a forest of more than one story forming the upper or uppermost canopy layer.

Paleontological resources (fossils). The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

Paleontology. A science dealing with the life forms of past geological periods as known from fossil remains.

Perennial stream. A stream that flows continuously. Perennial streams are generally associated with a water table in the locations they flow through.

Permitted use. The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease. Expressed in AUMs.

Permittee. Holder of a valid permit that authorizes certain uses of the public lands (e.g., for grazing).

Pictograph. A figure or design painted onto a rock.

Plan. A document that contains a set of comprehensive, long-range decisions concerning the use and management of BLM-administered resources in a specific geographic area.

Planning area. A geographical area for which land use and resource management plans are developed and maintained.

Planning criteria. The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision-making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Planning decision (land use plan decision). Establishes desired outcomes and actions needed to achieve them. Decisions are reached using the BLM planning process. When they are presented to the public as proposed decisions, they can be protested to the BLM Director. They are not appealable to Interior Board of Land Appeals.

Population. Within a species, a distinct group of individuals that tend to mate only with members of the group. Generations of inbreeding cause members of a population to tend toward similar genetic characteristics.

Potential natural community. The biotic community that would become established if all successional sequences were completed without interferences under the present environmental conditions.

Pre-commercial thinning. A thinning that does not yield trees of commercial value, usually designed to reduce stock in order to concentrate growth in the more desirable trees.

Prescribed fire. The introduction of fire to an area under regulated conditions for specific management purposes.

Primitive and unconfined recreation. Nonmotorized, nonmechanized, and undeveloped types of recreation.

Primitive road. A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

Primitive routes. Any transportation linear feature in a WSA or lands with wilderness characteristics designated for protection by a land use plan and not meeting the wilderness inventory road definition.

Proper functioning condition. A riparian or wetland area is considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to achieve the following:

- Dissipate stream energy associated with high water flow, thereby reducing erosion and improving water quality
- Filter sediment, capture bedload, and aid floodplain development
- Improve floodwater retention and groundwater recharge

- Develop root masses that stabilize streambanks against cutting action
- Develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses
- Support greater biodiversity

Protest. Application for review at a higher administrative level.

Public land. Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM, except lands on the Outer Continental Shelf and land held for the benefit of American Indians, Aleuts, and Eskimos.

Range improvement. An authorized physical modification or treatment designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. The term includes structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

Rangeland. Land used for grazing by livestock and big game animals on which vegetation is dominated by grasses, grass-like plants, forbs, or shrubs.

Raptor. Bird of prey with sharp talons and strongly curved beaks, such as hawks, falcons, owls, and eagles.

Reasonably foreseeable development scenario (RFD): The prediction of the type and amount of oil and gas activity that would occur in a given area. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

Reclaim. To return the landscape to a useful state (Perrow and Davy 2003).

Reclamation. The stabilization of the terrain, assurance of public safety, aesthetic improvement, and a return of the land to what, within the regional context, is considered to be a useful purpose.

Reclamation plan. The reclamation plan is a written document that addresses the reconstruction of disturbed ecosystems by returning the land to a stable and productive condition compatible with the RMP.

Record of decision. A document signed by a responsible official recording a decision that was preceded by an EIS.

Recreation (visitor) experiences. psychological outcomes realized either by recreation-tourism participants as a direct result of their on-site leisure engagements and recreation-tourism activity participation or by nonparticipating community residents as a result of their interaction with visitors and guests within their community or interaction with the BLM and other public and private recreation-tourism providers and their actions.

Regeneration. The act of renewing tree cover by establishing young trees naturally or artificially.

Renewable energy. Energy that comes from naturally replenished resources, such as sunlight, wind, rain, and tides. Renewable energy projects on BLM-administered lands are wind, solar, and biomass projects and the transmission facilities needed to deliver this power to the consumer. Renewable energy projects are approved via a ROW authorization.

Required design features (RDFs). RDFs are required for certain activities in all GRSG habitat. They establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) or may require slight variations, such as a larger or smaller protective area. All variations in RDFs would require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity:

- A specific RDF be documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable.
- An alternative, a state-implemented conservation measure, or plan-level protection RDF is determined to provide equal or better protection for GRSG or its habitat.
- A specific RDF would provide no additional protection to GRSG or its habitat.

Reserve common allotment. A unit of public land that will not have term grazing permits issued. Such an allotment would be grazed only on a temporary nonrenewable basis. The use of these allotments would be to provide temporary grazing to rest other areas following wildfire or habitat treatments or to allow for more rapid attainment of rangeland health. The allotment must be of sufficient size to be managed as a discrete unit. Allotments should be distributed throughout the planning area.

Residual impacts. Impacts that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Resource management plan. A land use plan as prescribed by FLPMA that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Restore. To return the landscape to its original state.

Restoration. The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Restoration attempts to return an ecosystem to its historic trajectory, i.e., to a state that resembles a known prior state or to another state that could be expected to develop naturally within the bounds of the historic trajectory. The restored ecosystem may not necessarily recover its former state since contemporary constraints and conditions can cause it to develop along an altered trajectory.

Revision. The process of completely rewriting the land use plan because of changes in the planning area affecting major portions of the plan or the entire plan.

Right-of-way corridor. A parcel of land that has been identified by law or Secretarial order or through a land use plan or by other management decision as being the preferred location for existing and future ROW grants and suitable to accommodate one type of ROW or one or more ROWs that are similar, identical, or compatible.

Right-of-way grant. A document authorizing a non-possessory, nonexclusive right to use federal lands for the limited purpose of construction, operation, maintenance, and termination of a pipeline, road, or power line.

Right-of-way (major). High-voltage transmission lines and major pipelines 100 kilovolts and over for transmission lines and 24 inches and over in width for pipelines.

Right-of-way (minor). Other (minor) rights-of-way and land use authorizations/permits, such as communication sites and towers.

Riparian area. An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation that depends on free water in the soil.

Road. A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Sagebrush habitat. A land cover type with sagebrush as the dominant plant species. Sagebrush habitat provides environmental conditions for many species associated with sagebrush for all or part of their lifecycle. Examples of sagebrush-associated species are GRSG, sage sparrows, sage thrashers, and common sagebrush lizards.

Sage-grouse areas. MFWP core areas that contain habitat associated with the following:

- Montana's highest densities of GRSG (25 percent quartile), based on male counts
- GRSG lek complexes and associated habitat important to GRSG distribution (refer to GRSG Core Areas Designation for Montana, Version 1.0; January 13, 2009)

Sage-grouse general habitat management areas. Areas with or without ongoing or imminent impacts containing GRSG habitat outside of the priority areas. Management actions would maintain habitat for sustainable GRSG populations to promote movement and genetic diversity. Areas are delineated based on GRSG habitat.

Sage-grouse priority habitat management areas. Areas with limited impacts containing substantial and high quality GRSG habitat that supports sustainable GRSG populations. Management actions would emphasize the protection and enhancement of sustainable GRSG populations. Areas are delineated using key, core, and connectivity data or maps and other resource information.

Sage-grouse restoration habitat management areas. Areas with ongoing or imminent impacts containing substantial and high-quality GRSG habitat that historically supported sustainable GRSG populations. Management actions would emphasize restoration for the purpose of establishing or

restoring sustainable GRSG populations. Areas are delineated using key, core, and connectivity data or maps and other resource information.

Scenic river. A river or section of a river that is free of impoundments and with largely undeveloped shorelines that are accessible in places by roads.

Scoping. The process of identifying the range of issues, management concerns, preliminary alternatives, and other components of an EIS or land use planning document. It involves both internal and public viewpoints.

Section 7 consultation. The requirement of Section 7 of the ESA that all federal agencies consult with the USFWS or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

Sedimentation. The process or action of depositing sediment.

Segregation. Any act such as a withdrawal or exchange that suspends the operation of the public land laws.

Sensitive soils. Soils with a high risk of degradation from surfaces uses. The following soils are considered sensitive to surface uses: poorly suited to reclamation, on steep slopes, highly compactible, and hydric. Criteria used to determine soil sensitivity to surface uses are continually adapted as conditions change or new information or technology becomes available.

Sensitive species. Species designated by a BLM State Director, usually in cooperation with the state agency responsible for managing the species and state natural heritage programs, as sensitive. They have the following characteristics:

- Could become endangered in or extirpated from a state or within a significant portion of their distribution
- Are under status review by the USFWS or National Oceanic and Atmospheric Administration Fisheries
- Are undergoing significant current or predicted downward trends in habitat capability that would reduce their existing distribution
- Are undergoing significant current or predicted downward trends in population or density such that federal listed, proposed, candidate, or state-listed status may become necessary
- Typically have small and widely dispersed populations
- Inhabit ecological refugia or other specialized or unique habitats
- Are state listed but may be better conserved through the application of BLM sensitive species status

Seral stage. A potential plant community made up of a mix of trees and shrubs.

Shrub. A low, woody plant, usually with several stems; may provide food or cover for wildlife.

Significant. An effect that is analyzed in the context of the proposed action to determine the degree or magnitude of importance of the effect, either beneficial or adverse. The degree of significance can be related to other actions with individually insignificant but cumulatively significant impacts.

Significant cultural resource (site). A cultural site is considered a significant cultural site if it meets the following criteria:

- A site or area designated or meeting the criteria for allocation for designation for scientific use, conservation use, traditional use (socio-cultural use), public use, and experimental use (except for discharged use; see the Cultural Resources Appendix, BLM 2015)
- The boundaries of sites or districts eligible for listing on or listed on the National Register of Historic Places
- The boundaries of traditional cultural properties or sites or areas designated as such or sites or areas that meet the criteria for allocation for designation for traditional socio-cultural use

Activity is prohibited in cultural properties determined to be of particular importance to American Indian groups, that are traditional cultural properties, or that are sites designated for traditional use. Such properties include the following:

- Burial locations
- Pictograph and petroglyph sites
- Vision quest locations
- Plant-gathering locations
- Areas considered sacred or used for religious purposes

Site. The combination of biotic, climatic, topographic, and soil conditions of an area.

Slash. The branches, bark, tops, cull logs, and broken or uprooted trees left on the ground after logging.

Soil. The collection of natural bodies occupying parts of the Earth's surface that is capable of supporting plant growth and that has properties resulting from the integrated effects of climate and living organisms acting on parent material, as conditioned by topography over periods of time.

Solitude. (1) the state of being alone or remote from others, isolation; (2) a lonely or secluded place.

Source population area (GRSG). An identified area GRSF habitat. Restoration area (in the Cedar Creek anticline portion of the planning area) that contains a small population of GRSG and low existing energy development. The objective is to maintain remnant populations to enable future translocations and maintain connectivity between habitat areas.

Source water protection area. The area delineated by a state for a public water system or including numerous public water systems, whether the source is groundwater or surface water or both, as part of a state's Source Water Assessment Program.

Special recreation management area (SRMA). An area that requires explicit recreation management to achieve recreation objectives and provide specific recreation opportunities.

Special status species. Those that include the following:

- Species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior
- Species officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the ESA
- Species designated as candidates for listing as threatened or endangered by the USFWS or National Oceanic and Atmospheric Administration Fisheries
- Species listed by a state in a category implying but not limited to potential endangerment or extinction
- Sensitive species as designated by a BLM State Director

Stand. A contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality to be a distinguishable unit.

Standard. A description of the physical and biological conditions or degree of function required for healthy sustainable lands (e.g., land health standards).

Stipulation. A condition or requirement attached to a lease or contract, usually dealing with protection of the environment or recovery of a mineral.

Structure (of forest vegetation). The horizontal and vertical distribution of plants in a stand, including height, diameter, crown layers, and stems of trees, shrubs, herbaceous understory, snags, and coarse woody debris.

Surface-disturbing activity. The physical disturbance or removal of land surface and vegetation. Some examples of surface-disturbing activities are construction of roads, well pads, pipelines, power lines, reservoirs, facilities, recreation sites, and mining. Vegetation renovation treatments that involve soil penetration or substantial mechanical damage to plants (plowing, chiseling, chopping, and other activities) are also surface-disturbing activities. This definition is not intended to prohibit all activities or authorized uses. For example, emergency activities, such as fire suppression and search and rescue, or rangeland monitoring, routine maintenance associated with an approved authorization, dispersed recreation, such as hunting and hiking, and livestock grazing are not considered surface-disturbing activities.

Surface water impoundment. A human-constructed impoundment (e.g., pits, reservoirs, and stock ponds) of surface water (e.g., overland flow, streamflow, and spring flow) confined by a dam, dike, or other constructed barrier. This does not include impoundments of groundwater, unless the water were naturally discharged to the surface, as in a spring, water from wells, or produced water sources (e.g., water disposal pits).

Sustainability. The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Sustainable population. Capable of maintaining a healthy, productive, and reproducing population over a long period. Sustainability is achieved when population growth rate is greater than or equal to 1.0.

Sustained yield. Maintenance of an annual or regular periodic output of a renewable resource from public land consistent with the principles of multiple use.

Terms and conditions. Measures contained in livestock grazing permits and leases that are determined by the BLM Authorized Officer to be appropriate to achieve management and resource condition objectives for the public lands and other lands administered by the BLM and to ensure conformance with fundamentals of rangeland health and standards and guidelines for grazing administration.

Terrestrial species. Ground-dwelling plants and animals.

Thinning. A cultural treatment made to reduce stand density of trees, primarily to improve growth, enhance forest health, or recover potential mortality.

Threatened species. Any plant or animal species defined under the ESA as likely to become endangered within the foreseeable future throughout all or a significant portion of its range; listings are published in the *Federal Register*.

Timeliness. The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

Tools. Something that helps to accomplish the stated goal or action for a resource or resource use or program. Tools include timing, duration of grazing, forage utilization, grazing rotation, deferment of grazing, stubble height, bank alteration, and structural features.

Trail. A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Transfer of grazing preference. The BLM's approval of an application to transfer grazing preference from one party to another or from one base property to another or both. Grazing preference means a superior or priority position against others for the purposes of receiving a grazing permit or lease. This priority is attached to base property owned or controlled by the permittee or lessee.

Transmission line. A large-diameter pipeline through which oil or gas moves off lease after being sold.

Understory vegetation. Plants, usually grasses, forbs, and low shrubs, growing beneath the canopy of other plants.

Uplands. Lands at higher elevations than alluvial plains or low stream terraces; all lands outside the riparian or wetland and aquatic zones.

Valid existing rights. Documented, legal rights or interests in the land that allow a person or entity to use said land for a specific purpose and that are still in effect. Such rights include fee title ownership, mineral rights, rights-of-way, easements, permits, and licenses. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized over time.

Vegetation community. An assemblage of plant populations in a common spatial arrangement.

Vegetation type. A plant community with distinguishable characteristics described by the dominant vegetation present.

Viable. Capable of sustaining a healthy and reproducing population over a long period.

Visual resources. The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

WAFWA management zone coordination. WAFWA management zones will be used to identify and address cross-state issues, such as regional mitigation and adaptive management monitoring response, through WAFWA Management Zone GRSG Conservation Teams (Teams). These Teams will convene and respond to issues at the appropriate scale, and will utilize existing coordination and management structures to the extent possible.

Waiver (oil and gas). A permanent exemption to a lease stipulation.

Water quality. The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

Watershed. A geomorphic area of land and water within the confines of a drainage divide. The total area above a given point on a stream that contributes flow at that point.

Watershed health. Watershed condition is determined by the physical and biological characteristics and processes that impact the function of a watershed. Watershed functionality includes hydrologic and ecologic functions (such as collection and transportation of precipitation and water storage and release) and characteristics (such as sites for plant and animal habitat and chemical reactions). Properly functioning or healthy watersheds have high biotic and soil integrity and connectivity, are resilient to disturbance, maintain water quality and quantity, recharge aquifers, and maintain riparian communities.

Wilderness. A Congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed to preserve its natural conditions and that has the following characteristics:

- Generally appears to have been affected mainly by the forces of nature, with human imprints substantially unnoticeable
- Has outstanding opportunities for solitude or a primitive and unconfined type of recreation
- Has at least 5,000 acres or is large enough to make practical its preservation and use in an unimpaired condition

- May also contain ecological, geological, or other features of scientific, educational, scenic, or historic value

Wilderness characteristics. Key characteristics of a wilderness listed in section 2(c) of the Wilderness Act of 1964 and used by BLM in its wilderness inventory. These characteristics include size, naturalness, outstanding opportunities for solitude, outstanding opportunities for primitive and unconfined type of recreation, and special features.

Wilderness study area (WSA). An area determined to have wilderness characteristics. WSAs are submitted to the President and Congress for wilderness designation. These areas are an interim designation, valid until either designated as wilderness, or released to multiple-use management.

Wildfire. Unplanned ignitions or prescribed fires that are declared wildfires.

Wildland fire. A general term describing any non-structure fire that occurs in the wildland. It consists of two categories: wildfires, which are unplanned ignitions, or prescribed fires, which are planned ignitions.

Wildland urban interface. The line, area, or zone where structures and other human developments meet or intermingle with undeveloped wildland or vegetative fuels.

Wildlife habitat. A species-specific environment and environmental conditions suitable for occupancy by that species or a particular land cover type that provides an environment and environmental conditions suitable for occupancy by many species.

Wind power classes. As a renewable resource, wind is classified according to wind power classes, which are based on typical wind speeds. These classes range from Class 1 (the lowest) to Class 7 (the highest). In general, at 50 meters, wind power Class 4 or higher can be useful for generating wind power with large turbines. Class 4 and above are considered good resources.

Winter range. Range that is grazed during winter.

Withdrawal. An action that restricts the use of public lands by removing them from the operation of some or all of the public land or mining laws.

Woodland. A forest community occupied primarily by noncommercial species such as juniper, mountain mahogany, or quaking aspen groves; all western juniper forestlands are classified as woodlands, since juniper is classified as a noncommercial species.

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CHAPTER 7
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APPENDICES

APPENDIX A
APPROVED RMP MAPS

APPENDIX A1
GREATER SAGE-GROUSE HABITAT MANAGEMENT MAPS

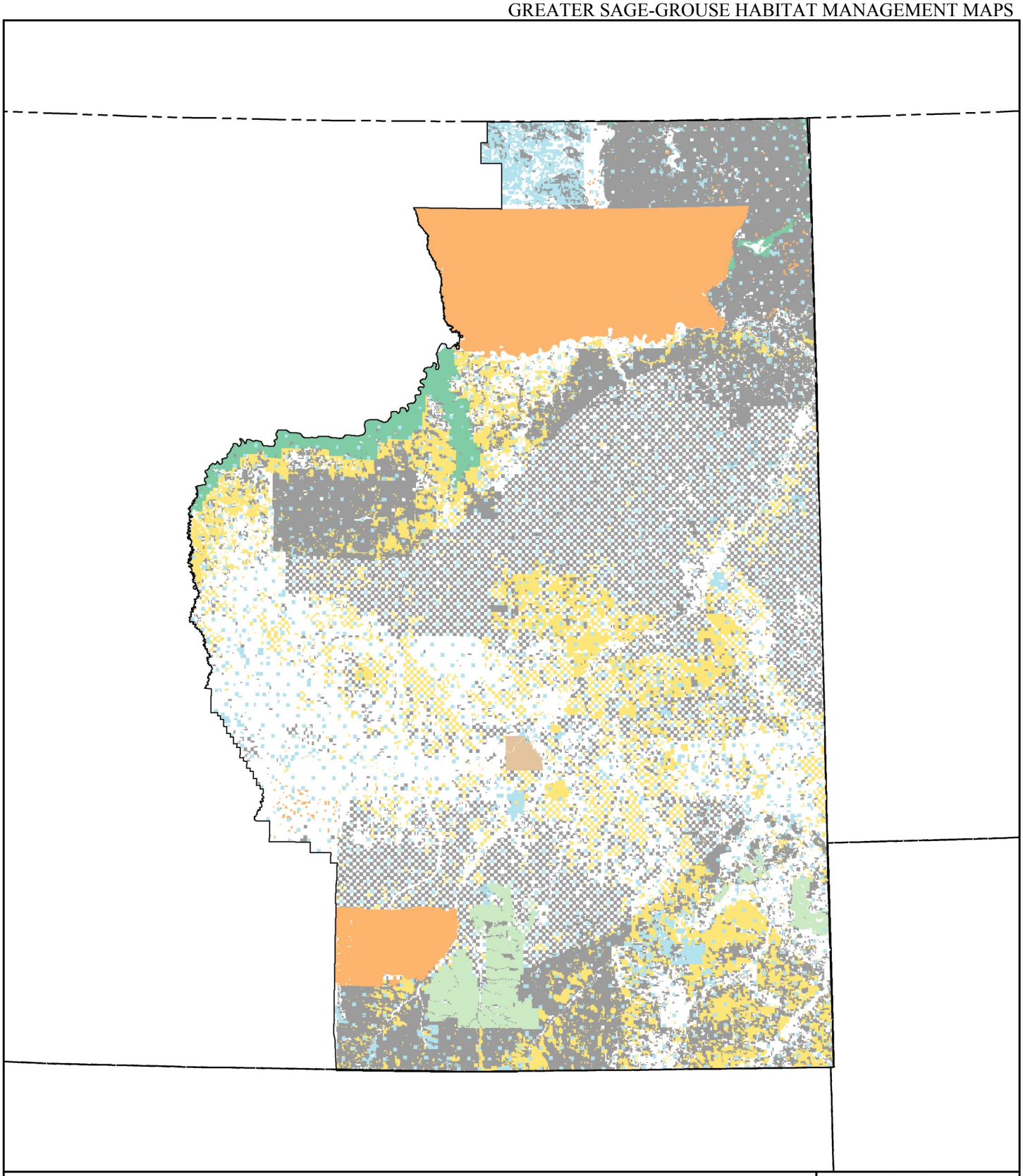


Figure 1-1: Miles City Sub-Regional Planning Area, Surface Management and Sub-Surface Estate

Legend

- Bureau of Land Management
- US Forest Service
- Indian Reservation
- US Fish and Wildlife
- Bureau of Reclamation
- Other Federal
- State/Local
- Private/Other
- Non-Federal Surface, Federal Sub-Surface
- Planning Area Boundary
- State Boundary

N W E S

0 20 40 Miles

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

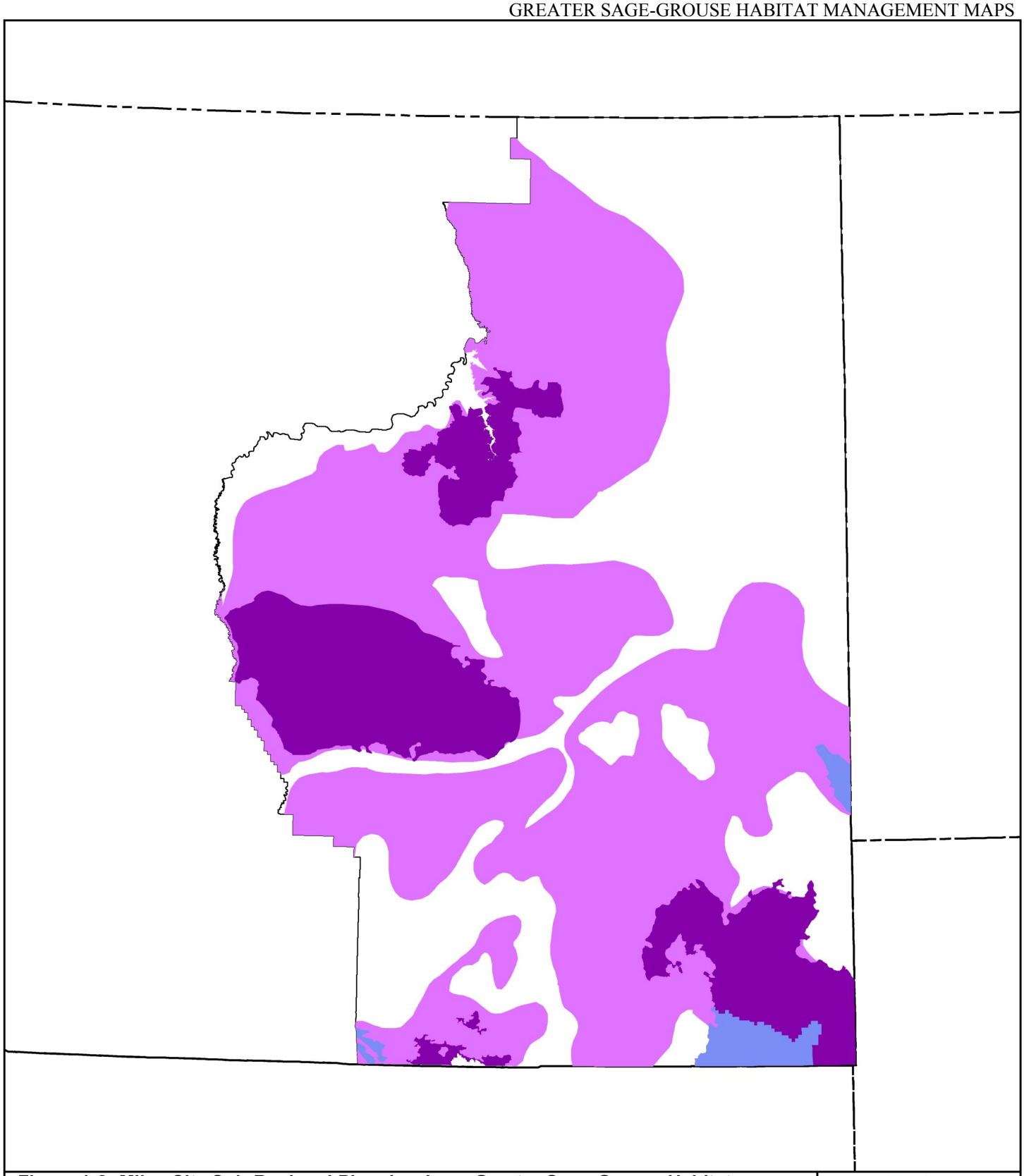


Figure 1-2: Miles City Sub-Regional Planning Area, Greater Sage-Grouse Habitat Management Areas Across All Jurisdictions

Legend

- Priority Habitat Management Areas (PHMAs)
- General Habitat Management Areas (GHMAs)
- Restoration Habitat Management Areas (RHMAs)
- Planning Area Boundary
- State Boundary

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

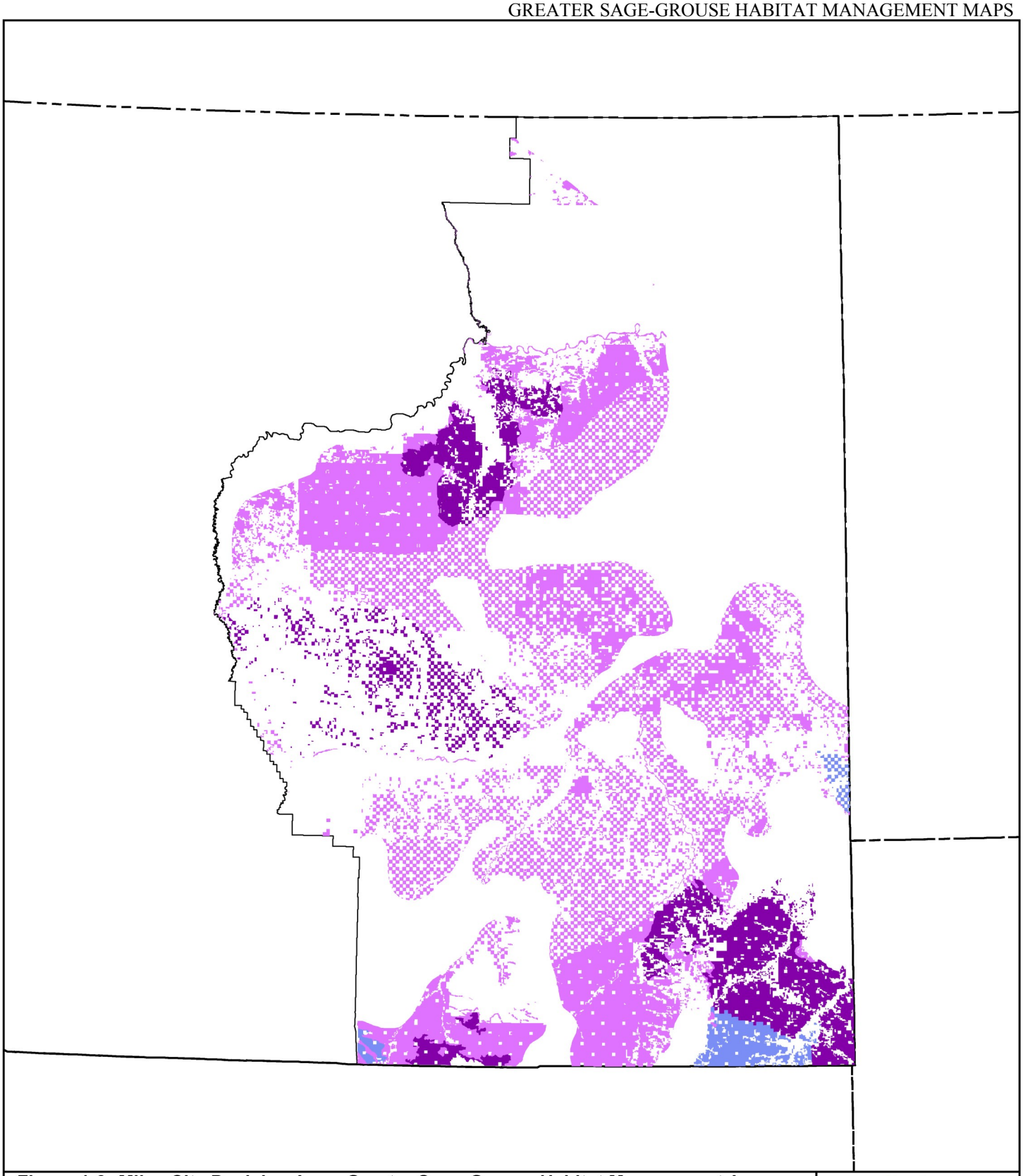


Figure 1-3: Miles City Decision Area, Greater Sage-Grouse Habitat Management Areas for BLM Administered Lands

Legend

- Priority Habitat Management Areas (PHMAs)
- General Habitat Management Areas (GHMAs)
- Restoration Habitat Management Areas (RHMAs)
- Planning Area Boundary
- State Boundary

N W E S

Miles
0 20 40

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

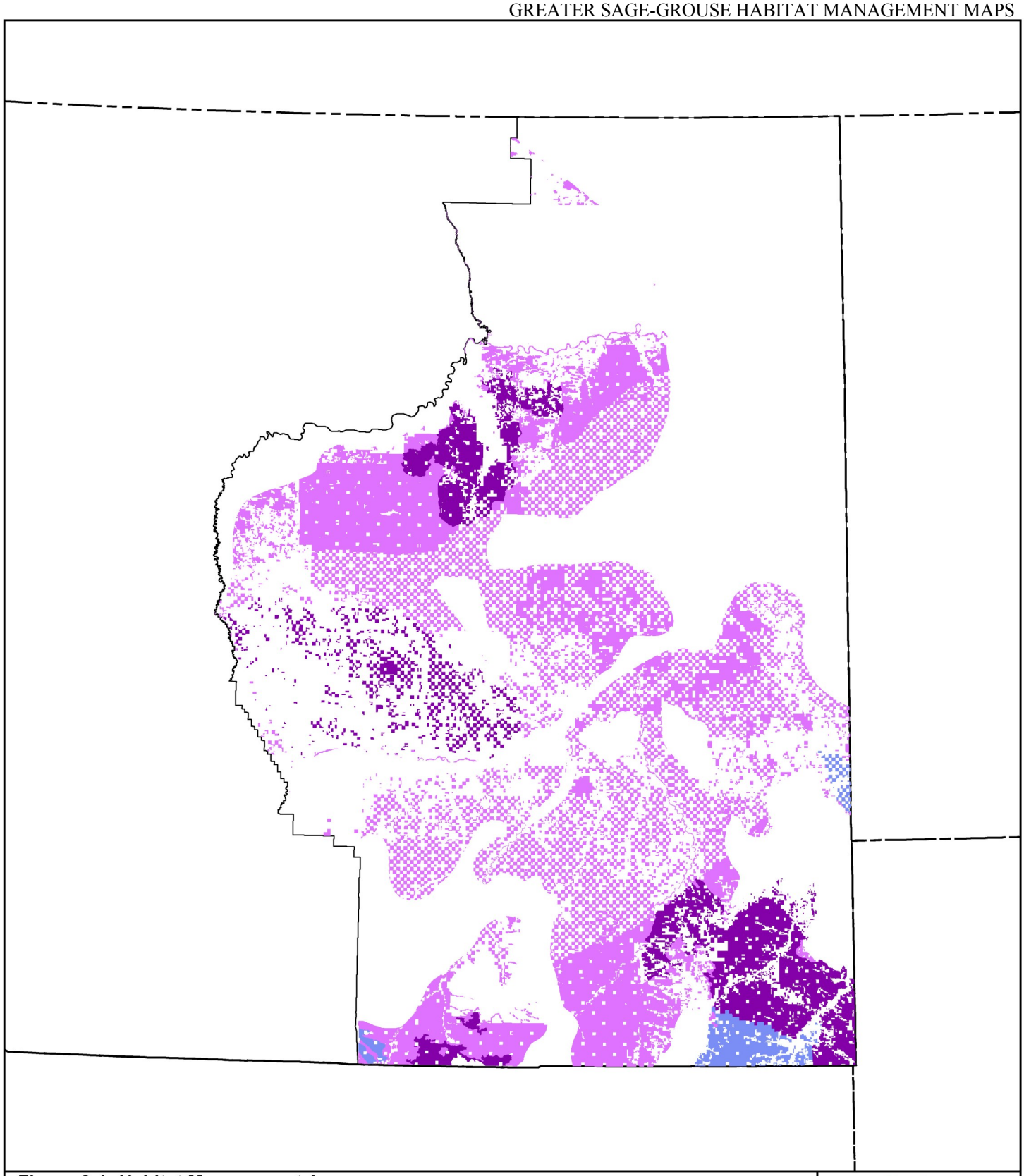


Figure 2-1: Habitat Management Areas

Legend

- Priority Habitat Management Areas (PHMAs)
- General Habitat Management Areas (GHMAs)
- Restoration Habitat Management Areas (RHMAs)
- Planning Area Boundary
- State Boundary

N W E S

0 20 40 Miles

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

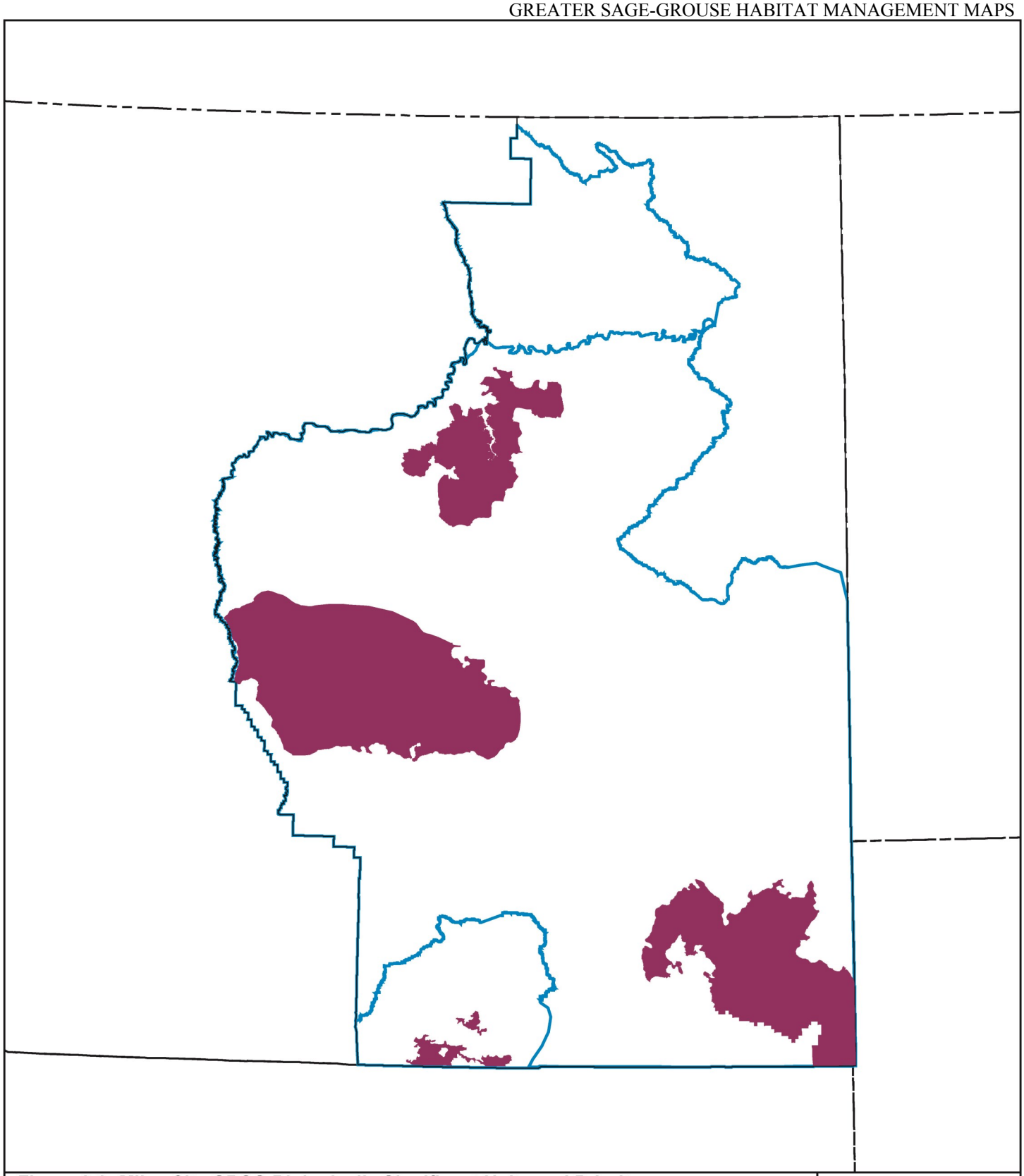


Figure 2-2: Miles City GRSG Biologically Significant Units and Priority Habitat Management Areas

Legend

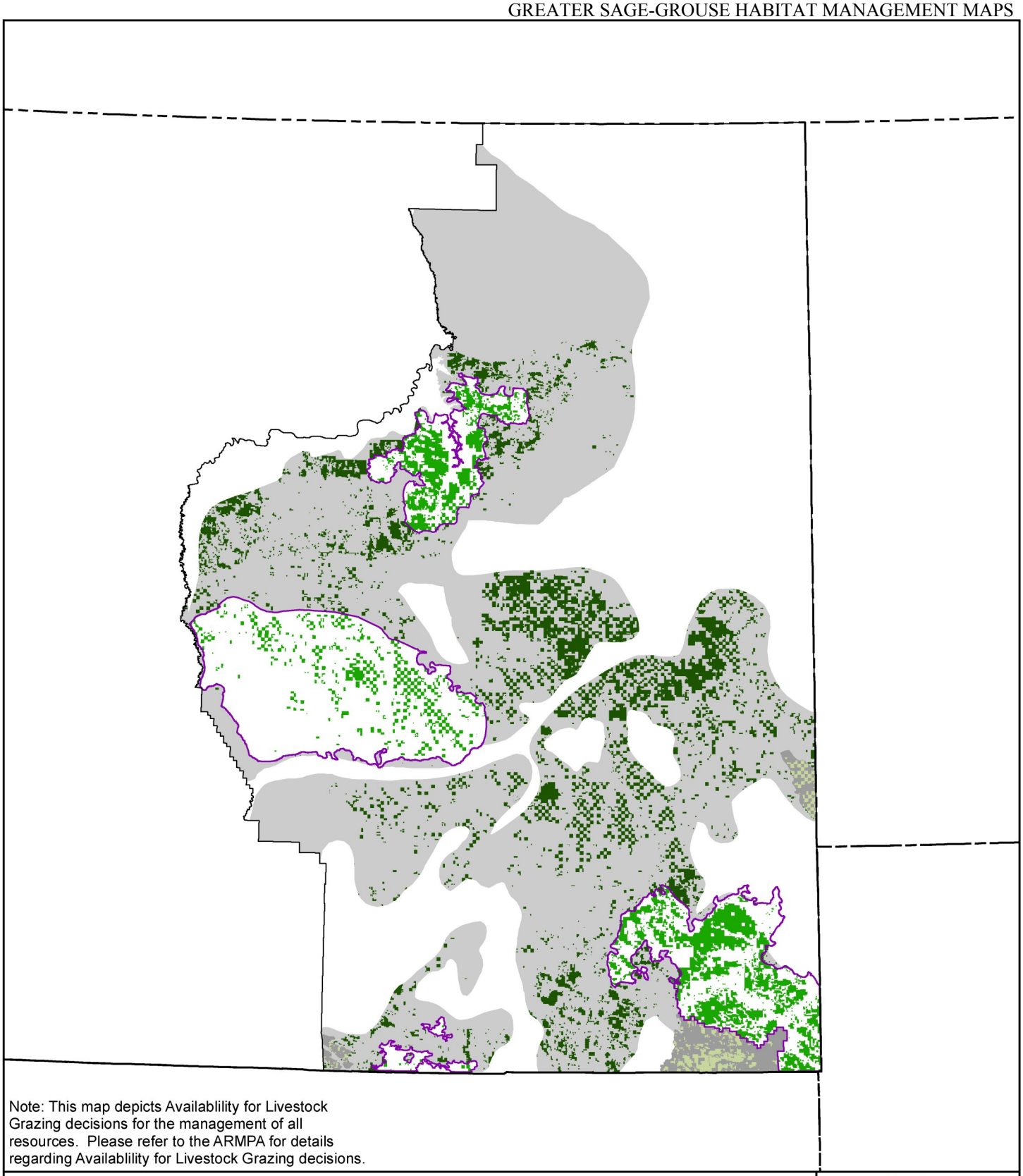
- Biologically Significant Units
- Priority Habitat Management Areas (PHMAs)
- Planning Area Boundary
- State Boundary

N W E S

0 20 40 Miles

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Availablility for Livestock Grazing decisions for the management of all resources. Please refer to the ARMPA for details regarding Availablility for Livestock Grazing decisions.

Figure 2-3: Miles City Livestock Grazing

PHMA RHMA GHMA

Outside of BLM Decision Area
Areas Unavailable for Livestock Grazing
Areas Available for Livestock Grazing

Planning Area Boundary
State Boundary

N W E S

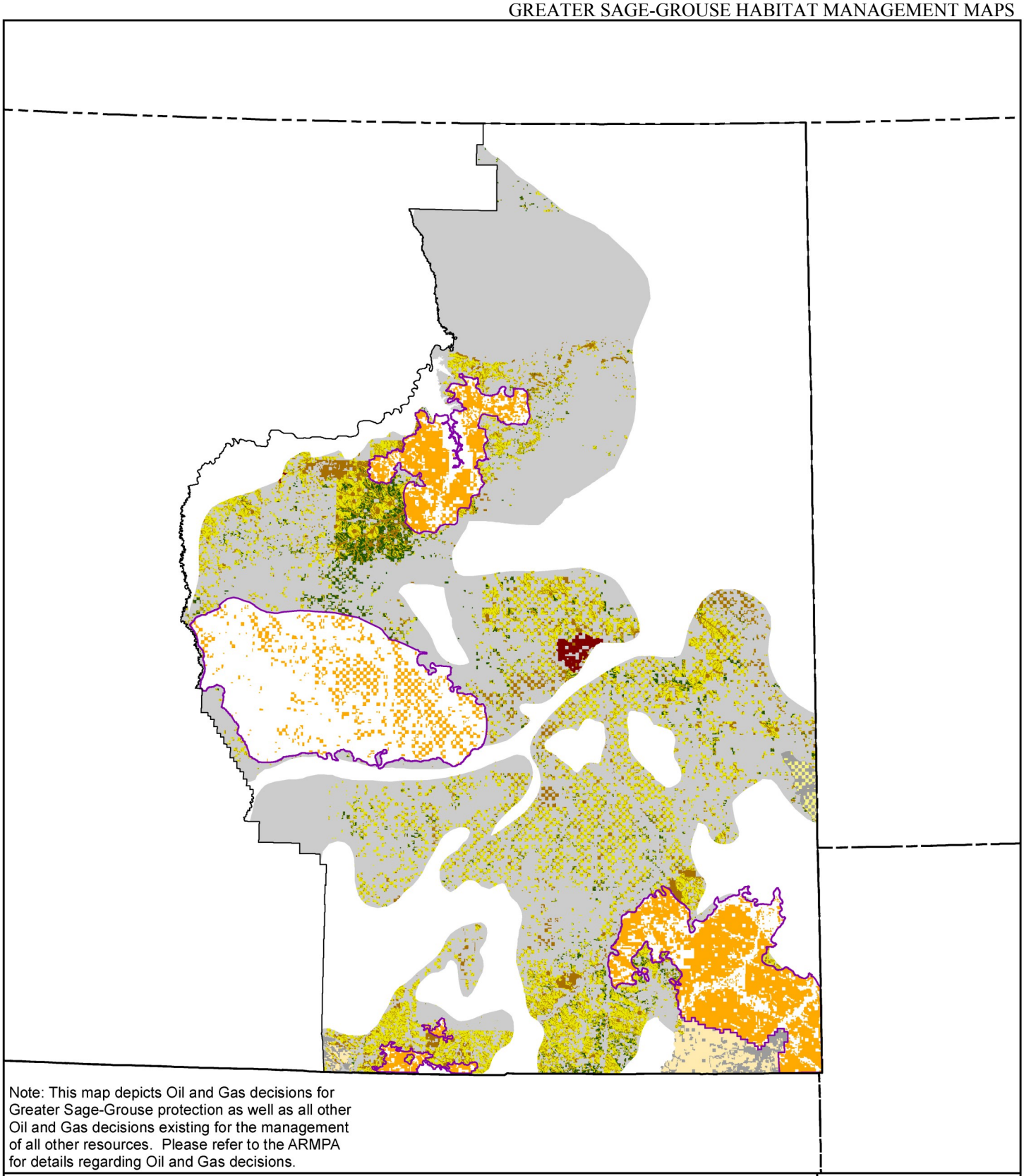
0 20 40 Miles

September 2015

Map Area

WA OR ID MT ND SD WY NV UT CO NE CA KS AZ NM TX OK

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Oil and Gas decisions for Greater Sage-Grouse protection as well as all other Oil and Gas decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Oil and Gas decisions.

Figure 2-4: Miles City Fluid Minerals (Oil and Gas)

PHMA RHMA GHMA

Outside of BLM Decision Area
Closed
Open w/ Major Stipulations (NSO)
Open w/ Moderate Stipulations (CSU and/or TL)
Open w/ Standard Stipulations

Planning Area Boundary
State Boundary

N W E S

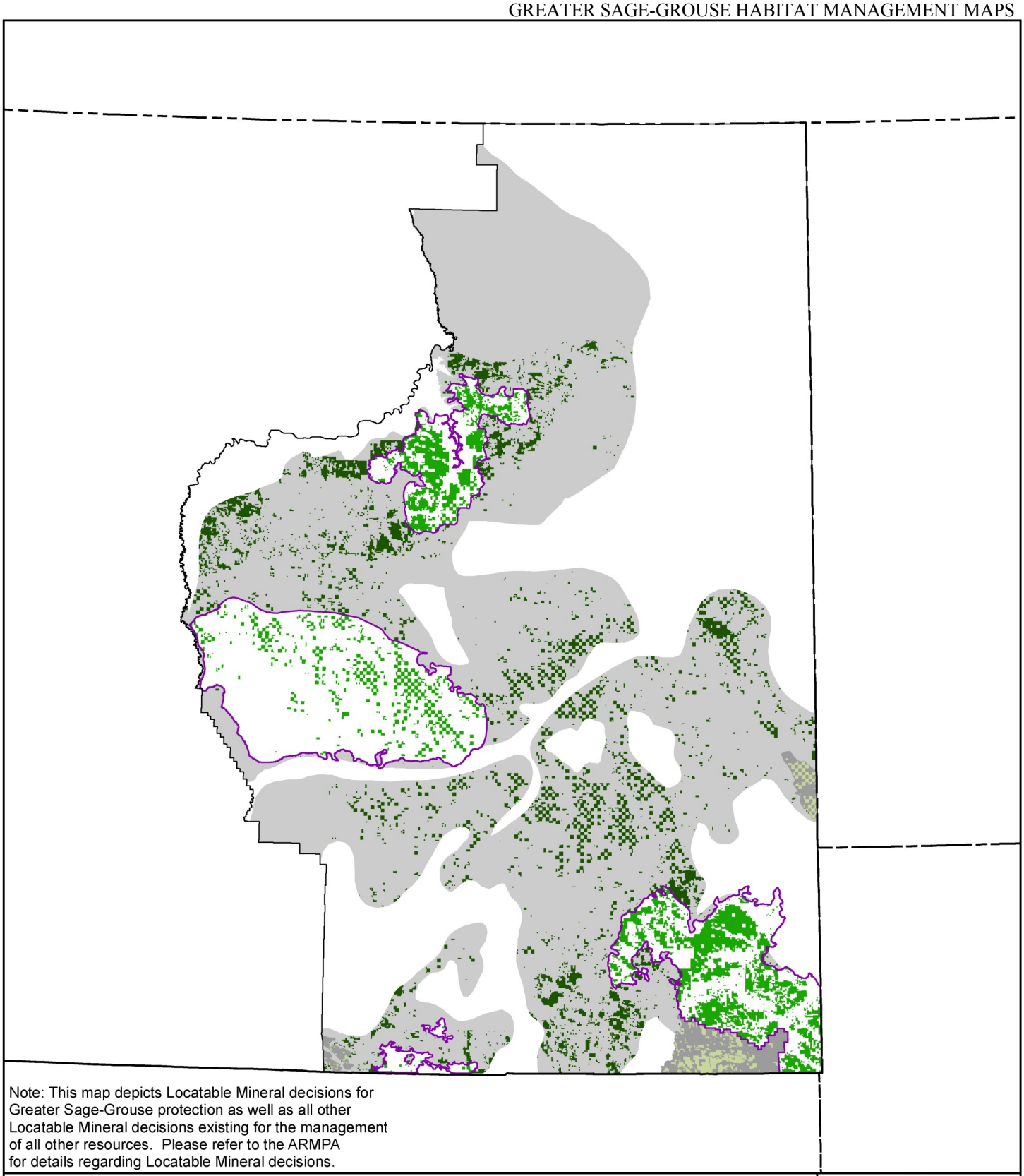
Miles
0 20 40

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

Map Area

WA OR ID MT ND SD WY NV UT CO NE CA KS AZ NM TX OK



Note: This map depicts Locatable Mineral decisions for Greater Sage-Grouse protection as well as all other Locatable Mineral decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Locatable Mineral decisions.

Figure 2-5: Miles City Locatable Minerals

PHMA RHMA GHMA

Outside of BLM Decision Area

Open

Planning Area Boundary

State Boundary

N W E S

Miles

0 20 40

September 2015

Map Area

WA OR ID MT ND SD WY NV UT CO NE CA KS AZ NM TX OK

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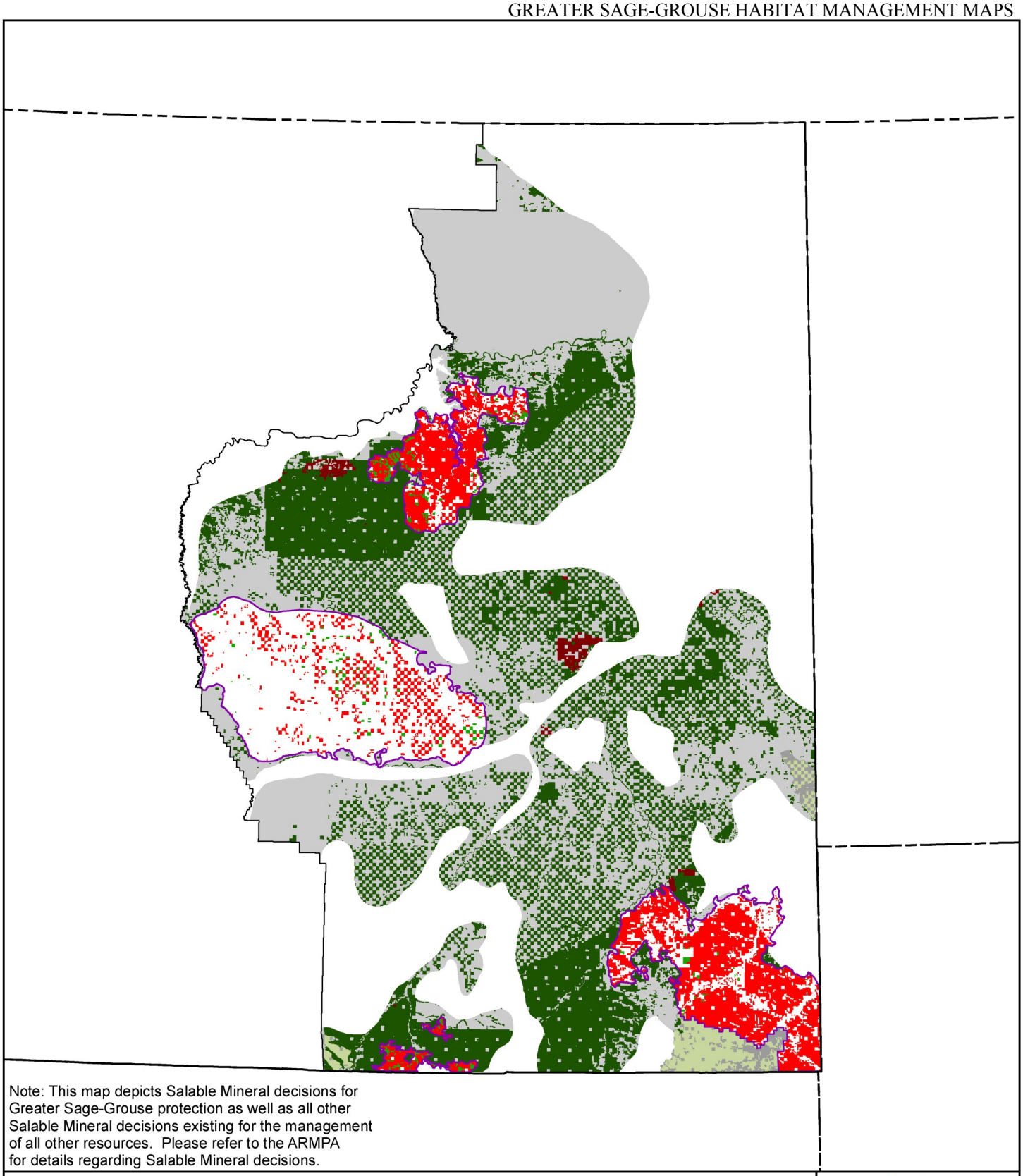


Note: This map depicts Salable Mineral decisions for Greater Sage-Grouse protection as well as all other Salable Mineral decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Salable Mineral decisions.

Figure 2-6: Miles City Salable minerals (Mineral Materials)

PHMA RHMA GHMA

Outside of BLM Decision Area
Closed
Open

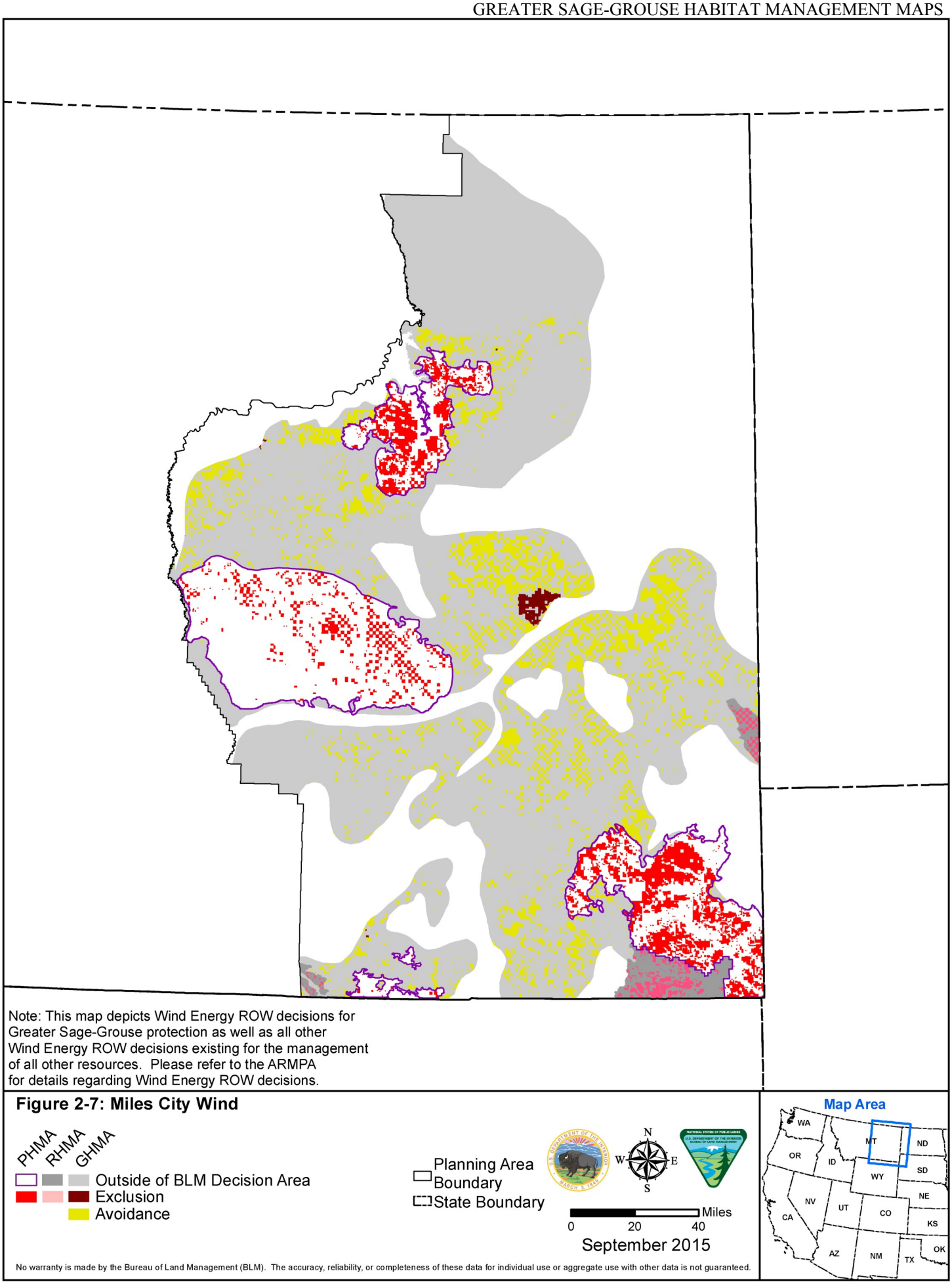
Planning Area Boundary
State Boundary

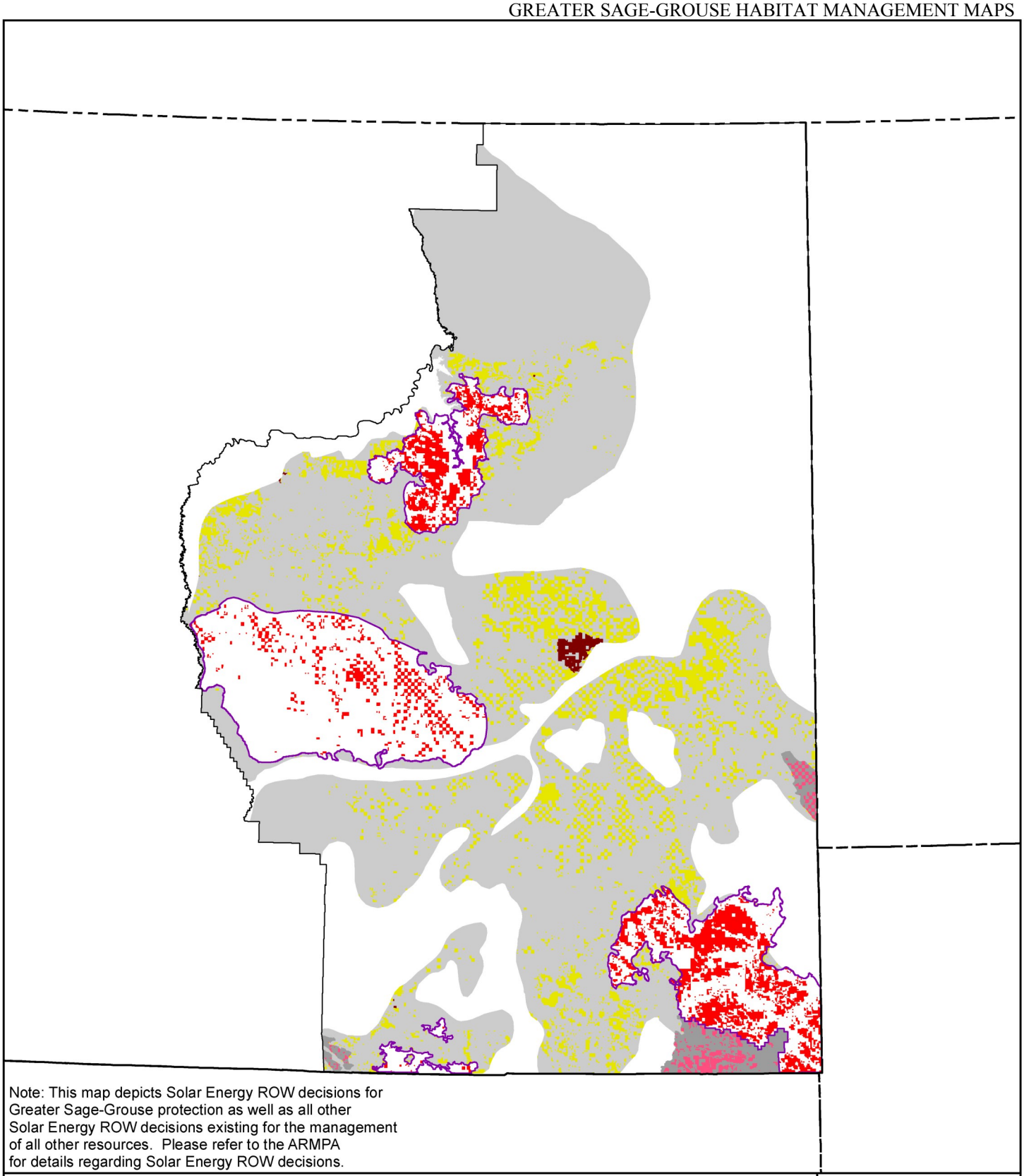
N W E S

0 20 40 Miles

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.


Note: This map depicts Wind Energy ROW decisions for Greater Sage-Grouse protection as well as all other Wind Energy ROW decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Wind Energy ROW decisions.
Figure 2-7: Miles City Wind
PHMA
RHMA
GHMA
Outside of BLM Decision Area
Exclusion
Avoidance
Planning Area Boundary
State Boundary
N
W
E
S
Miles
0
20
40
September 2015
No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.
Map Area
WA
OR
ID
MT
ND
SD
WY
NV
UT
CO
NE
CA
KS
AZ
NM
TX
OK



Note: This map depicts Solar Energy ROW decisions for Greater Sage-Grouse protection as well as all other Solar Energy ROW decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Solar Energy ROW decisions.

Figure 2-8: Miles City Solar

PHMA RHMA GHMA

Outside of BLM Decision Area
Exclusion
Avoidance

Planning Area Boundary
State Boundary

N W E S

0 20 40 Miles

September 2015

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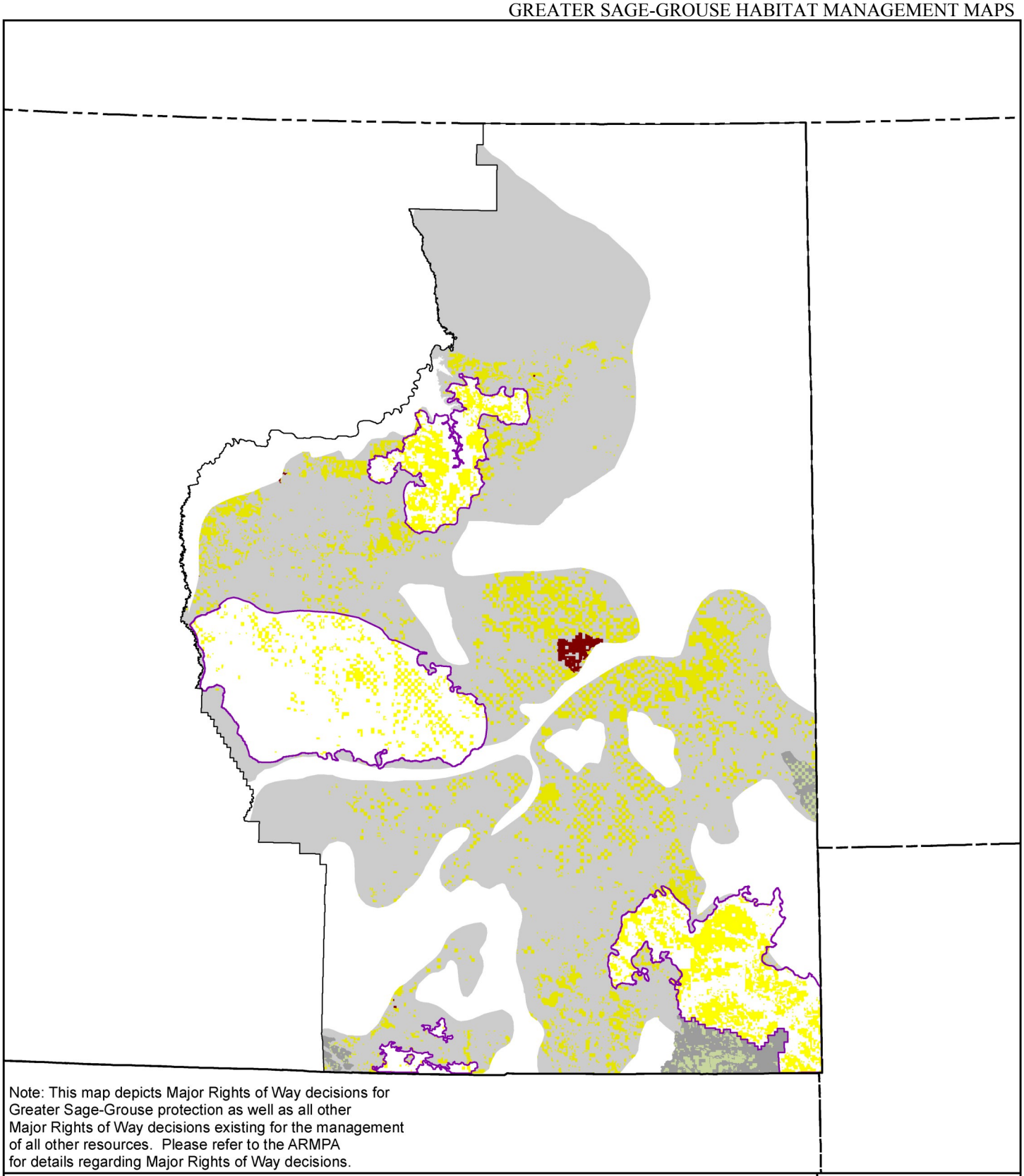


Note: This map depicts Major Rights of Way decisions for Greater Sage-Grouse protection as well as all other Major Rights of Way decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Major Rights of Way decisions.

Figure 2-9a: Miles City Major Rights-of-Way

PHMA RHMA GHMA

Outside of BLM Decision Area
Exclusion
Avoidance
Open

Planning Area Boundary
State Boundary

N W E S

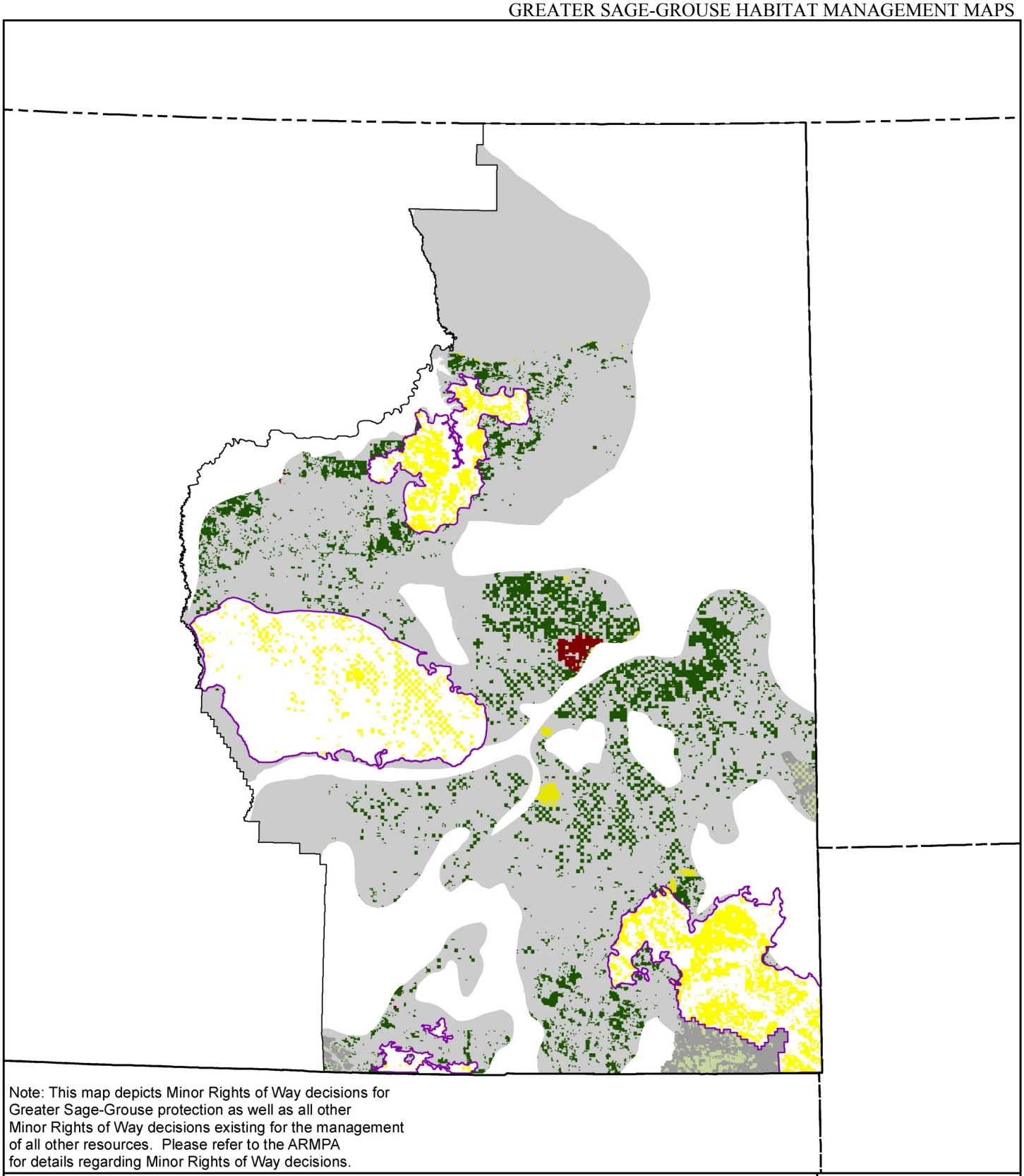
0 20 40 Miles

September 2015

Map Area

WA OR ID MT ND SD WY NV UT CO NE CA KS AZ NM TX OK

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Minor Rights of Way decisions for Greater Sage-Grouse protection as well as all other Minor Rights of Way decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Minor Rights of Way decisions.

Figure 2-9b: Miles City Minor Rights-of-Way

PHMA RHMA GHMA

Outside of BLM Decision Area
Exclusion
Avoidance
Open

Planning Area Boundary
State Boundary

N W E S

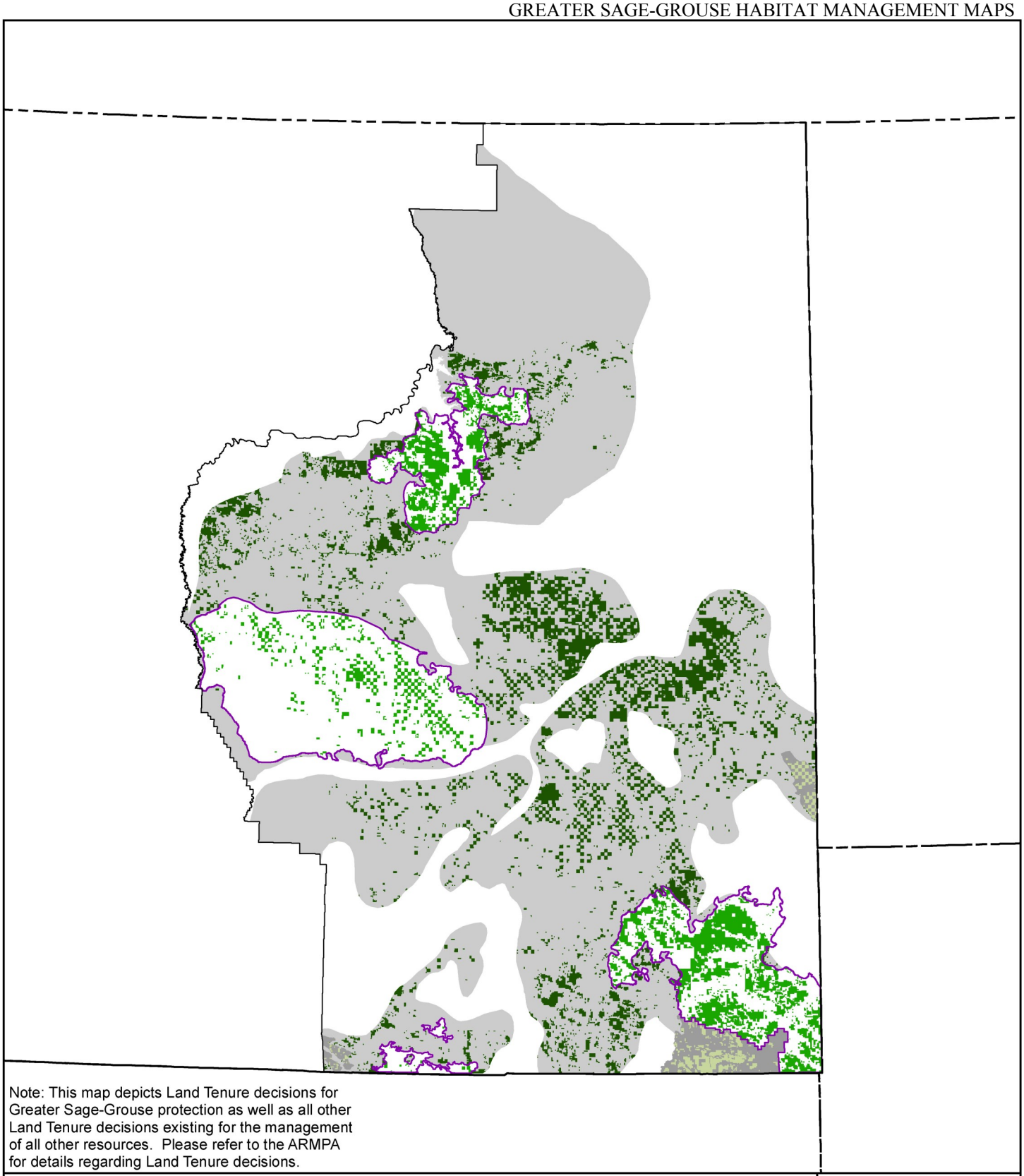
Miles
0 20 40

September 2015

Map Area

WA OR ID MT ND SD WY NV CA UT CO NE KS AZ NM TX OK

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Land Tenure decisions for Greater Sage-Grouse protection as well as all other Land Tenure decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Land Tenure decisions.

Figure 2-10: Miles City Land Tenure

PHMA RHMA GHMA

Outside of BLM Decision Area

Retention

Planning Area Boundary

State Boundary

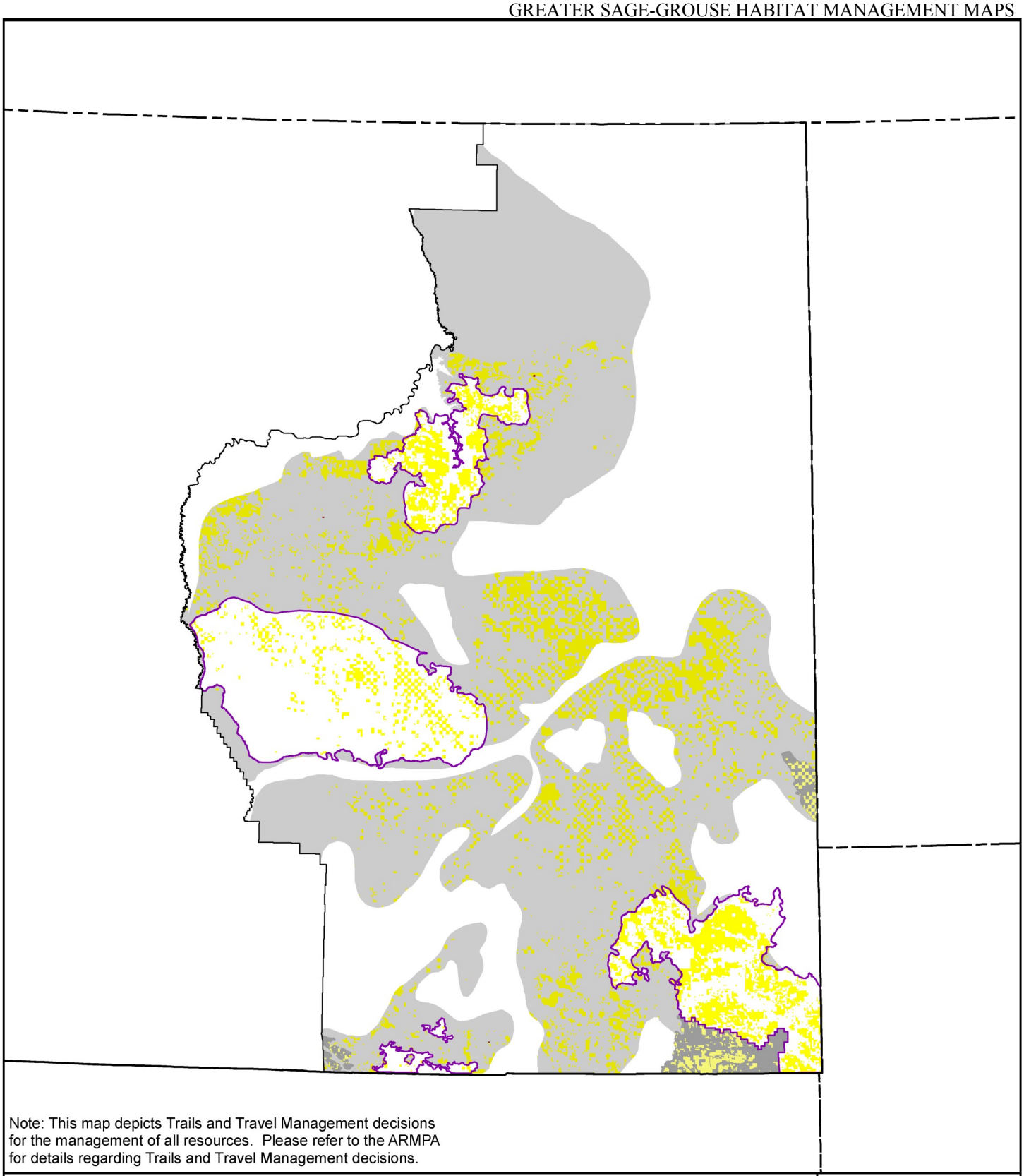
N W E S

Miles

0 20 40

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Trails and Travel Management decisions for the management of all resources. Please refer to the ARMPA for details regarding Trails and Travel Management decisions.

Figure 2-11: Miles City Trails and Travel Management

PHMA RHMA GHMA

Outside of BLM Decision Area
Closed
Limited

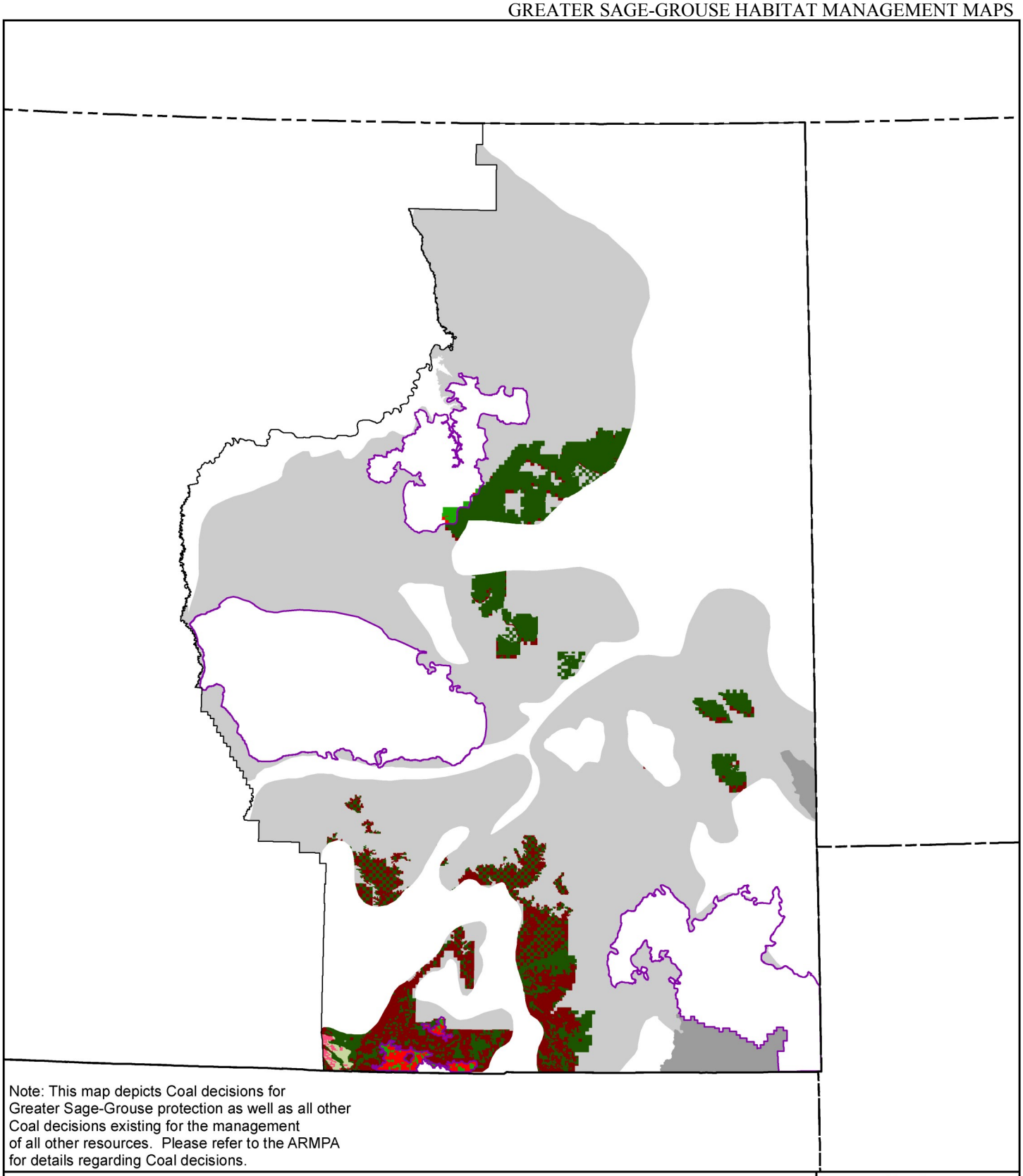
Planning Area Boundary
State Boundary

N W E S

Miles
0 20 40

September 2015

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Note: This map depicts Coal decisions for Greater Sage-Grouse protection as well as all other Coal decisions existing for the management of all other resources. Please refer to the ARMPA for details regarding Coal decisions.

Figure 2-12: Miles City Coal

PHMA RHMA GHMA

Outside of BLM Decision Area
Unsuitable
Suitable

Planning Area Boundary
State Boundary

N W E S

0 20 40 Miles

September 2015

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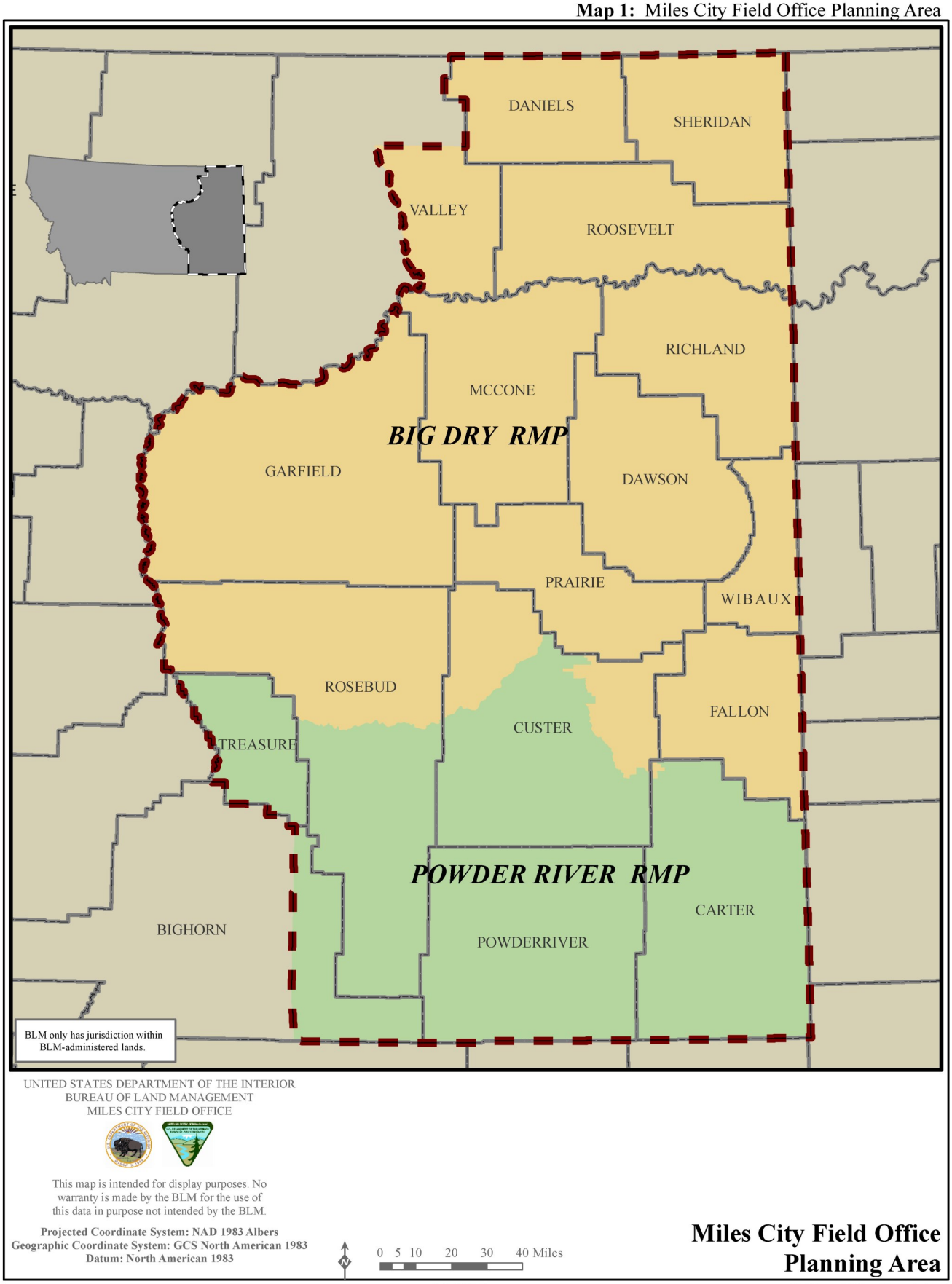
APPENDIX A2
APPROVED RESOURCE MANAGEMENT PLAN MAPS

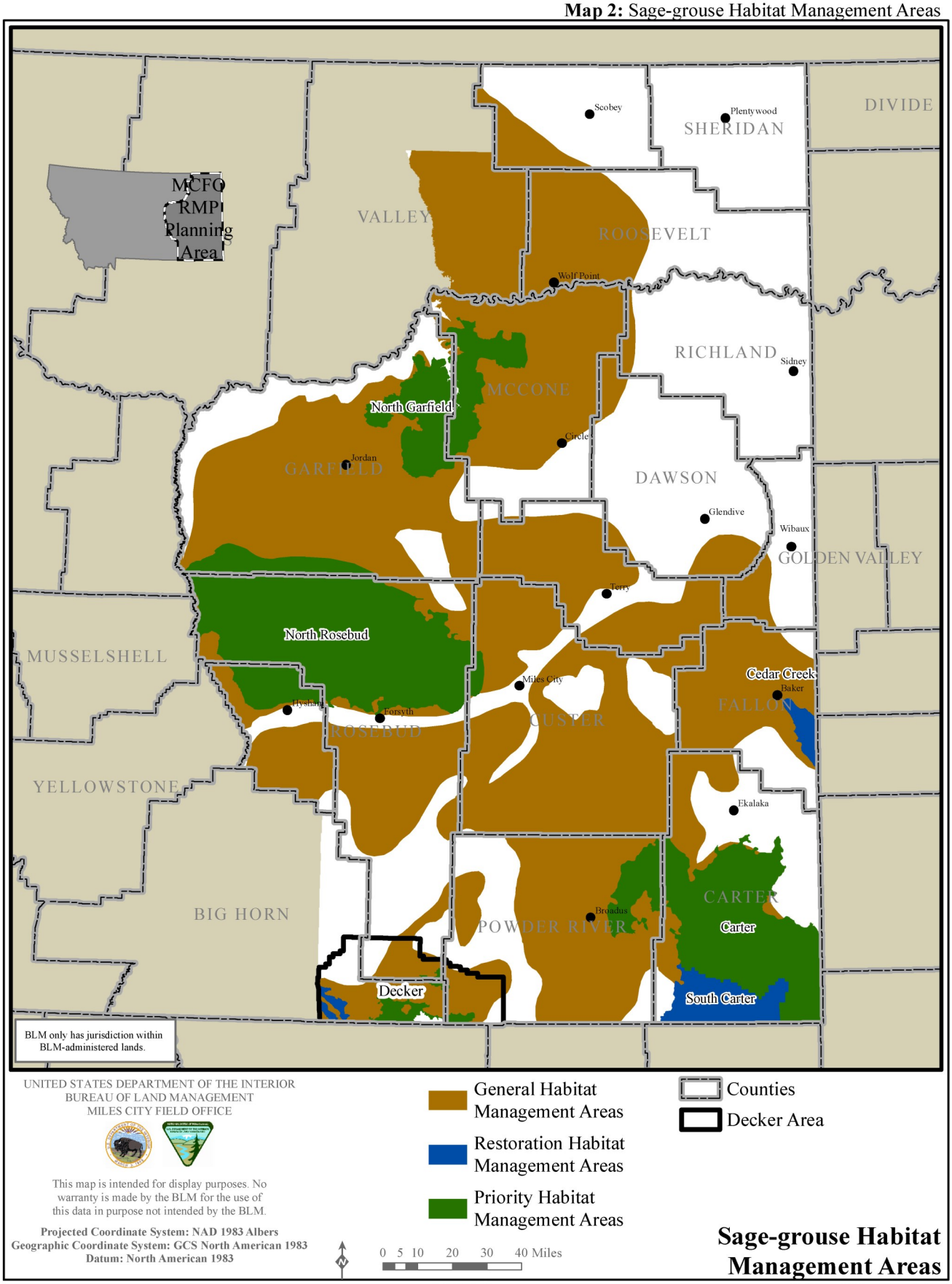
Map 1: Miles City Field Office Planning Area



MAP-1

Miles City Revision

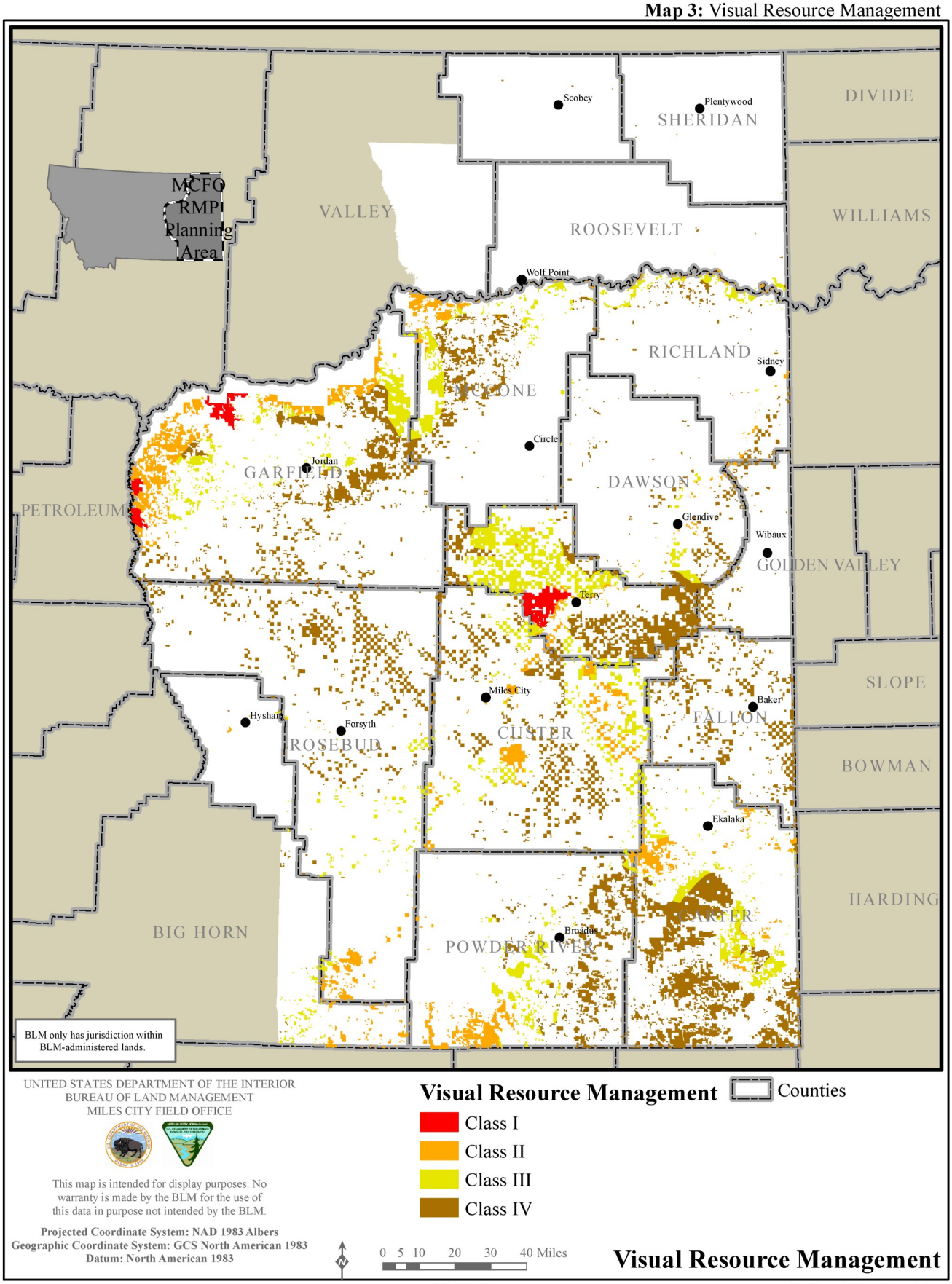
Map 2: Sage-grouse Habitat Management Areas



MAP-2

Miles City Revision

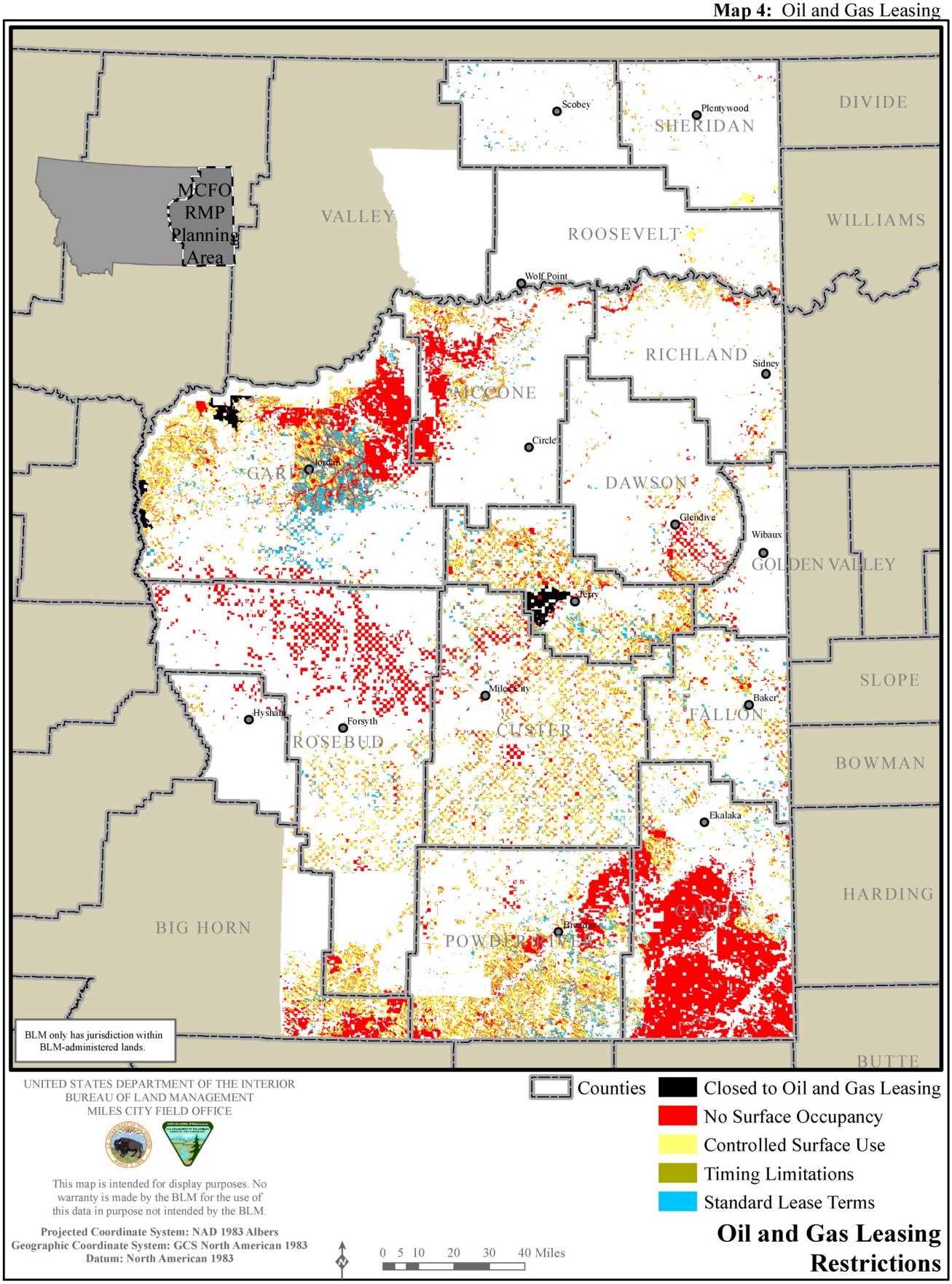
Map 3: Visual Resource Management



MAP-3

Miles City Revision

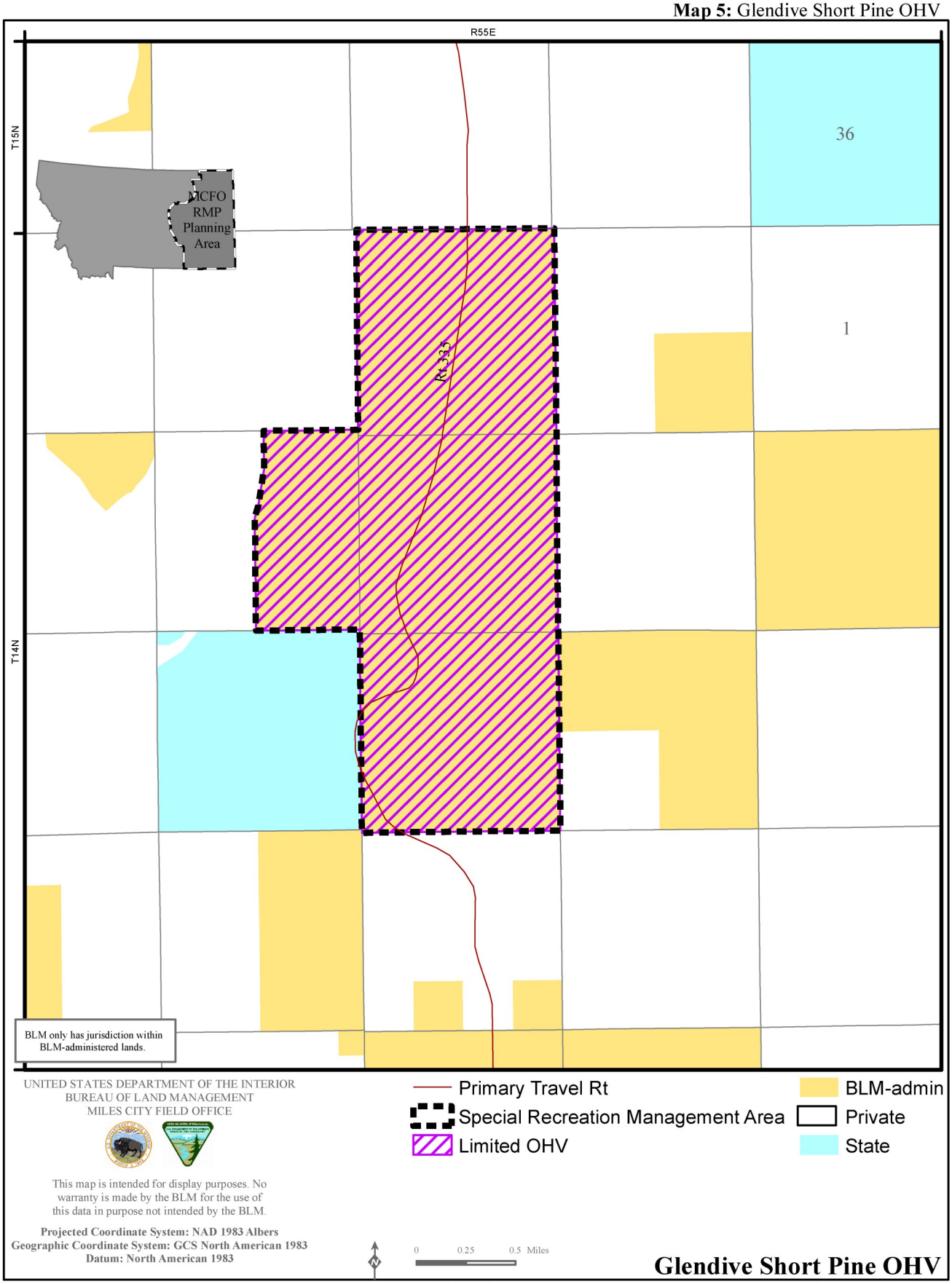
Map 4: Oil and Gas Leasing



MAP-4

Miles City Revision

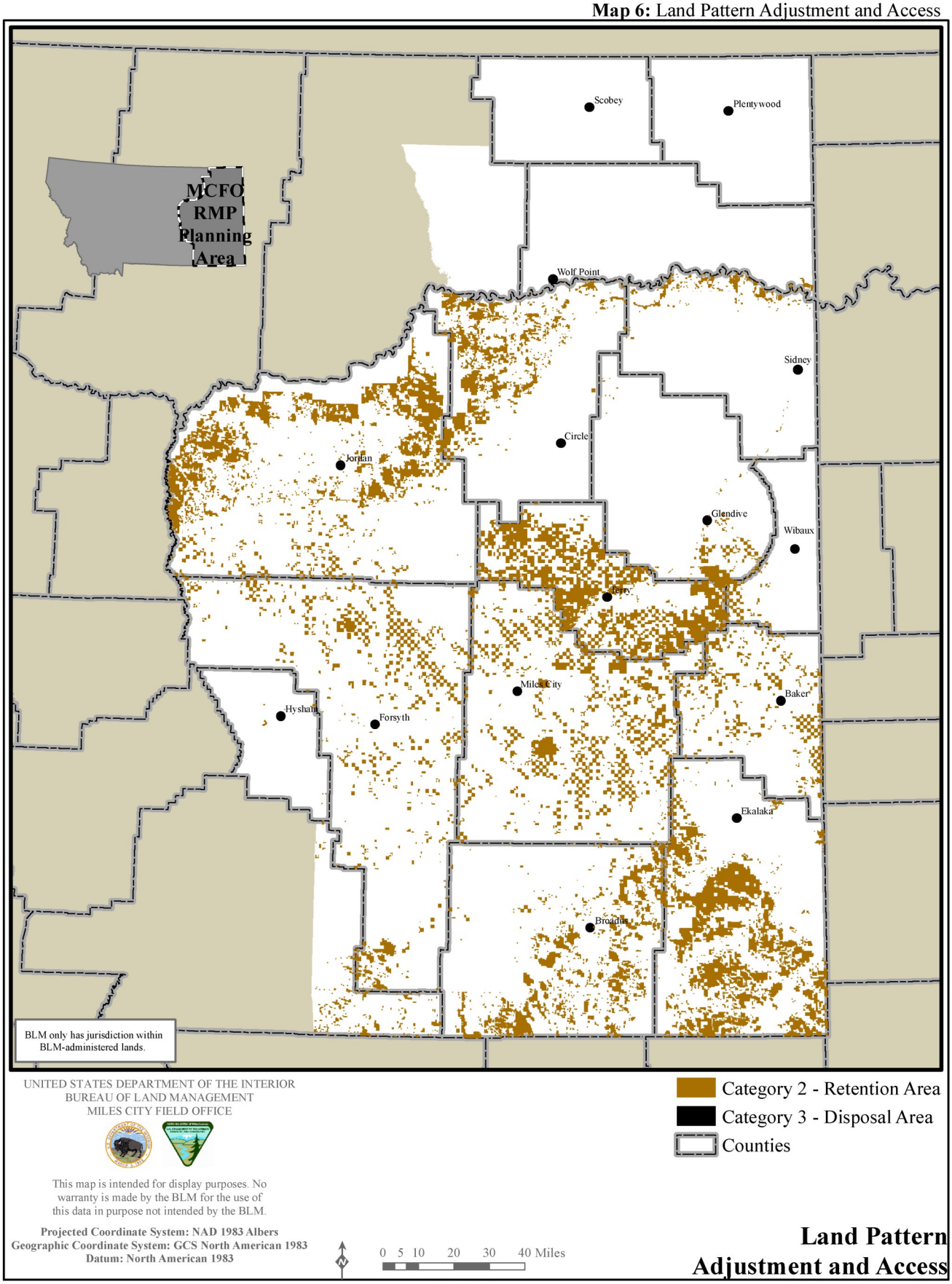
Map 5: Glendive Short Pine OHV



MAP-5

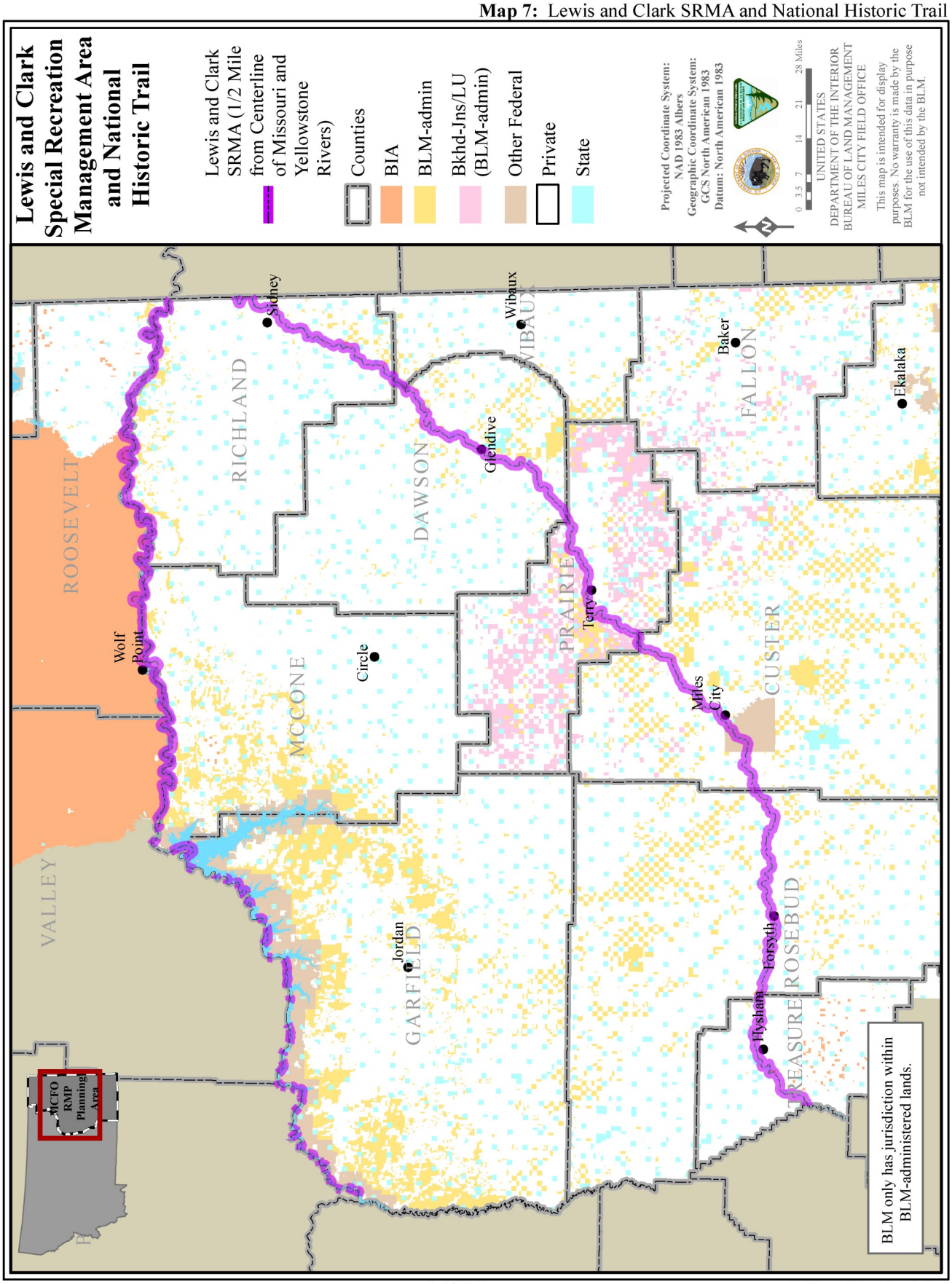
Miles City Revision

Map 6: Land Pattern Adjustment and Access



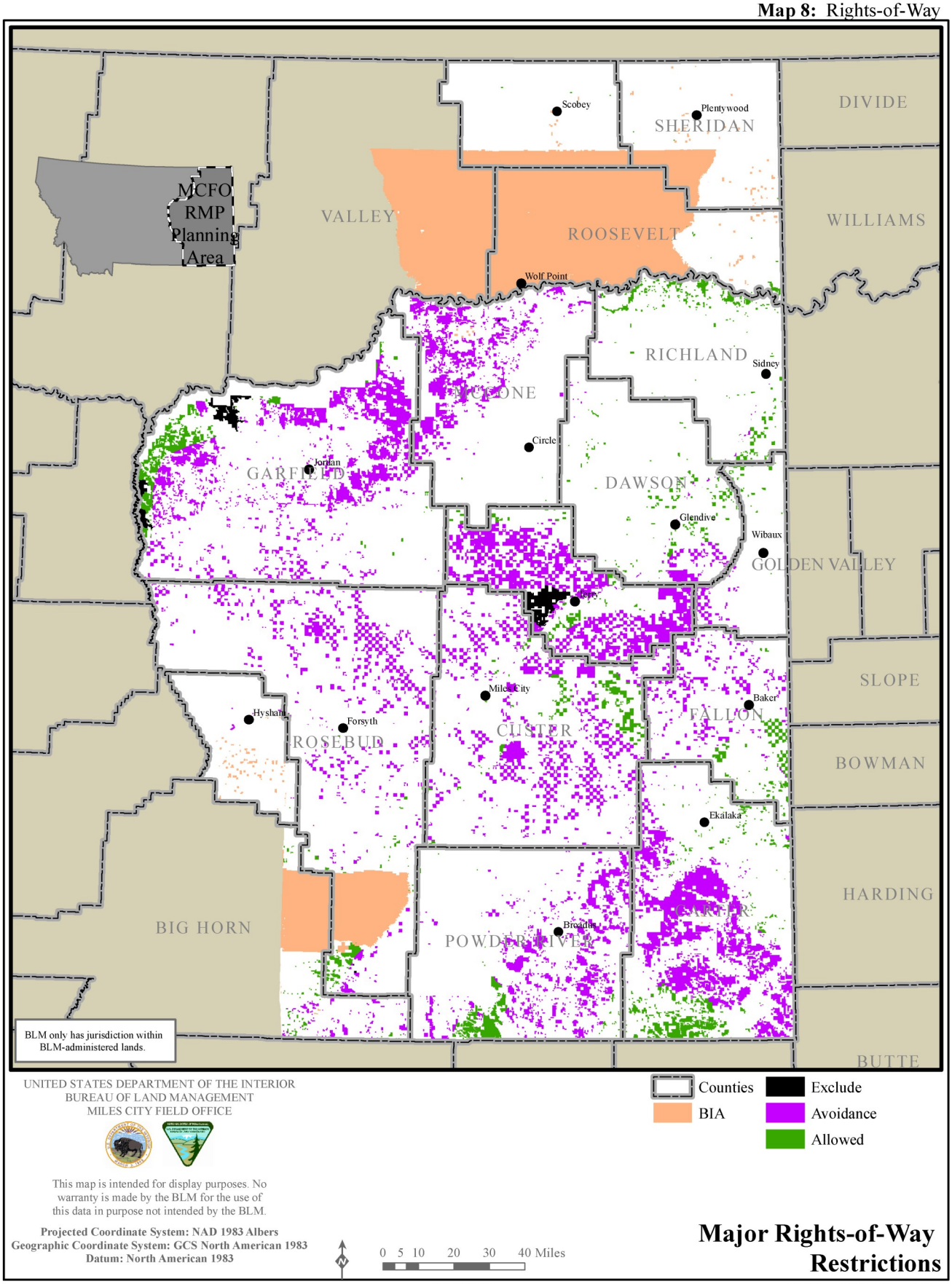
MAP-6

Map 7: Lewis and Clark SRMA and National Historic Trail



MAP-7 Miles City Revision

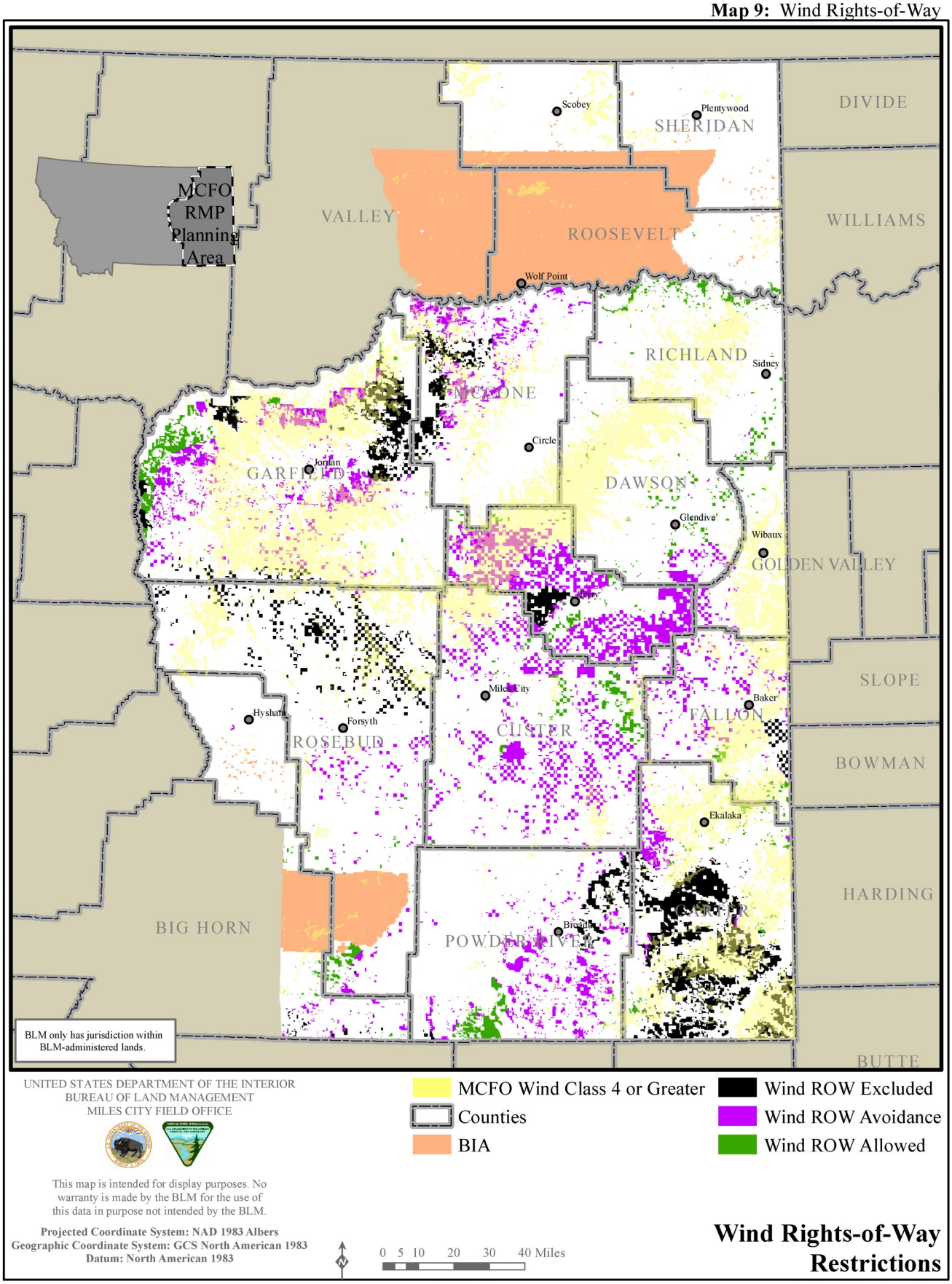
Map 8: Rights-of-Way



MAP-8

Miles City Revision

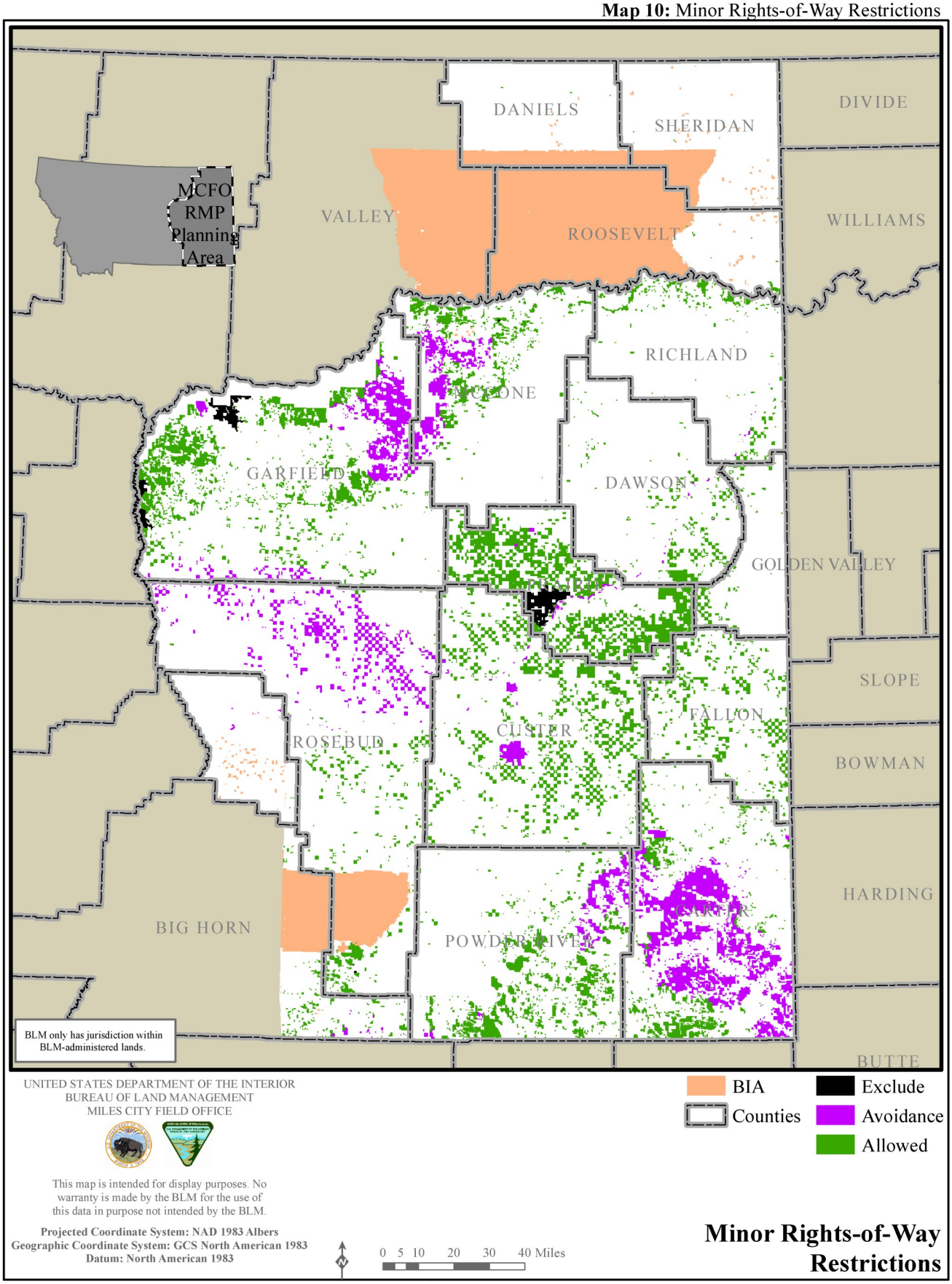
Map 9: Wind Rights-of-Way



MAP-9

Miles City Revision

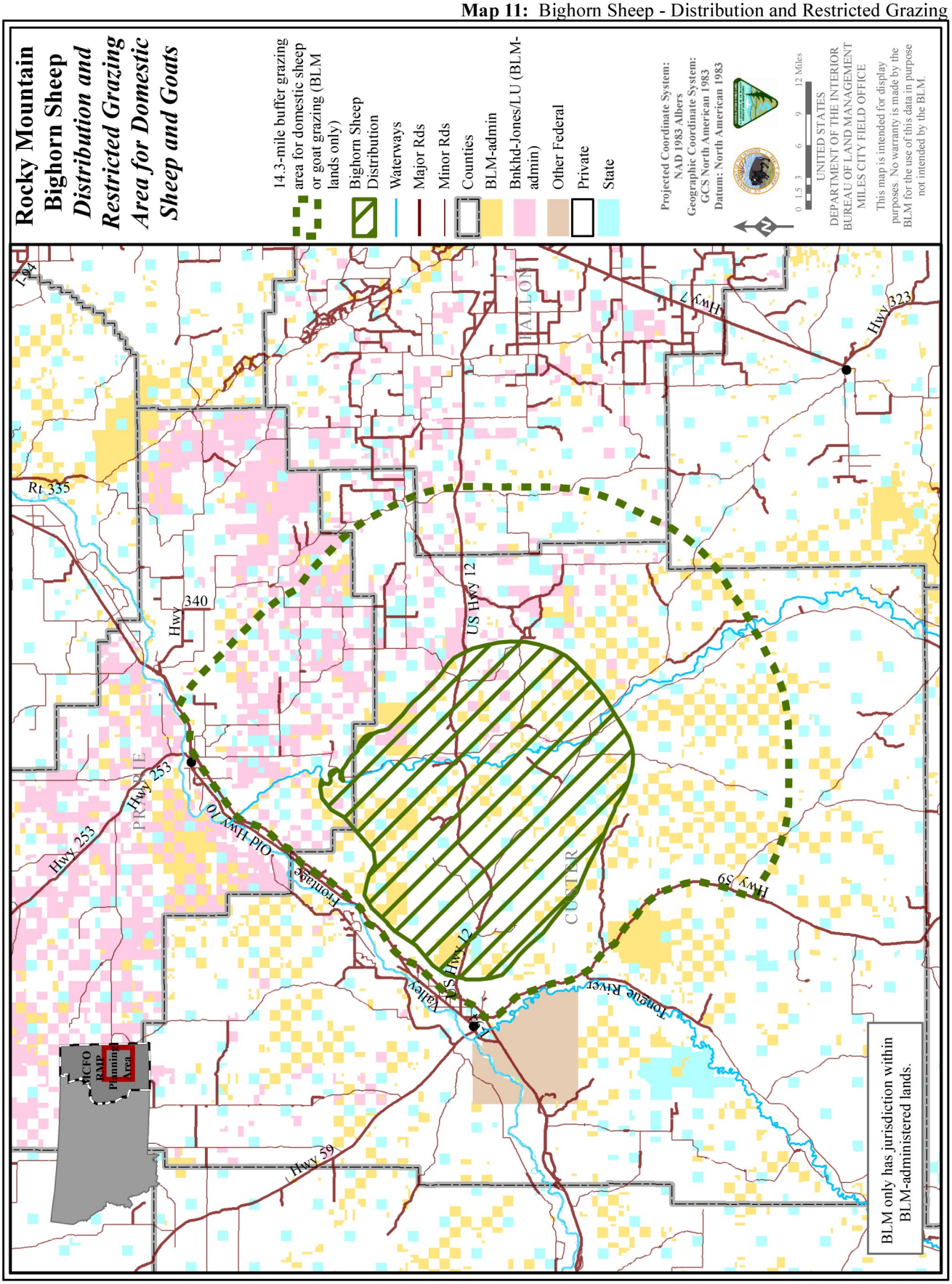
Map 10: Minor Rights-of-Way Restrictions



MAP-10

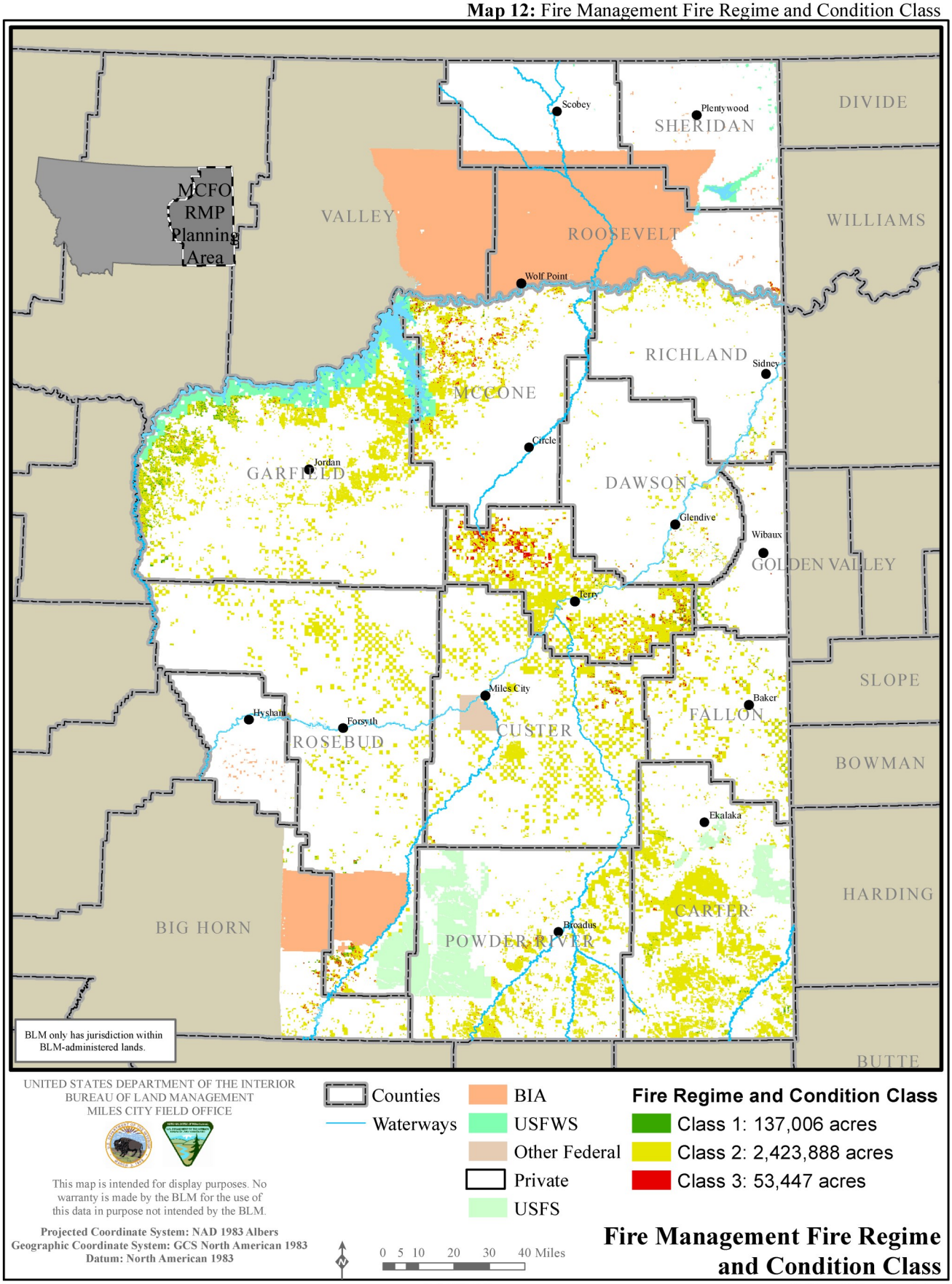
Miles City Revision

Map 11: Bighorn Sheep - Distribution and Restricted Grazing



MAP-11 Miles City Revision

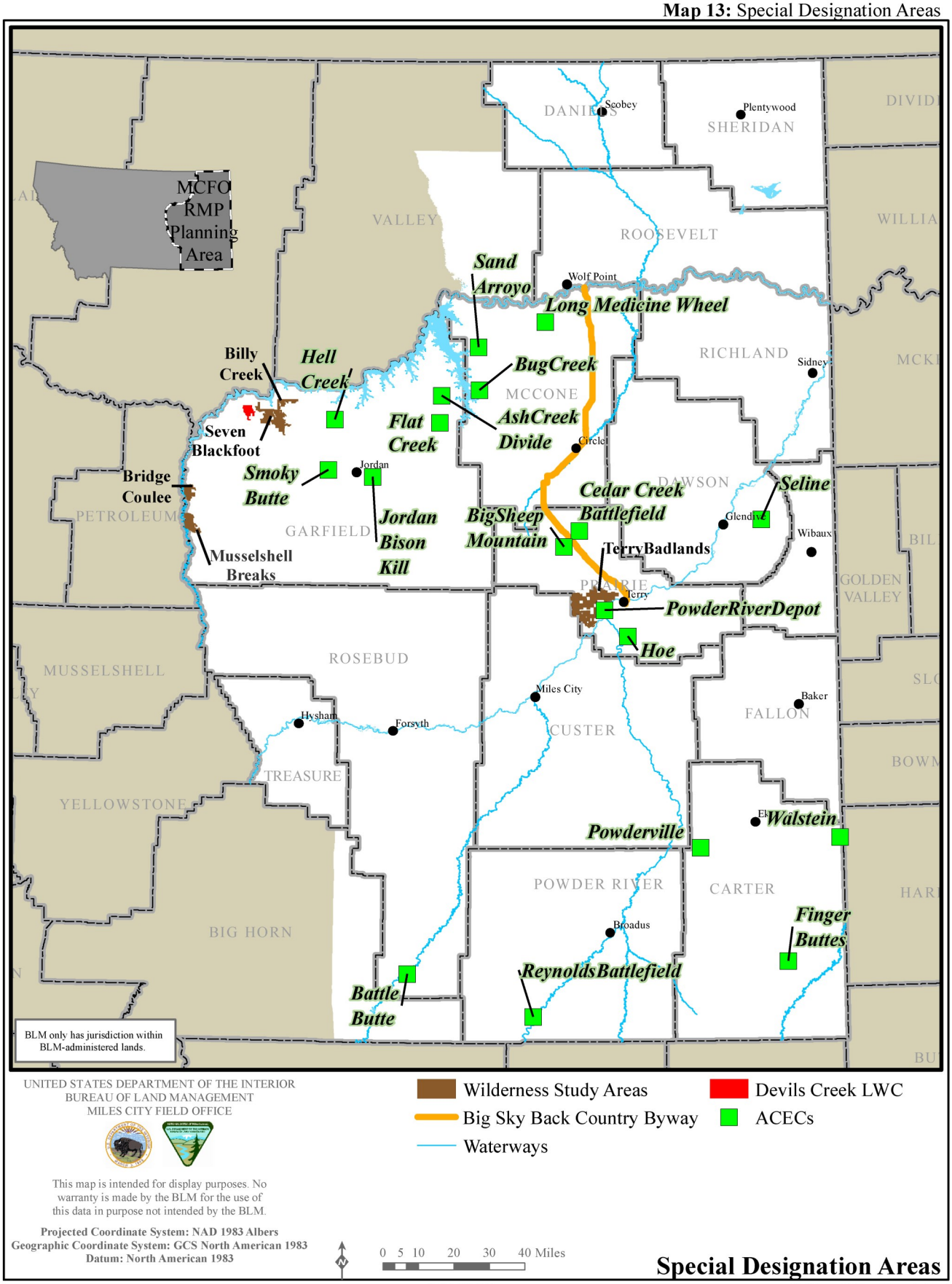
Map 12: Fire Management Fire Regime and Condition Class



MAP-12

Miles City Revision

Map 13: Special Designation Areas



MAP-13

Miles City Revision

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APPENDIX B
GRSG CONSERVATION BUFFER

APPENDIX B
GRSG CONSERVATION BUFFER
Applying Lek Buffer-Distances When Approving Actions

Buffer Distances and Evaluation of Impacts to Leks

Evaluate impacts to leks from actions requiring NEPA analysis. In addition to any other relevant information determined to be appropriate (e.g. State wildlife agency plans), the BLM will assess and address impacts from the following activities using the lek buffer-distances as identified in the USGS Report *Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review* (Open File Report 2014-1239). The BLM will apply the lek buffer-distances specified as the lower end of the interpreted range in the report unless justifiable departures are determined to be appropriate (see below). The lower end of the interpreted range of the lek buffer-distances is as follows:

- linear features (roads) within 3.1 miles of leks
- infrastructure related to energy development within 3.1 miles of leks.
- tall structures (e.g., communication or transmission towers, transmission lines) within 2 miles of leks.
- low structures (e.g., fences, rangeland structures) within 1.2 miles of leks.
- surface disturbance (continuing human activities that alter or remove the natural vegetation) within 3.1 miles of leks.
- noise and related disruptive activities including those that do not result in habitat loss (e.g., motorized recreational events) at least 0.25 miles from leks.

Justifiable departures to decrease or increase from these distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts. The USGS report recognized "that because of variation in populations, habitats, development patterns, social context, and other factors, for a particular disturbance type, there is no single distance that is an appropriate buffer for all populations and habitats across the sage-grouse range". The USGS report also states that "various protection measures have been developed and implemented… [which have] the ability (alone or in concert with others) to protect important habitats, sustain populations, and support multiple-use demands for public lands". All variations in lek buffer-distances will require appropriate analysis and disclosure as part of activity authorization.

In determining lek locations, the BLM will use the most recent active or occupied lek data available from the state wildlife agency.

For Actions in GHMA

The BLM will apply the lek buffer-distances identified above as required conservation measures, such as Conditions of Approval, to fully address the impacts to leks as identified in the NEPA analysis. Impacts should first be avoided by locating the action outside of the applicable lek buffer-distance(s) identified above.

The BLM may approve actions in GHMA that are within the applicable lek buffer distance identified above only if:

- Based on best available science, landscape features, and other existing protections, (e.g., land use allocations, state regulations), the BLM determines that a lek buffer-distance other than the applicable distance identified above offers the same or a greater level of protection to GRSG and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area; or
- The BLM determines that impacts to GRSG and its habitat are minimized such that the project will cause minor or no new disturbance (ex. co-location with existing authorizations); and

- Any residual impacts within the lek buffer-distances are addressed through compensatory mitigation measures sufficient to ensure a net conservation gain, as outlined in the GRSG Regional Mitigation Strategy Appendix.

For Actions in PHMA

The BLM will apply the lek buffer-distances identified above as Conditions of Approval to fully address the impacts to leks as identified in the NEPA analysis. Impacts should be avoided by locating the action outside of the applicable lek buffer-distance(s) identified above.

The BLM may approve actions in PHMA that are within the applicable lek buffer distance identified above only if:

- The BLM, with input from the state fish and wildlife agency, determines, based on best available science, landscape features, and other existing protections, that a buffer distance other than the distance identified above offers the same or greater level of protection to GRSG and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area.

Range improvements which do not impact GRSG, or range improvements which provide a conservation benefit to GRSG such as fences for protecting important seasonal habitats, meet the lek buffer requirement.

The BLM will explain its justification for determining the approved buffer distances meet these conditions in its project decision.

APPENDIX C
GRSG REQUIRED DESIGN FEATURES

APPENDIX C
GREATER SAGE-GROUSE
REQUIRED DESIGN FEATURES

INTRODUCTION

This appendix includes the Required Design Features for Greater Sage-Grouse Habitat. Required Design Features (RDFs) are required for certain activities in all GRSG habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF is determined to provide equal or better protection for GRSG or its habitat;
- A specific RDF will provide no additional protection to GRSG or its habitat.

REQUIRED DESIGN FEATURES FOR HOW TO MAKE A POND THAT WON'T PRODUCE MOSQUITOES THAT TRANSMIT WEST NILE VIRUS (from Doherty 2007)

1. Increase the size of ponds to accommodate a greater volume of water than is discharged. This will result in un-vegetated and muddy shorelines that breeding *Cx. tarsalis* avoid (De Szalay and Resh 2000). This modification may reduce *Cx. tarsalis* habitat but could create larval habitat for *Culicoides sonorensis*, a vector of blue tongue disease, and should be used sparingly (Schmidtmann et al. 2000). Steep shorelines should be used in combination with this technique whenever possible (Knight et al. 2003).
2. Build steep shorelines to reduce shallow water (>60 centimeters [cm]) and aquatic vegetation around the perimeter of impoundments (Knight et al. 2003). Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito species like *Cx. tarsalis* which prefer newly flooded sites with high primary productivity (Knight et al. 2003).
3. Maintain the water level below that of rooted vegetation for a muddy shoreline that is unfavorable habitat for mosquito larvae. Rooted vegetation includes both aquatic and upland vegetative types. Avoid flooding terrestrial vegetation in flat terrain or low lying areas. Aquatic habitats with a vegetated inflow and outflow separated by open water produce 5-10 fold fewer Culex mosquitoes than completely vegetated wetlands (Walton and Workman 1998). Wetlands with open water also had significantly fewer stage III and IV instars which may be attributed to increased predator abundances in open water habitats (Walton and Workman 1998).
4. Construct dams or impoundments that restrict down slope seepage or overflow by digging ponds in flat areas rather than damming natural draws for effluent water storage, or lining constructed ponds in areas where seepage is anticipated (Knight et al. 2003).
5. Line the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water, thus precluding shallow surface inflow and accumulation of sediment that promotes aquatic vegetation.
6. Line the overflow spillway with crushed rock, and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation.

Fence pond site to restrict access by livestock and other wild ungulates that trample and disturb shorelines, enrich sediments with manure and create hoof print pockets of water that are attractive to breeding mosquitoes.

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REQUIRED DESIGN FEATURES FOR FLUID MINERAL DEVELOPMENT

Priority Habitat Management Areas (PHMA)

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among right-of-way (ROW) holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
- Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and rehabilitate duplicate roads by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.

- Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority areas (minimizes perching and nesting opportunities for ravens and raptors and truck traffic). Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Corridor power, flow, and small pipelines under or immediately adjacent to roads.
- Design or site permanent structures which create movement (e.g. a pump jack) to minimize impacts to sage-grouse.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (e.g. by washing vehicles and equipment).
- Use only closed-loop systems for drilling operations and no reserve pits.
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
- Overbuild size of ponds for muddy and non-vegetated shorelines.
- Build steep shorelines to decrease vegetation and increase wave actions.
- Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
- Construct dams or impoundments that restrict down slope seepage or overflow.
- Line the channel where discharge water flows into the pond with crushed rock.
- Construct spillway with steep sides and line it with crushed rock.
- Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
- The BLM would work with proponents to limit project-related noise where it would be expected to reduce functionality of habitats that support GRSG populations. The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis as appropriate.
- As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated, and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on GRSG population behavioral cycles.
- As new research is completed, new specific limitations would be coordinated with the MFWP and partners. Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. in preparation).
- Require noise shields when drilling during the lek, nesting, broodrearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Require sage-grouse-safe fences.
- Locate new compressor stations outside PH and design them to reduce noise that may be directed towards PH.
- Clean up refuse.
- Locate man camps outside of PH.

Reclamation

- Include objectives for ensuring habitat restoration to meet sage-grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

General Sage-Grouse Habitat Management Areas (GHMA)

Make applicable BMPs mandatory as Conditions of Approval (COA) within GH. BMPs are continuously improving as new science and technology become available and therefore are subject to change. At a minimum include the following BMPs:

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances associated with operations and facilities as close as possible.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

Reclamation

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.

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REQUIRED DESIGN FEATURES FOR FIRE AND FUELS

Fuels Management

1. Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patters which most benefit sage-grouse habitat.
2. Provide training to fuels treatment personnel on sage-rouse biology, habitat requirements, and identification of areas utilized locally.
3. Use fire prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of hydrophobicity).
4. Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM and /or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding sage-grouse seasonal habitats and landscape.
5. Where appropriate, ensure that treatments are configured in a manner (e.g., strips) that promotes use by sage-grouse (See Connelly et al. 2000*)
6. Where applicable, incorporate roads and natural fuel breaks into fuel break design.
7. Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.
8. Design vegetation treatment in areas of high frequency to facilitate firefighting safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to key and restoration habitats.
9. Give priority for implementing specific sage-grouse habitat restoration projects in annual grasslands first to sites which are adjacent to or surrounded by sage-grouse key habitats. Annual grasslands are second priority for restoration when the sites not adjacent to key habitat, but within two miles of key habitat. The third priority for annual grasslands habitat restoration projects are sites beyond two miles of key habitat. The intent is to focus restoration outward from existing, intact habitat.
10. As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs.
11. Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
12. Remove standing and encroaching trees within at least 100 meters of occupied sage-grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as appropriate, and resources permit.

13. Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.
14. Reduce the risk of vehicle or human-caused wildfires and the spread of invasive species by planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way.
15. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to ail in controlling wildfire should wildfire occur near key habitats or important restoration areas (such as where investments in restoration have already been made).

Fire Management

1. Develop state-specific sage-grouse toolboxes containing maps, a list of resource advisors, contact information, local guidance, and other relevant information.
2. Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
3. Assign a sage-grouse resource advisor to all extended attack fires in or near key sage-grouse habitat areas. Prior to the fire season, provide training to sage-grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.
4. On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in sage-grouse habitat areas.
5. During periods of multiple fires, ensure line officers are involved in setting priorities.
6. To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases) in areas where physical disturbance to sage-grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.
7. Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles prior to deploying in or near sage-grouse habitat areas to minimize noxious weed spread.
8. Minimize unnecessary cross-country vehicle travel during fire operations in sage-grouse habitat.
9. Minimize burnout operations in key sage-grouse habitat areas by constructing direct fireline whenever safe and practical to do so.
10. Utilize retardant and mechanized equipment to minimize burned acreage during initial attack.
11. As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

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INTRODUCTION

The following measures would be applied as RDFs for all solid minerals. They would also apply to locatable minerals subject to valid existing rights and consistent with applicable law. The measures outlined below would be applied as recommended BMPs for locatable minerals. The RDFs or BMPs would be applied as appropriate in PH and GH, and to the extent allowable by law (i.e., to prevent unnecessary and undue degradation).

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.

- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (e.g., use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances associated with operations and facilities as close as possible.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury power lines.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
- Overbuild size of ponds for muddy and non-vegetated shorelines.
- Build steep shorelines to decrease vegetation and increase wave actions.
- Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
- Construct dams or impoundments that restrict down slope seepage or overflow.
- Line the channel where discharge water flows into the pond with crushed rock.
- Construct spillway with steep sides and line it with crushed rock.
- Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
- Require sage-grouse-safe fences around sumps.
- Clean up refuse (Bui et al. 2010).
- Locate man camps outside of PH.

Reclamation

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites.
- Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community.
- Irrigate interim reclamation as necessary during dry periods.
- Utilize mulching techniques to expedite reclamation.

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APPENDIX D
GRSG MONITORING FRAMEWORK

APPENDIX D
THE GREATER SAGE-GROUSE (GRSG) MONITORING FRAMEWORK

Developed by the Interagency GRSG Disturbance and Monitoring Sub-Team

INTRODUCTION

The purpose of this U.S. Bureau of Land Management (BLM) Greater Sage-grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM IM 2012-044) (BLM 2011e) to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. Therefore, BLM will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the Greater Sage-grouse (hereafter, sage-grouse) planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan which will be developed after the signing of the ROD/ARMP. For a summary of the frequency of reporting see Attachment A. Adaptive management will be informed by data collected at any and all scales.

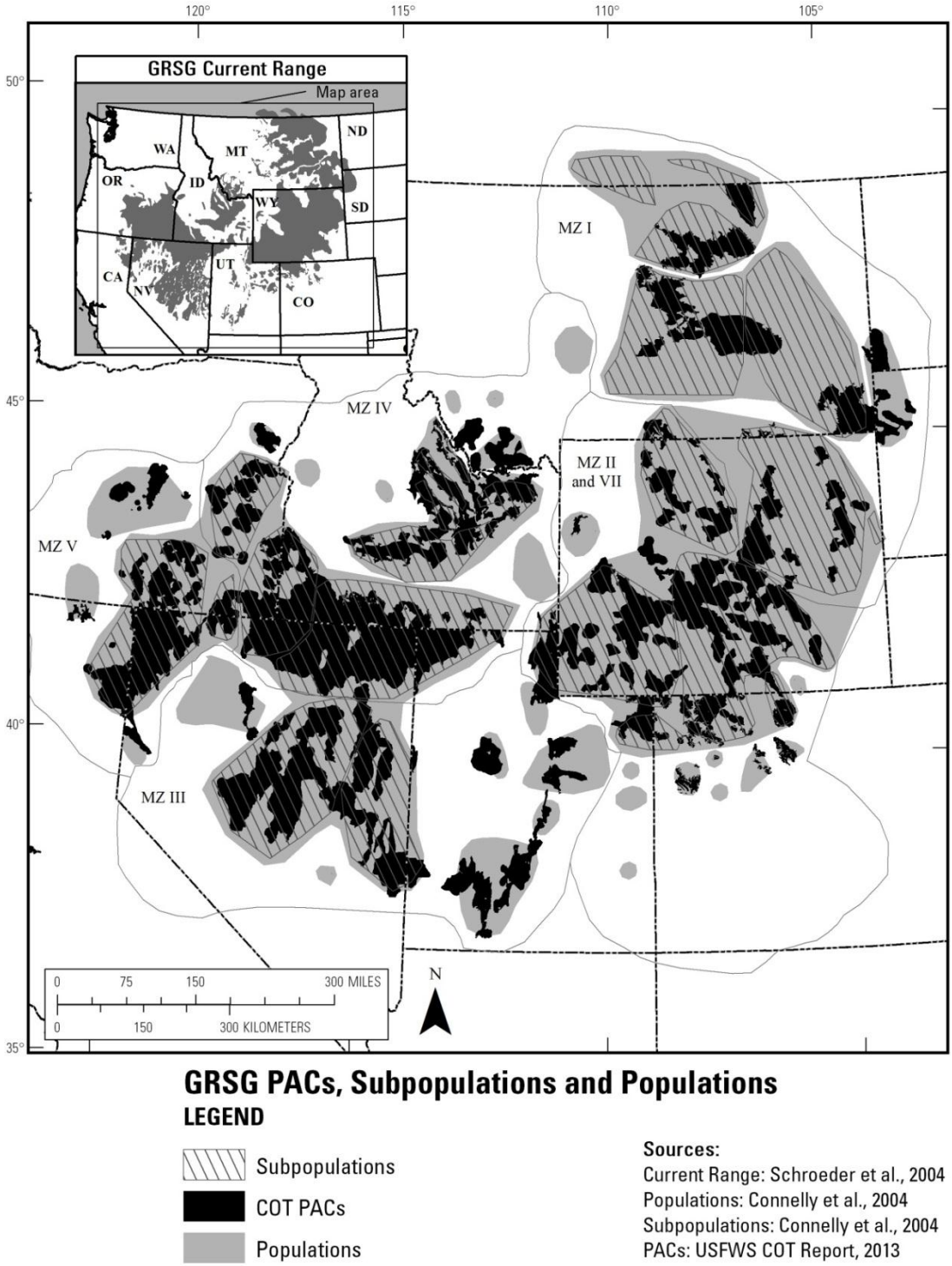
To ensure the BLM has the ability to make consistent assessments about sage-grouse habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions.

Implementation monitoring results will provide information to allow the BLM to evaluate the extent that decisions from the resource management plan (RMP) to conserve sage-grouse and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

This multi-scale monitoring approach is necessary as sage-grouse are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2014) as first order (broad scale), second order (mid-scale), third order (fine scale), and fourth order (site scale) to apply them to sage-grouse habitat selection. Habitat selection and habitat use by sage-grouse occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring sage-grouse habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to sage-grouse and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. *in press*).

Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these exiting datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of sage-grouse as defined by Schroeder et al. (2004), and clipped by Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; Figure 1).

FIGURE 1. MAP OF GREATER SAGE-GROUSE RANGE, POPULATIONS, SUBPOPULATIONS AND PRIORITY AREAS FOR CONSERVATION (PACS) AS OF 2013.



This broad and mid-scale monitoring data and analysis will provide context for RMP areas; states; Sage-grouse Priority Habitat, General Habitat and other sage-grouse designated management areas; and Priority Areas for Conservation (PACs) as defined in the Greater Sage-grouse Conservation Objectives: Final Report (COT, U.S.

Fish and Wildlife Service 2013). Throughout the remainder of the document, all of these areas will be referred to as "sage-grouse areas".

This monitoring framework is divided into two sections. The broad and mid-scale methods, described in Section I, provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to determine the effectiveness of BLM planning strategy and management decisions (see Table 1). For the sage-grouse habitat fine and site scales (Section II), this framework describes a consistent approach (e.g., indicators and methods) for monitoring sage-grouse seasonal habitats. Funding, support, and dedicated personnel for broad and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of the BLM multi-scale monitoring commitments see Attachment A.

TABLE 1. INDICATORS FOR MONITORING IMPLEMENTATION OF THE STRATEGY, DECISIONS, SAGE-GROUSE HABITAT, AND SAGE-GROUSE POPULATIONS AT THE BROAD AND MID-SCALES

	Implementation	Habitat		Population (State Wildlife Agencies)
Geographic Scales		Availability	Degradation	Demographics
Broad Scale: From the range of sage-grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations. PACs	RMP decisions	Mid-scale habitat indicators (HAF 2014; Table 2 e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table 2)	Individual population trend

I. BROAD AND MID-SCALES

First order habitat selection at the broad scale describes the physical or geographical range of a species. The first order habitat, the range of the species, is defined by populations of sage-grouse associated with sagebrush landscapes based on Schroeder et al. 2004, Connelly et al. 2004 and population surveys and local adjustments based on population or habitat surveys since 2004. There is an intermediate scale between the broad and mid-scales that was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation communities. This scale is referred to as the WAFWA Sage-grouse MZs. Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second order habitat selection, the mid-scale, includes sage-grouse populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 mi^2. PACs range from 20 to 20,400 mi^2 and are nested within population areas, and populations are nested within Management Zones.

Other mid-scale landscape indicators such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011).

A. Implementation (Decision) Monitoring

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of land use plan decisions. The BLM will monitor implementation of project level and/or site specific actions and authorizations with their associated conditions of approval/stipulations for sage-grouse spatially (as appropriate) within Priority Habitat, General Habitat and other sage-grouse designated management areas, at a minimum, for the Miles City RMP. These actions and authorizations as well as progress toward completing and implementing activity-level plans will be monitored consistently across all planning units and reported to BLM headquarters annually, with a summary report every 5 years, for the Miles City RMP. A national-level Land Use Plan Implementation Monitoring and Reporting Structure (IMARS) that describes how the BLM will consistently and systematically monitor and report implementation level activity plans and implementation actions for all plans within the range of sage-grouse will be developed by the Implementation Monitoring Team and will be included in the Record of Decision (ROD)/Approved Plan. A centralized tracking tool (IMARS) for collection, roll-up and reporting of tabular and spatially explicit data will be utilized. BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

B. Habitat Monitoring

In the USFWS's 2010 listing decision for the sage-grouse, the USFWS identified 18 threats contributing to the destruction, modification, or curtailment of the sage-grouse's habitat or range (75 FR 13910 2010). The BLM will therefore monitor the relative extent of these threats that remove sagebrush (see Table 2), both spatially and temporally, on all lands within an analysis area, and to report on amount, pattern and condition at the appropriate and applicable geographic scales and boundaries. These 18 threats have been aggregated into three broad and mid-scale measures to account for whether the threat predominantly removes sagebrush or degrades habitat. The three measures are:

- Measure 1: Sagebrush Availability (percent of sagebrush per unit area);
- Measure 2: Habitat Degradation (percent of human activity per unit area); and
- Measure 3: Density of Energy and Mining (facilities and locations per unit area)

TABLE 2. RELATIONSHIP BETWEEN THE 18 THREATS AND THE THREE HABITAT DISTURBANCE MEASURES FOR MONITORING. DATA AVAILABILITY MAY PRECLUDE SPECIFIC ANALYSIS OF INDIVIDUAL LAYERS. SEE THE DETAILED METHODOLOGY FOR MORE INFORMATION

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights of ways		X	

These three habitat disturbance measures will evaluate disturbance on all lands regardless of land ownership. The direct area of influence will be assessed with the goal to account for actual removal of sagebrush upon which sage-grouse depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape), and therefore monitors the change in sagebrush availability, or specifically where and how much of the sagebrush community is available within the range of sage-grouse. The sagebrush community is defined as the ecological systems that have the capability to support sagebrush vegetation and seasonal sage-grouse habitats within the range of sage-grouse (see *B1: Sagebrush Availability* below). Measures 2 and 3 (see *B2: Habitat Degradation* below) focus on where habitat degradation is occurring using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic unit of interest and in areas that have the capability to support sagebrush and seasonal sage-grouse use. Measure 2 is not only a quantification of footprint/area of direct disturbance but also a surrogate for those threats most likely to have ongoing activity. In addition, energy development and mining activities are typically the most intensive activities in sagebrush habitat. Therefore, measure 3, the density of active energy development, production, and mining sites will be monitored to help identify areas of particular concern for factors such as noise, dust, traffic, etc., that degrade sage-grouse habitat.

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the sage-grouse and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

B.1. Sagebrush Availability (Measure 1)

Sage-grouse populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. This measure has been divided into two sub-measures to describe sagebrush availability on the landscape:

- Measure 1a) the current amount of sagebrush on the landscape of interest; and
- Measure 1b) the amount of sagebrush on the landscape of interest compared to the amount of sagebrush the landscape of interest could ecologically support.

Measure 1a (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic unit of interest]. The appropriate geographic units of interest for sagebrush availability include the species' range, WAFWA Management Zones, populations, and PACs. In some cases these sage-grouse areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

Measure 1b (the amount of sagebrush for context within the area of interest) will be calculated using this formula: [the existing updated sagebrush layer (EVT)] divided by [pre Euro-American geographic extent of lands that could have supported sagebrush (BpS)]. This will provide information during evaluations of monitoring data to set the context for a given geographic unit of interest. That information could also be used for management options for restoration or mitigation.

The sagebrush base layer for the sagebrush availability measure will be based on geospatial vegetation data adjusted for the threats listed in Table 2. The following sub-sections of this monitoring framework describe the methodology to determine both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid-scales.

a. Establishing the Sagebrush Base Layer

The current geographic extent of sagebrush vegetation within the range wide distribution of sage-grouse populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2010). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the range wide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability to support sagebrush vegetation pre Euro-American settlement [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area compared with how much sagebrush existed historically (Measure 1b). Therefore, BLM has determined that LANDFIRE provides the best available data at broad and mid-scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. Along with aggregating the sagebrush types into the sagebrush base layer, BLM will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. For the long-term, BLM through its Assessment, Inventory, and Monitoring (AIM) program and specifically the BLM'S Landscape Monitoring Framework (Taylor et al., *in press*) will provide field data to the LANDFIRE program to support continuous quality improvements in their products specifically for rangeland systems to improve the LANDFIRE EVT layer.

Within the BLM field office-wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than provided through LANDFIRE. Where available, these finer scale products are useful for additional and complimentary mid-scale indicators and local scale analyses (see Section II: Fine and Site Scale). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, e.g. patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (see Section D).

Data Sources to Establish and Monitor Sagebrush Availability

In much the same manner as how the LANDFIRE data was selected as the data source, described above, the criteria for selecting the datasets (Table 3) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

- Nationally consistent dataset available across the range;
- Known level of confidence or accuracy in the dataset; and
- Dataset is continually maintained with a known update interval.

TABLE 3. DATASETS FOR ESTABLISHING AND MONITORING CHANGES IN SAGEBRUSH AVAILABILITY

Dataset	Source	Update Interval	Most Recent Version Year	Use
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for Sagebrush Availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for Sagebrush Availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium (MRLC)	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

LANDFIRE Existing Vegetation Type (EVT) Version 1.2

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping, there have been two update efforts: version 1.1 represents changes up to 2008 and version 1.2 reflects changes on the landscape up to 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer. Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by sage-grouse subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the sage-grouse (Table 4). Two additional vegetation types that are not ecological systems were added to the EVT and are *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological

systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system were named *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance respectively.

TABLE 4. ECOLOGICAL SYSTEMS IN BPS AND EVT CAPABLE OF SUPPORTING SAGEBRUSH VEGETATION AND COULD PROVIDE SUITABLE SEASONAL HABITAT FOR GREATER SAGE-GROUSE

Ecological System	**Sagebrush Vegetation that the Ecological System has the Capability to Produce**
Colorado Plateau Mixed Low Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longiloba* *Artemisia bigelovii* *Artemisia nova* *Artemisia frigida* *Artemisia tridentata* ssp. *wyomingensis*
Columbia Plateau Scabland Shrubland	*Artemisia rigida*
Great Basin Xeric Mixed Sagebrush Shrubland	*Artemisia arbuscula* ssp. *longicaulis* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia tridentata* ssp. *wyomingensis*
Inter-Mountain Basins Big Sagebrush Shrubland	*Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis*
Inter-Mountain Basins Mixed Salt Desert Scrub	*Artemisia tridentata* ssp. *wyomingensis* *Artemisia spinescens*
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	*Artemisia arbuscula* ssp. *longiloba* *Artemisia nova* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *rupicola*
Columbia Plateau Low Sagebrush Steppe	*Artemisia arbuscula* *Artemisia arbuscula* ssp. *longiloba* *Artemisia nova*
Inter-Mountain Basins Big Sagebrush Steppe	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *xericensis* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tripartita* ssp. *tripartita* *Artemisia frigida*
Inter-Mountain Basins Montane Sagebrush Steppe	*Artemisia tridentata* ssp. *vaseyana* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia nova* *Artemisia arbuscula* *Artemisia tridentata* ssp. *spiciformis*
Northwestern Great Plains Mixed grass Prairie	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *vaseyana* *Artemisia frigida*
Northwestern Great Plains Shrubland	*Artemisia cana* ssp. *cana* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *wyomingensis*
Western Great Plains Sand Prairie	*Artemisia cana* ssp. *cana*
Western Great Plains Floodplain Systems	*Artemisia cana* ssp. *cana*
Columbia Plateau Steppe and Grassland	*Artemisia* spp.

Ecological System	**Sagebrush Vegetation that the Ecological System has the Capability to Produce**
Inter-Mountain Basins Semi-Desert Shrub-Steppe	*Artemisia tridentata* *Artemisia bigelovii* *Artemisia tridentata* ssp. *wyomingensis*
Rocky Mountain Lower Montane-Foothill Shrubland	*Artemisia nova* *Artemisia tridentata* *Artemisia frigida*
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	*Artemisia tridentata*
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	*Artemisia tridentata* ssp. *vaseyana* *Artemisia arbuscula* *Artemisia tridentata*
Artemisia tridentata ssp. *vaseyana* Shrubland Alliance (EVT only)	*Artemisia tridentata* ssp. *vaseyana*
Quercus gambelii Shrubland Alliance (EVT only)	*Artemisia tridentata*

Accuracy and Appropriate Use of LANDFIRE Datasets
Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in Table 4 will be merged into one value that represents the sagebrush base layer. By aggregating all ecological systems, the combined accuracy of the sagebrush base layer (EVT) is much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of sage-grouse as defined by Schroeder (2004). Attachment C lists the user and producer accuracies for the aggregated ecological systems that make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7% to 100% and user accuracies ranging from 57.1% to 85.7%.

LANDFIRE EVT data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level ($30m^2$ resolution of raster data) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

Agricultural Adjustments for the Sagebrush Base Layer
The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL) (http://www.nass.usda.gov/research/Cropland/Release/index.htm). CDL data are generated on an annual basis with "estimated producer accuracies for large row crops from the mid 80 to mid-90 percent" depending on the State (http://www.nass.usda.gov/research/Cropland/sarsfaqs2.htm#Section3_18.0). Readers are referred to the NASS metadata website for specific information on accuracy (http://www.nass.usda.gov/research/Cropland/metadata/meta.htm). CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes as well as non-agricultural classes. For this effort, as was also done in the Baseline Environmental Report (Manier et al. 2013), non-agricultural classes were removed from the original dataset. The excluded classes are:

> Barren (65 & 131), Deciduous Forest (141), Developed/High Intensity (124), Developed/Low Intensity (122), Developed/Med Intensity (123), Developed/Open Space (121), Evergreen Forest (142),

Grassland Herbaceous (171), Herbaceous Wetlands (195), Mixed Forest (143), Open Water (83 & 111), Other Hay/Non Alfalfa (37), Pasture/Hay (181), Pasture/Grass (62), Perennial Ice/Snow (112), Shrubland (64 & 152), Woody Wetlands (190).

The rule set for adjusting the sagebrush base layer for agricultural lands is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of CDL classifies that pixel as one of the non-ag classes listed above. The assumption is that even though individual pixels may get classified as a non-agricultural class in any given year the pixel has not necessarily been restored to a natural sagebrush community that would be included in Table 4. It is further assumed that once an area has moved into agricultural use, it is unlikely that it would be restored to sagebrush, however, should that occur, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the Restoration Updates section of this framework.

Urban Adjustments for the Sagebrush Base Layer

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a five-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush base layer during the update process. Although the impervious surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

Fire Adjustments for the Sagebrush Base Layer

Two datasets were selected for performing fire updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires all fires with sizes greater than 10 acres to be reported to GeoMac, therefore there will be many small fires less than 10 acres in size that will not be accounted for in the fire updates. In the update process using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1000 acres in size will be used to update the sagebrush layer. MTBS was selected for use as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program (http://www.mtbs.gov) is an on-going multi-year project to consistently map fire severity and fire perimeters across the U.S. For lands in the western U.S., MTBS only maps burn severity for fires greater than 1,000 acres in size. One of the burn severity classes within MTBS is an unburned to low severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter that will be retained in the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. However, not all wildfires have the same impact on the recovery of sagebrush habitat depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed restoration, than the warmer, dryer sagebrush habitat. These areas will likely be detected as sagebrush in future updates to LANDFIRE.

Conifer Encroachment adjustment for the Sagebrush Base Layer

Conifer encroachment into sagebrush vegetation reduces the spatial extent of greater sage-grouse habitat (Davies et al. 2011, Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation which results in sage-grouse habitat loss include various juniper species such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species including singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas-fir (*Pseudotsuga menziesii*) (Gruell et al. 1986, Grove et al. 2005, Davies et al. 2011).

A rule set for conifer encroachment was developed to be used for determination of the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and have the capability of supporting sagebrush vegetation. Those ecological systems (Table 5) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush vegetation was defined as including sagebrush species (Attachment B) that provide habitat for the greater sage-grouse and are included in the Sage-Grouse Habitat Assessment Framework. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems and these immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

TABLE 5. ECOLOGICAL SYSTEMS WITH CONIFERS MOST LIKELY TO ENCROACH INTO SAGEBRUSH VEGETATION

EVT Ecological Systems	**Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce**
Colorado Plateau Pinyon-Juniper Woodland	*Pinus edulis* *Juniperus osteosperma* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia nova* *Artemisia tridentata* ssp. *tridentata* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tridentata* ssp. *vaseyana* *Artemisia bigelovii* *Artemisia pygmaea*
Columbia Plateau Western Juniper Woodland and Savanna	*Juniperus occidentalis* *Pinus ponderosa* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia rigida* *Artemisia tridentata* ssp. *vaseyana*
East Cascades Oak-Ponderosa Pine Forest and Woodland	*Pinus ponderosa* *Pseudotsuga menziesii* *Artemisia tridentata* *Artemisia nova*
Great Basin Pinyon-Juniper Woodland	*Pinus monophylla* *Juniperus osteosperma* *Artemisia arbuscula* *Artemisia nova* *Artemisia tridentata* *Artemisia tridentata* ssp. *vaseyana*
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	*Pinus ponderosa* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia tridentata* ssp. *vaseyana*
Rocky Mountain Foothill Limber Pine-Juniper Woodland	*Juniperus osteosperma* *Juniperus scopulorum* *Artemisia nova* *Artemisia tridentata*
Rocky Mountain Poor-Site Lodgepole Pine Forest	*Pinus contorta* *Pseudotsuga menziesii* *Pinus ponderosa* *Artemisia tridentata*
Southern Rocky Mountain Pinyon-Juniper Woodland	*Pinus edulis*

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
	Juniperus monosperma *Artemisia bigelovii* *Artemisia tridentata* *Artemisia tridentata* ssp. *wyomingensis* *Artemisia tridentata* ssp.*vaseyana*
Southern Rocky Mountain Ponderosa Pine Woodland	*Pinus ponderosa* *Pseudotsuga menziesii* *Pinus edulis* *Pinus contorta* *Juniperus* spp. *Artemisia nova* *Artemisia tridentata* *Artemisia arbuscula* *Artemisia tridentata* ssp. *vaseyana*

Invasive Annual Grasses Adjustments for the Sagebrush Base Layer
There are no invasive species datasets from 2010 to present (beyond the LANDFIRE data) that meet our 3 criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see the Monitoring Sagebrush Availability section (Section I.B.1.b.).

Sagebrush Restoration Adjustments for the Sagebrush Base Layer
There are no datasets from 2010 to present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (Version 1.2) due to restoration activities since 2010. Successful restoration treatments prior to 2010 are assumed to have been captured in the LANDFIRE refresh.

b. Monitoring Sagebrush Availability

Updating the Sagebrush Availability Sagebrush Base Layer
Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

> ***2010 Existing Sagebrush Base Layer*** = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]
>
> ***2012 Existing Sagebrush Update*** = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter]
>
> ***2013 and beyond Existing Sagebrush Updates*** = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field].

Sagebrush Restoration Updates
Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation back in. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest
Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro-American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units which are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal habitat for the sage-grouse. These ecological systems are listed in Table 4 with the exception of the *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse Habitat Assessment Framework and are found in Attachment B.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level ($30m^2$) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

Tracking
BLM will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year and an updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will begin to be factored in as data allows. Attributable to data availability, there will be a two year lag (approximately) between when the estimate is generated and when the data used for the estimate becomes available (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

Future Plans
Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium (MRLC) are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the MRLC. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring "with-in" class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This "with-in" class variation can serve as one indicator of sagebrush quality that cannot be derived from LANDFIRE's EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

B.2. Habitat Degradation Monitoring (Measure 2)

The measure of habitat degradation will be calculated by combining the footprints of threats identified in Table 2. The footprint is defined as the direct area of influence of "active" energy and infrastructure and is used as a surrogate for human activity. Thus, the footprint of habitat degradation per sage-grouse area will be calculated. Although these analyses will try to summarize results at the aforementioned meaningful landscape units, some may be too small to appropriately report the metrics and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in Table 6. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure are detailed below. All datasets will be updated annually to monitor broad and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be available to the USFWS.

a. Habitat Degradation Datasets and Assumptions:

Energy (oil and gas wells and development facilities)
This dataset will be a compilation of two oil and gas well databases: the proprietary IHS Enerdeq® database and the BLM Automated Fluid Minerals Support System (AFMSS) database (AFMSS data will be used to supplement the IHS data). Point data from wells active within the last ten years from IHS and producing wells from AFMSS will be considered as a 5 acre (2.0ha) footprint (BLM WO 2014) centered on the well point. Plugged and abandoned wells will be removed, though only if the date of well abandonment was prior to the first day of the reporting year (i.e. for the 2010 reporting year a well must be plugged and abandoned by 12/31/2009 to be removed).

> ***Additional Measure: Reclaimed Energy-related Degradation*** This dataset will include those wells that have been plugged and abandoned in an effort to measure energy-related degradation that has been reclaimed but not necessary fully restored to sage-grouse habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last ten years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed by 2-10 years from energy development activities (Harju et al. 2010), while reclamation actions may require two or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take six or more years from the point of seeding, depending on variables such as annual precipitation,

annual temperature, and soil type and depth (Pyke, 2011). This ten-year period is conservative, assuming some level of habitat improvement ten years after plugging. However, research by Hemstrom et al. (2002) proposes an even longer period of greater than 100 years for recovery of sagebrush habitats even with active restoration approaches. Direct area of influence will be considered 3acres (1.2ha) (J. Perry, personal communication February 12, 2014). This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded and where further investigation at the fine or site-scale would be warranted to: (1) quantify the level of reclamation already conducted, and (2) evaluate the amount of restoration still required (for sagebrush habitat recovery). At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting *restoration* standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to fire and agriculture conversion (see Sagebrush Restoration Updates in Section I.B.1.b.). This dataset will be updated annually with new plugged and abandoned well from the IHS dataset.

Energy (coal mines)
Currently there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, U.S. Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement (OSMRE) coal mining permit polygons (as available), and USGS Mineral Resources Data System (MRDS) mine occurrence points. These data will inform where active coal mining may be occurring. Aerial imagery will then be used to manually digitize active coal mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from ESRI and/or Google will be utilized to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine footprints. Coal mine location data source and imagery date will be documented for each digitized coal footprint polygon at the time of creation. Sub-surface facility locations (polygon or point location as available) will also be collected, if available, and included in density calculations, and added to the active surface activity layer as appropriate (if actual footprint can be located).

Energy (wind energy facilities)
This dataset will be a subset of the Federal Aviation Administration Digital Obstacles point file to include points where “Type_” = “WINDMILL”. Direct area of influence of these point features will be measured by converting to a polygon dataset of 3 acres (1.2 ha) centered on each tower point (BLM Wind Energy Programmatic Environmental Impact Statement, 2005). Additionally, we will use Platts Power Plants and Generating Units database for transformer stations associated with wind energy sites.

Energy (solar energy facilities)
This dataset will include solar plants in existence or under construction as compiled with the proprietary Platts in the Power Plants and Generating Units database. The point data will be buffered to represent a 3 acre (1.2 ha) direct area of influence.

Energy (geothermal energy facilities)
This dataset will include geothermal plants in existence or under construction as compiled with the proprietary I.H.S and Platts (Power Plants and Generating Units) databases. The point data will be buffered to represent a 3 acre (1.2 ha) direct area of influence.

Mining (active developments; locatable, leasable, saleable)
This dataset will include active mining locations as compiled with the proprietary InfoMine® database. Other data sources will be evaluated as they are identified or become available. The point data will be buffered to represent a 5 acre (2.0 ha) direct area of influence, unless actual surface disturbance is available.

Infrastructure (roads)
This dataset will be compiled from the proprietary ESRI® StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstates, Major Roads, and Surface Streets to capture most paved and “crowned and

ditched" roads while not including "two-track" and 4-wheel-drive routes. These minor roads, while not included in our broad and mid-scale monitoring, may support a volume of traffic that can have deleterious effects to sage-grouse leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine/project scale analysis will require more site-specific data than is identified in this monitoring framework. The direct influence area for roads will be represented by 240.2ft , 84.0ft, and 40.7ft (73.2m, 25.6m, and 12.4m) total widths centered on the line feature for Interstates, Major Roads, and Surface Streets respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. *Note: this is a related but different dataset as was used in the Summary of Science, Activities, Programs, and Policies That Influence the Rangewide Conservation of Greater Sage-Grouse (Manier et al., 2013). Individual BLM planning units may utilize different roads layers for fine and site scale monitoring.*

Infrastructure (railroads)
This dataset will be a compilation of Federal Railroad Administration (FRA) Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct influence area for railroads will be represented by a 30.8 ft (9.4m) total width (Knick et al. 2011) centered on non-abandoned railroad line feature.

Infrastructure (power lines)
This line dataset will be a compilation from EV Energy Map, Platts/Global Energy of transmission lines, substations, electric power generation plants, and energy distribution control facilities. Linear features in the dataset attributed as "buried" will be removed from the disturbance calculation. Only "In Service" lines will be used, not "Proposed" lines. Direct area of influence will be determined by the kV designation: 1-199 kV (100ft/30.5m), 200-399 kV (150ft/45.7m), 500-699 kV (200ft/61.0m), and 700-or greater kV (250ft/76.2m) based on average ROW and structure widths.

Infrastructure (communication towers)
This point dataset will be compiled from the Federal Communications Commission (FCC) communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.47 acres (1.0ha) centered on each communication tower point (Knick et al. 2011).

Infrastructure (other vertical structures)
This point dataset will be compiled from the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where "Type_" = "WINDMILL" will be removed. Duplicate points from the FCC communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.47 acres (1.0ha) centered on each vertical structure point (Knick et al. 2011).

Other developed rights-of-ways
Currently no additional data sources for other rights-of-ways have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in categories above. Our newly purchased IHS data does contain pipeline information, but further investigation is needed to determine if the dataset is comprehensive. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to the threats above.

b. Habitat Degradation Threat Combination and Calculation:

The threats targeted for measuring human activity from Table 2, will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of sage-grouse. However, individual datasets will be preserved to ascertain which types of threats may be contributing to overall habitat degradation. Percentages will be calculated as follows: This measure has been divided into three sub-measures to describe habitat degradation on the landscape:

- Measure 2a) Footprint by landscape unit: Divide area of the active/direct footprint within a sage-grouse area by the total area of the sage-grouse area (% disturbance in landscape unit).

- Measure 2b) Active/direct footprint by historic sagebrush potential: Divide area of the active footprint that coincides with areas with historic sagebrush potential (BpS calculation from habitat availability) within a given landscape unit by the total area with sagebrush potential within the landscape unit. (% disturbance on potential historic sagebrush in landscape unit).
- Measure 2c) Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given landscape unit by the total area that is current sagebrush within the landscape unit (% disturbance on current sagebrush in landscape unit).

TABLE 6. GEOSPATIAL DATA SOURCES FOR HABITAT DEGRADATION (MEASURE 2)

USFWS Listing Decision Threat	Data Source	Direct Area of Influence
Agriculture	National Agriculture Statistics Service	Polygon Area
Urbanization	USGS Percent Imperviousness	Polygon Area
Wildfire	Geospatial Multi-Agency Coordination Group; Monitoring Trends in Burn Severity	Polygon Area
Conifer encroachment	LANDFIRE	Polygon Area
Energy (oil and gas wells and development facilities)	IHS; BLM (AFMSS)	5ac (2.0ha)
Energy (reclaimed site degradation)	IHS; BLM (AFMSS)	3 ac (1.2ha)
Energy (coal mines)	BLM data; Office of Surface Mining Reclamation and Enforcement	Polygon Area
Energy (wind towers)	Federal Aviation Administration	3ac (1.2ha)
Energy (solar fields)	Argonne National Laboratory	Polygon Area
Energy (geothermal)	Argonne National Laboratory	Polygon Area or 5ac (2.0ha)
Mining (active locatable, leasable, and salable developments)	InfoMine	Polygon Area or 5ac (2.0ha)
Infrastructure (roads)	ESRI StreetMap Premium	40.7-240.2ft (12.4-73.2m)
Infrastructure (railroads)	Federal Railroad Administration	30.8ft (9.4m)
Infrastructure (power lines)	Platts Transmission Lines	100-250ft (30.5-76.2m)
Infrastructure (communication towers)	Federal Communications Commission	2.5ac (1.0ha)
Infrastructure (other vertical structures)	Federal Aviation Administration	2.5ac (1.0ha)

a. Density of Energy and Mining Datasets and Assumptions:

Energy (oil and gas wells and development facilities)
[See section B.2]

Energy (coal mines)
[See section B.2]

Energy (wind towers)
[See section B.2]

Energy (solar energy facilities)
[See section B.2]

Energy (geothermal energy facilities)
[See section B.2]

Mining (active developments; locatable, leasable, saleable)
[See section B.2]

b. Density of Energy and Mining Threat Combination and Calculation:

Datasets for energy and mining will be collected in two primary forms: point locations (e.g. wells) and polygon areas (e.g. surface coal mining). The following rule set will be used to calculate density for meaningful landscape units including standard grids and per polygon:

1) Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2) Polygons will not be merged, nor features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3) The analysis unit (polygon or 640 acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit all point features will be summed, and any individual polygons will be counted as one (e.g.; a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g. a polygon crossing multiple 640 acre sections would be counted as one in each 640 acre section for a density per 640 acre section calculation).
4) In methodologies with different sized units (e.g. MZs, populations, etc.) raw counts will be converted to densities by dividing by the total area of the unit. Typically this will be measured as facilities per 640 acres.
5) For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6) Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help with display and conveying information about areas within meaningful landscape units that have high energy and/or mining activity.

7) Additional statistics for each defined unit may also include adjusting the area to only include area with the historic potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Key habitat degradation individual datasets and threat combination datasets will be available through BLM's EGIS Web Portal and Geospatial Gateway. Legacy datasets will be preserved, so that trends may be calculated.

C. Population (Demographics) Monitoring

State wildlife management agencies are responsible for monitoring sage-grouse populations within their respective states. WAFWA will coordinate this collection of annual population data by state agencies. These data will be made available to BLM through the Sage-grouse Implementation Memorandum of Understanding (2013) signed by WAFWA, BLM, USFS, NRCS, USGS, Farm Service Agency, and USFWS. An amendment to the MOU (2014) will outline a process, timeline, and responsibilities for regular data sharing of sage-grouse population and/or habitat information. The Landscape Conservation Management and Analysis Portal (LC MAP) will be used as the instrument for state wildlife agencies to annually submit population data and analyses

that will be accessed by the BLM through a data sharing agreement. Population areas were refined from the Greater Sage-grouse Conservation Objectives: Final Report (COT) report by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and inform the adaptive management responses.

D. Effectiveness Monitoring

Effectiveness monitoring will provide the information to evaluate BLM actions to reach the objective of the planning strategy (BLM IM 2012-044), to conserve sage-grouse populations and its habitat, and the objectives in the Miles City RMP. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this LUP. Effectiveness information used for these larger scale evaluations includes all-lands in the area of interest regardless of surface ownership/ management and will help inform where finer scale evaluations are needed such as population areas smaller than a LUP or PACs within a LUP (described in Section II). The information will also include the trend of disturbance within these areas of interest which informs the need to initiate adaptive management responses as described in the Miles City RMP.

Effectiveness monitoring reported for these larger areas provides the context to then conduct effectiveness monitoring at finer scales and helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines. These large area evaluations would not exclude the need for concurrent finer scale evaluations where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the sage-grouse planning strategy, the BLM will evaluate the answers to the following questions and prepare a broad and mid-scale effectiveness report:

1. Sagebrush Availability and Condition:

    a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
    b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre Euro-American historical distribution of sagebrush (BpS)?
    c. What is the trend and condition of the indicators describing sagebrush characteristics important to sage-grouse?

2. Habitat Degradation and Intensity of Activities:

    a. What is the amount of habitat degradation and the change in that amount?
    b. What is the intensity of activities and the change in the intensity?
    c. What is the amount of reclaimed energy-related degradation and the change in the amount?

3. What is the population estimation of sage-grouse and the change in the population estimation?
4. How are the BLM contributing to changes in the amount of sagebrush?
5. How are the BLM contributing to disturbance?

The compilation of broad and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule, which may be accelerated to respond to critical emerging issues (in consultation with USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and will be consistent with and inform the BLM adaptive management strategy (see Appendix H GRSG Adaptive Management).

To determine the effectiveness of the sage-grouse objectives of the Miles City RMP, the BLM will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the sage-grouse habitat objectives?
2. Are sage-grouse areas within the land use plan meeting, or making progress towards meeting, land health standards, including the Special Status Species/ wildlife habitat standard?
3. Is the plan meeting the disturbance objective(s) within sage-grouse areas?
4. Are the sage-grouse populations within this plan boundary and within the sage-grouse areas increasing, stable, or declining?

The effectiveness monitoring report for this LUP will occur on a 5-year reporting schedule (see Attachment A) or more often if habitat or population anomalies identify the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS Web Portal and the Geospatial Gateway.

Methods:
At the broad and mid- biological scales (PACs and above) the BLM will summarize the vegetation, disturbance, and population data (when available). Although the analysis will try to summarize results for PACs within each sage-grouse population, some populations may be too small to appropriately report the metrics and may need to be combined to provide an estimate with an acceptable level of accuracy or they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the sage-grouse areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas due to successful restoration; and the amount of new disturbance the BLM has permitted. This information could be supplemented with population data to understand the correlation between habitat and PACs within a population when population data are available. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will utilize the information from Measure 1a (Section B1, Sagebrush Availability) and calculate the change from the 2012 Baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (Section B1, Sagebrush Availability) will be utilized. To calculate the trend in the condition of sagebrush at the mid-scale, 3 sources of data will be utilized: the BLM Grass/Shrub mapping effort (Section B1, Future Plans); the results from the calculation of the landscape indicators such as patch size (described below); and the BLM Landscape Monitoring Framework (LMF) and sage-grouse intensification effort (also described below). The LMF and sage-grouse intensification effort data is collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to sage-grouse, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for sage-grouse dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid-scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid-scales will be utilized using the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with NRCS. The objective of the LMF effort is to provide non-biased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. Recognizing that sage-grouse populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of sage-grouse (Knick and Connelly 2011, Stiver et al. *in press*), a group of sage-grouse habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform sage-grouse habitat needs. The experts represented BLM, USFWS, WAFWA, NRCS, ARS, state wildlife agencies, and academia. The common indicators that were identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of sage-grouse,

additional plot locations in occupied sage-grouse habitat (Sage-grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS Rangeland Monitoring Survey.

The Sage-grouse Intensification baseline data will be collected over a 5 year period and an annual Sage-grouse Intensification report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report which will be available on an annual basis thereafter contingent upon continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the Planning Strategy Effectiveness Report.

Calculating Question 2, Planning Strategy Effectiveness: The amount of habitat degradation and the intensity of the activities in the area of interest will utilize the information from Measures 2 and 3 (Section B2, Habitat Degradation). The amount of reclaimed energy-related degradation will be collected by the FO on plugged and abandoned and oil/gas well sites. The data will demonstrate that the reclaimed sites have yet to meet the habitat restoration objectives for sage-grouse habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the Planning Strategy Effectiveness Report.

Calculating Question 3, Planning Strategy Effectiveness: The change in sage-grouse estimated populations will be calculated from data provided by the state wildlife agencies, when available. This population data (Section C, Population Monitoring) will be used to answer Question 3 of the Planning Strategy Effectiveness Report.

Calculating Question 4, Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of sagebrush in the area of interest will utilize the information from Measure 1a (Section B1, Sagebrush Availability).This measure is derived from the national data sets that remove sagebrush (Sagebrush Availability, Table 2). To determine the relative contribution of the BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in area of interest. This information will be used to answer Question 4 of the Planning Strategy Effectiveness Report.

Calculating Question 5, Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of disturbance in the area of interest will utilize the information from Measure 2a (Section B2, Habitat Degradation, Percent) and Measure 3 (Section B2, Habitat Degradation, Intensity). These measures are all derived from the national disturbance data sets that degrade habitat (Habitat Degradation, Table 2). To determine the relative contribution of the BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in area of interests. This information will be used to answer Question 5 of the Planning Strategy Effectiveness Report.

Answering the 5 questions that determine the effectiveness of the BLM Planning Strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence the objectives of the Planning Strategy to maintain populations and their habitats have been met. Conversely, where information indicates sagebrush is decreasing and vegetation conditions are degrading, disturbance in sage-grouse areas is increasing, and populations are declining relative to the baseline, there is evidence the objectives of the Planning Strategy are not being achieved. This would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

At the Land Use Plan area, the BLM will summarize the vegetation, disturbance, and population data to determine if the LUP is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM surface management areas and will help inform where finer scale evaluations are needed such as seasonal habitats, corridors, or linkage areas. The information should also include the trend of disturbance within the sage-grouse areas which informs the need to initiate adaptive management responses as described in the ROD/ARMP.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting Land Health Standards in sage-grouse areas will both be used as part of the determination of the effectiveness of the LUP in meeting the vegetation objectives in sage-grouse habitat set forth in this LUP. The collection of this data will be the responsibility of the Field Office. In order for this data to be consistent and comparable, common indicators, consistent methods, and a nonbiased sampling framework should be implemented following the principles in the AIM Strategy (Toevs, et al, BLM TN 440 BLM Core Indicators and Methods), in the BLM Technical Reference Interpreting Indicators of Rangeland Health (Pellant et al. 2005), and the HAF (Stiver et al. in press) or other approved WAFWA MZ consistent guidance to measure and monitor sage-grouse habitats. The analysis of this information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: The amount of habitat disturbance in sage-grouse areas identified in this LUP will be used as part of the determination of the effectiveness of the LUP in meeting the disturbance objectives set forth in this LUP. National data sets can be used to calculate the amount of disturbance, but Field Office data will likely increase the accuracy of this estimate. This information will be used to answer Question 2 of the Land Use Plan Effectiveness Report.

Calculating Question 3, Land Use Plan Effectiveness: The change in estimated sage-grouse populations will be calculated from data provided by the state wildlife agencies, when available and will part of the determination of effectiveness. This population data (Section C, Population Monitoring) will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the land use plan will be used to inform the need for finer scales investigations, initiate Adaptive Management actions as described in the ROD/ARMP, initiate causation determination, and/or determine if changes to management decisions are warranted. The measures used at the broad and mid-scales will provide a suite of characteristics from which the effectiveness of the adaptive management strategy will be evaluated.

II. FINE AND SITE SCALES

Fine scale (third order) habitat selected by sage-grouse is described as the physical and geographic area within home ranges including breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect sage-grouse use of, and movements between, seasonal use areas. The habitat monitoring at fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for sage-grouse associated with a lek, or lek group within a population or subpopulation area. Fine and site scale monitoring should inform LUP effectiveness monitoring (see Section D, Effectiveness Monitoring) and the hard and soft triggers identified in the Adaptive Management section of the land use plan.

Site-scale habitat selected by sage-grouse is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of sagebrush and the associated understory vegetation as well as vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support sage-grouse habitat needs during different stages in their annual cycle.

As described in the Conclusion (Section III), details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan for the ROD/ARMP. The need for fine and site-scale specific habitat monitoring will vary by area depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine and site-scale monitoring include: habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluating the success of projects targeting sage-grouse habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM AIM Strategy (Toevs, et. al., 2011) and AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy (Taylor, et.al., *in press*). Approved monitoring methods are:

- BLM Core Terrestrial Indicators and Methods, (MacKinnon, et. al, 2011);
- BLM Technical Reference Interpreting Indicators of Rangeland Health (Pellant et al. 2005); and
- Sage-Grouse Habitat Assessment Framework.

Other state-specific disturbance tracking models include: the BLM Wyoming Density and Disturbance Calculation Tool (http://ddct.wygisc.org/); and the BLM White River Data Management System (WRDMS) in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine and site scale sage-grouse habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) sage-grouse guidelines as well as many of the core indicators in the assessment, inventory and monitoring (AIM) strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF and any such adjustments should be ecologically defensible. However, to foster consistency, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for doing so and that justification should be provided. WAFWA MZ adjustments must be supported by regional plant productivity and habitat data for the floristic province. If adjustments are made to the site scale indicators they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from sage-grouse studies found in the relevant area and peer reviewed by the appropriate wildlife management agency(s) and researchers.

When conducting land heath assessments, at a minimum, the BLM should follow Interpreting Indicators of Rangeland Health (Pellant, et. al., 2005) and the BLM Core Terrestrial Indicators and Methods, (MacKinnon, et. al, 2011). If the assessment is being conducted in sage-grouse areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and roll-up analysis among management units; will be useful to provide consistent data to inform the classification and interpretation of imagery; and will provide condition and trend of the indicators describing sagebrush characteristics important to sage-grouse habitat (see Section D, Effectiveness Monitoring).

III. CONCLUSION

This Greater Sage-grouse Monitoring Framework was developed for the PRMP/FEIS (BLM 2015). As such, it describes the monitoring activities at the broad and mid-scales and sets the stage for BLM to collaborate with partners/other agencies to develop the Miles City RMP Monitoring Plan using this Greater Sage-grouse Monitoring Framework as a guide.

IV. THE GREATER SAGE-GROUSE DISTURBANCE AND MONITORING SUB-TEAM MEMBERSHIP

Gordon Toevs (BLM -WO)
Duane Dippon (BLM-WO)
Frank Quamen (BLM-NOC)
David Wood (BLM-NOC)
Vicki Herren (BLM-NOC)
Matt Bobo (BLM-NOC)
Michael “Sherm” Karl (BLM-NOC)
Emily Kachergis (BLM-NOC)
Doug Havlina (BLM-NIFC)
Mike Pellant (BLM-GBRI)
John Carlson (BLM-MT)
Jenny Morton (BLM -WY)
Robin Sell (BLM-CO)
Paul Makela (BLM-ID)
Renee Chi (BLM-UT)
Sandra Brewer (BLM-NV)
Glenn Frederick (BLM-OR)
Robert Skorkowsky (USFS)
Dalinda Damm (USFS)
Rob Mickelsen (USFS)
Tim Love (USFS)
Pam Bode (USFS)
Lief Wiechman (USFWS)
Lara Juliusson (USFWS)

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ATTACHMENT A: AN OVERVIEW OF MONITORING COMMITMENTS

	Broad and Mid-scales					Fine & Site Scales
	Implement-ation	**Sagebrush Availability**	**Habitat Degradation**	**Population**	**Effectiveness**	
How will the data be used?	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to sage-grouse habitat and inform adaptive management	Tracking trends in sage-grouse populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
Who is collecting the data?	BLM FO	NOC and NIFC	National data sets (NOC), BLM FOs as applicable	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, (with partners) including disturbance
How often are the data collected, reported and made available to USFWS?	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with LUP evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
What is the spatial scale?	Summarized by LUP with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ, and LUP with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
What are the potential personnel and budget impacts?	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data mgmt cost are TBD	At a minimum, current skills and capacity must be maintained; data mgmt and data layer purchase cost are TBD	No additional personnel or budget impacts for BLM	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment
Who has primary and secondary responsibilities for reporting?	1) BLM FO & SO 2) BLM	1) NOC 2) WO	1) NOC 2) BLM SO	1) WAFWA & state wildlife agencies 2) BLM SO, NOC	1) Broad and mid-scale at the NOC, LUP at BLM SO	1) BLM FO 2) BLM SO
What new processes/ tools are needed?	National implementation data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

ATTACHMENT B: LIST OF ALL SAGEBRUSH SPECIES AND SUBSPECIES INCLUDED IN THE SELECTION CRITERIA FOR BUILDING THE EVT AND BPS LAYERS

- *Artemisia arbuscula* subspecies *longicaulis*
- *Artemisia arbuscula* subspecies *longiloba*
- *Artemisia bigelovii*
- *Artemisia nova*
- *Artemisia papposa*
- *Artemisia pygmaea*
- *Artemisia rigida*
- *Artemisia spinescens*
- *Artemisia tripartita* subspecies *rupicola*
- *Artemisia tripartita* subspecies *tripartita*
- *Tanacetum nuttallii*
- *Artemisia cana* subspecies *bolanderi*
- *Artemisia cana* subspecies *cana*
- *Artemisia cana* subspecies *viscidula*
- *Artemisia tridentata* subspecies *wyomingensis*
- *Artemisia tridentata* subspecies *tridentata*
- *Artemisia tridentata* subspecies *vaseyana*
- *Artemisia tridentata* subspecies *spiciformis*
- *Artemisia tridentata* subspecies *xericensis*
- *Artemisia tridentata* variety *pauciflora*
- *Artemisia frigida*
- *Artemisia pedatifida*

ATTACHMENT C: USER AND PRODUCER ACCURACIES FOR AGGREGATED ECOLOGICAL SYSTEMS WITHIN LANDFIRE MAP ZONES

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
Snake River Plain	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0% user and producer accuracies attributable to no available reference data for the ecological systems of interest.

Producer's accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? ***Omission Error*** equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 - producers accuracy).

User's accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? ***Commission Error*** equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 – user's accuracy).

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APPENDIX E
GRSG DISTURBANCE CAP

APPENDIX E
GREATER SAGE-GROUSE (GRSG) DISTURBANCE CAP

INTRODUCTION

In the USFWS's 2010 listing decision for sage-grouse, the USFWS identified 18 threats contributing to the destruction, modification, or curtailment of the sage-grouse's habitat or range (75 FR 13910 2010. The 18 threats have been aggregated into three measures:

Sagebrush Availability (percent of sagebrush per unit area)
Habitat Degradation (percent of human activity per unit area)
Density of Energy and Mining (facilities and locations per unit area)

Habitat Degradation and Density of Energy and Mining will be evaluated under the Disturbance Cap and Density Cap respectively and are further described in this appendix. The three measures, in conjunction with other information, will be considered during the NEPA process for projects authorized or undertaken by the BLM.

Disturbance Cap:

This land use plan has incorporated a 3% anthropogenic disturbance cap within Greater Sage-Grouse (GRSG) Priority Habitat Management Areas (PHMAs) and the subsequent land use planning actions if the cap is met:

> *If the 3% anthropogenic disturbance cap is exceeded on lands (regardless of land ownership) within GRSG Priority Habitat Management Areas (PHMA) in any given Biologically Significant Unit (BSU), then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the 1872 hard rock mining law, valid existing rights, etc.) will be permitted by BLM within GRSG PHMAs in any given BSU until the disturbance has been reduced to less than the cap.*
>
> *If the 3% disturbance cap is exceeded on all lands (regardless of land ownership) or if anthropogenic disturbance and habitat loss associated with conversion to agricultural tillage or fire exceed 5% within a proposed project analysis area in a Priority Habitat Management Areas, then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the 1872 Mining Law, valid existing rights, etc.) will be permitted by BLM within PHMA in a project analysis area until the disturbance in has been reduced to less than the cap. If the BLM determines that the State of Montana has adopted a GRSG Habitat Conservation Program that contains comparable components to those found in the State of Wyoming's Core Area Strategy including an all lands approach for calculating anthropogenic disturbances, a clear methodology for measuring the density of operations, and a fully operational Density Disturbance Calculation Tool, the 3% disturbance cap will be converted to a 5% cap for all sources of habitat alteration within a project analysis area.*

The disturbance cap applies to the PHMA within both the Biologically Significant Units (BSU) and at the project authorization scale. For the BSUs, west-wide habitat degradation (disturbance) data layers (Table 1) will be used at a minimum to calculate the amount of disturbance and to determine if the disturbance cap has been exceeded as the land use plans (LUP) are being implemented. Locally collected disturbance data will be used to determine if the disturbance cap has been exceeded for project authorizations, and may also be used to calculate the amount of disturbance in the BSUs.

TABLE 1.
ANTHROPOGENIC DISTURBANCE TYPES FOR DISTURBANCE CALCULATIONS. DATA SOURCES ARE DESCRIBED FOR THE WEST-WIDE HABITAT DEGRADATION ESTIMATES (TABLE COPIED FROM THE GRSG MONITORING FRAMEWORK)

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Enforcement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0ha)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7ft (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0ft (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2ft (73.2m)	USGS
Infrastructure (railroads)	Active Lines	Federal Railroad Administration	30.8ft (9.4m)	USGS
Infrastructure (power lines)	1-199kV Lines	Platts (transmission lines)	100ft (30.5m)	BLM WO-300
	200-399 kV Lines	Platts (transmission lines)	150ft (45.7m)	BLM WO-300
	400-699kV Lines	Platts (transmission lines)	200ft (61.0m)	BLM WO-300
	700+kV Lines	Platts (transmission lines)	250ft (76.2m)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5ac (1.0ha)	BLM WO-300

Although locatable mine sites are included in the degradation calculation, mining activities under the 1872 mining law may not be subject to the 3% disturbance cap. Details about locatable mining activities will be fully disclosed and analyzed in the NEPA process to assess impacts to sage-grouse and their habitat as well as to BLM goals and objectives, and other BLM programs and activities.

Formulas for calculations of the amount of disturbance in the PHMA in a BSU and or in a proposed project area are as follows:

- For the BSUs:

  % Degradation Disturbance = (combined acres of the 12 degradation threats[1]) ÷ (acres of all lands within the PHMAs in a BSU) x 100. **([1]see Table 1)**

- For the Project Analysis Area:

  % Degradation Disturbance = (combined acres of the 12 degradation threats[1] plus the 7 site scale threats[2] and acres of habitat loss[1]) ÷ (acres of all lands within the PHMA in the project analysis area) x 100 **([1]see Table 1; [2]see Table 2).**

TABLE 2.
THE SEVEN SITE SCALE FEATURES CONSIDERED THREATS TO SAGE-GROUSE INCLUDED IN THE DISTURBANCE CALCULATION FOR PROJECT AUTHORIZATIONS

1. **Coalbed Methane Ponds**
2. **Meteorological Towers**
3. **Nuclear Energy Facilities**
4. **Airport Facilities and Infrastructure**
5. **Military Range Facilities & Infrastructure**
6. **Hydroelectric Plants**
7. **Recreation Areas Facilities and Infrastructure**

Definitions:

1. Coalbed Methane and other Energy-related Retention Ponds – The footprint boundary will follow the fenceline and includes the area within the fenceline surrounding the impoundment. If the pond is not fenced, the impoundment itself is the footprint. Other infrastructure associated with the containment ponds (roads, well pads, etc.) will be captured in other disturbance categories.

2. Meteorological Towers – This feature includes long-term weather monitoring and temporary meteorological towers associated with short-term wind testing. The footprint boundary includes the area underneath the guy wires.

3. Nuclear Energy Facilities – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.

4. Airport Facilities and Infrastructure (public and private) –The footprint boundary of will follow the boundary of the airport or heliport and includes mowed areas, parking lots, hangers, taxiways, driveways, terminals, maintenance facilities, beacons and related features. Indicators of the boundary, such as distinct land cover changes, fences and perimeter roads, will be used to encompass the entire airport or heliport.

5. Military Range Facilities & Infrastructure – The footprint boundary will follow the outer edge of the disturbed areas around buildings and includes undisturbed areas within the facility's perimeter.

6. Hydroelectric Plants – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.

7. Recreation Areas & Facilities – This feature includes all sites/facilities larger than 0.25 acres in size. The footprint boundary will include any undisturbed areas within the site/facility.

The denominator in the disturbance calculation formula consists of all acres of lands classified as PHMA within the analysis area (BSU or project area). Areas that are not sage-grouse seasonal habitats, or are not currently supporting sagebrush cover (e.g., due to wildfire), are not excluded from the acres of PHMA in the denominator of the formula. Information regarding sage-grouse seasonal habitats, sagebrush availability, and areas with the potential to support sage-grouse populations will be considered along with other local conditions that may affect sage-grouse during the analysis of the proposed project area.

Density Cap:

This land use plan has also incorporated a cap on the density of energy and mining facilities at an average of one facility per 640 acres in the PHMA in a project authorization area. If the disturbance density in the PHMA in a proposed project area is on average less than [1] facility per 640 acres, the analysis will proceed through the NEPA process incorporating mitigation measures into an alternative. If the disturbance density is greater than an average of 1 facility per 640 acres, the proposed project will either be deferred until the density of energy and mining facilities is less than the cap or co-located it into existing disturbed area (subject to applicable laws and regulations, such as the 1872 Mining Law, valid existing rights, etc.). Facilities included in the density calculation (Table 3) are:

- Energy (oil and gas wells and development facilities)
- Energy (coal mines)
- Energy (wind towers)
- Energy (solar fields)
- Energy (geothermal)
- Mining (active locatable, leasable, and saleable developments).

Project Analysis Area Method for Permitting Surface Disturbance Activities:

- Determine potentially affected occupied leks by placing a four mile boundary around the proposed area of physical disturbance related to the project. All occupied leks located within the four mile project boundary and within PHMA will be considered affected by the project.
- Next, place a four mile boundary around each of the affected occupied leks.
- The PHMA within the four mile lek boundary and the four mile project boundary creates the project analysis area for each individual project. If there are no occupied leks within the four-mile project boundary, the project analysis area will be that portion of the four-mile project boundary within the PHMA.
- Digitize all existing anthropogenic disturbances identified in Table 1, the 7 additional features that are considered threats to sage-grouse (Table 2), and areas of sagebrush loss. Using 1 meter resolution NAIP imagery is recommended. Use existing local data if available.
- Calculate percent existing disturbance using the formula above. If existing disturbance is less than 3% anthropogenic disturbance or 5% total disturbance, proceed to next step. If existing disturbance is greater than 3% anthropogenic disturbance or 5% total disturbance, defer the project.
- Add proposed project disturbance footprint area and recalculate the percent disturbance. If disturbance is less than 3% anthropogenic disturbance or 5% total disturbance, proceed to next step. If disturbance is greater than 3% anthropogenic disturbance or 5% total disturbance, defer project.
- Calculate the disturbance density of energy and mining facilities (listed above). If the disturbance density is less than 1 facility per 640 acres, averaged across project analysis area, proceed to the NEPA analysis incorporating mitigation measures into an alternative. If the disturbance density is greater than 1 facility per 640 acres, averaged across the project analysis area, either defer the proposed project or co-locate it into existing disturbed area.
- If a project that would exceed the degradation cap or density cap cannot be deferred due to valid existing rights or other existing laws and regulations, fully disclose the local and regional impacts of the proposed action in the associated NEPA.

TABLE 3.
RELATIONSHIP BETWEEN THE 18 THREATS AND THE THREE HABITAT DISTURBANCE MEASURES FOR MONITORING AND DISTURBANCE CALCULATIONS

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Energy and Mining Density
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and saleable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights-of-way		X	

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APPENDIX F
GRSG REGIONAL MITIGATION STRATEGY

APPENDIX F
GRSG REGIONAL MITIGATION STRATEGY

INTRODUCTION

In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Mitigation will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g. avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e. residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation (see Glossary).

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the NEPA decision making process including the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. A robust and transparent Regional Mitigation Strategy will contribute to greater sage-grouse habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts to greater sage-grouse and its habitat.

The BLM's Regional Mitigation Manual MS-1794 serves as a framework for developing and implementing a Regional Mitigation Strategy. The following sections provide additional guidance specific to the development and implementation of a WAFWA Management Zone Regional Mitigation Strategy.

Developing a WAFWA Management Zone Regional Mitigation Strategy

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy to guide the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. The Strategy should consider any State-level greater sage-grouse mitigation guidance that is consistent with the requirements identified in this Appendix. The Regional Mitigation Strategy should be developed in a transparent manner, based on the best science available and standardized metrics.

As described in Chapter 2 of the PRMP/FEIS (BLM 2015), the BLM will establish a WAFWA Management Zone Greater Sage-Grouse Conservation Team (hereafter, Team) to help guide the conservation of greater sage-grouse, within 90 days of the issuance of the ROD/ARMP. The Strategy will be developed within one year of the issuance of the ROD/ARMP.

The Regional Mitigation Strategy should include mitigation guidance on avoidance, minimization, and compensation, as follows:

Avoidance

Include avoidance areas (e.g. right-of-way avoidance/exclusion areas, no surface occupancy areas) already included in laws, regulations, policies, and/or land use plans (e.g. Resource Management Plans, Forest Plans, State Plans); and,

Include any potential, additional avoidance actions (e.g. additional avoidance best management practices) with regard to greater sage-grouse conservation.

Minimization

Include minimization actions (e.g. required design features, best management practices) already included in laws, regulations, policies, land use plans, and/or land-use authorizations; and,

Include any potential, additional minimization actions (e.g. additional minimization best management practices) with regard to greater sage-grouse conservation.

Compensation

Include discussion of impact/project valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and program administration. Each of these topics is discussed in more detail below.

Residual Impact and Compensatory Mitigation Project Valuation Guidance

A common standardized method should be identified for estimating the value of the residual impacts and value of the compensatory mitigation projects, including accounting for any uncertainty associated with the effectiveness of the projects.

This method should consider the quality of habitat, scarcity of the habitat, and the size of the impact/project. For compensatory mitigation projects, consideration of durability (see glossary), timeliness (see glossary), and the potential for failure (e.g. uncertainty associated with effectiveness) may require an upward adjustment of the valuation.

The resultant compensatory mitigation project will, after application of the above guidance, result in proactive conservation measures for Greater Sage-grouse (consistent with BLM Manual 6840 – Special Status Species Management, section .02).

Compensatory Mitigation Options

Options for implementing compensatory mitigation should be identified, such as:

- Utilizing certified mitigation/conservation bank or credit exchanges.
- Contributing to an existing mitigation/conservation fund.
- Authorized-user conducted mitigation projects.

For any compensatory mitigation project, the investment must be additional (i.e. additionality: the conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project).

Compensatory Mitigation Siting

Sites should be in areas that have the potential to yield a net conservation gain to the greater sage-grouse, regardless of land ownership.

Sites should be durable. (see Glossary)

Sites identified by existing plans and strategies (e.g. fire restoration plans, invasive species strategies, healthy land focal areas) should be considered, if those sites have the potential to yield a net conservation gain to greater sage-grouse and are durable.

Compensatory Mitigation Project Types and Costs

Project types should be identified that help reduce threats to greater sage-grouse (e.g. protection, conservation, and restoration projects).

Each project type should have a goal and measurable objectives.

Each project type should have associated monitoring and maintenance requirements, for the duration of the impact.

To inform contributions to a mitigation/conservation fund, expected costs for these project types (and their monitoring and maintenance), within the WAFWA Management Zone, should be identified.

Compensatory Mitigation Compliance and Monitoring

Mitigation projects should be inspected to ensure they are implemented as designed, and if not, there should be methods to enforce compliance.

Mitigation projects should be monitored to ensure that the goals and objectives are met and that the benefits are effective for the duration of the impact.

Compensatory Mitigation Reporting

Standardized, transparent, scalable, and scientifically-defensible reporting requirements should be identified for mitigation projects.

Reports should be compiled, summarized, and reviewed in the WAFWA Management Zone in order to determine if greater sage-grouse conservation has been achieved and/or to support adaptive management recommendations.

Compensatory Mitigation Program Implementation Guidelines

Guidelines for implementing the State-level compensatory mitigation program should include holding and applying compensatory mitigation funds, operating a transparent and credible accounting system, certifying mitigation credits, and managing reporting requirements.

Incorporating the Regional Mitigation Strategy into NEPA Analyses

The BLM will include the avoidance, minimization, and compensatory recommendations from the Regional Mitigation Strategy in one or more of the NEPA analysis' alternatives for BLM management actions and third party actions that result in habitat loss and degradation and the appropriate mitigation actions will be carried forward into the decision.

Implementing a Compensatory Mitigation Program

The BLM needs to ensure that compensatory mitigation is strategically implemented to provide a net conservation gain to the species, as identified in the Regional Mitigation Strategy. In order to align with existing compensatory mitigation efforts, this compensatory mitigation program will be managed at a State-level (as opposed to a WAFWA Management Zone or a Field Office), in collaboration with our partners (e.g. Federal, Tribal, and State agencies).

To ensure transparent and effective management of the compensatory mitigation funds, the BLM will enter into a contract or agreement with a third-party to help manage the State-level compensatory mitigation funds, within one year of the issuance of the ROD/ARMP. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM will remain responsible for making decisions that affect BLM-administered lands.

Glossary Terms

Additionality: The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (Adopted and modified from BLM Manual Section 1794).

Avoidance mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20(a)) (e.g. may also include avoiding the impact by moving the proposed action to a different time or location.)

Compensatory mitigation: Compensating for the (residual) impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Compensatory mitigation projects: The restoration, creation, enhancement, and/or preservation of impacted resources (adopted and modified from 33 CFR 332), such as on-the-ground actions to improve and/or protect habitats (e.g. chemical vegetation treatments, land acquisitions, conservation easements). (Adopted and modified from BLM Manual Section 1794).

Compensatory mitigation sites: The durable areas where compensatory mitigation projects will occur. (Adopted and modified from BLM Manual Section 1794).

Durability (protective and ecological): the maintenance of the effectiveness of a mitigation site and project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations. (Adopted and modified from BLM Manual Section 1794).

Minimization mitigation: Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR 1508.20 (b))

Residual impacts: Impacts that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Timeliness: The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

APPENDIX G
MINERALS STIPULATIONS

APPENDIX G
MINERALS STIPULATIONS

LEASE STIPULATIONS

Certain resources in the planning area require protection from impacts associated with oil and gas activities. The specific resource and the method of protection are contained in lease stipulations. Lease stipulations are usually NSO, CSU, or Timing Limitation (Seasonal Restriction). A notice may also be included with a lease to provide guidance regarding resources or land uses.

NO SURFACE OCCUPANCY

Use or occupancy of the surface land for fluid mineral extraction or development is prohibited in order to protect identified resource values. The NSO stipulation includes stipulations which may have been worded as "No Surface Use and Occupancy," "No Surface Disturbance," "Conditional No Surface Occupancy" and "Surface Disturbance or Occupancy Restriction (by location)."

CONTROLLED SURFACE USE

Use or occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. A CSU stipulation is used for operating guidance, not as a substitute for the NSO or Timing stipulations.

TIMING LIMITATION (SEASONAL RESTRICTION)

Surface use is prohibited during specified times to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

LEASE NOTICE

Additional information can be provided to the lessee in the form of a lease notice. This notice does not place restrictions on lease operation, but does provide information about applicable laws and regulations and the requirements for additional information to be supplied by the lessee.

IMPLEMENTATION OF WAIVERS, EXCEPTIONS, OR MODIFICATIONS

To ensure leasing decisions remain appropriate in light of continually changing circumstances and new information, the BLM develops and applies lease stipulation WEM criteria. WEMs provide an effective means of applying adaptive management techniques to multiple use activities to meet changing circumstances in land use planning. The goals and objectives for approval of WEMs are supported either by the NEPA analysis in the RMP planning process or by site-specific environmental review.

- A **waiver** is a permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.
- An **exception** is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.
- A **modification** is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

Applying a Waiver, Exception, or Modification to a Stipulation on an Existing Lease or Project

Once the lease or project is issued, the following process is used if:

- the WEM criteria were analyzed and are specified in the RMP;
- the criteria have been met; and
- there is no significant new information bearing on the environmental effects (see BLM H-1790-1, Chapter III, Using Existing Environmental Analysis; and 2007 Onshore Oil and Gas Order Number 1, XI. Waivers, Exceptions, or Modifications [BLM and USFS 2007a]).

The AO generally requires the project proponent to submit a written request for a WEM as well as information demonstrating that:

- the factors leading to the inclusion of the stipulation have changed sufficiently to make the protection provided by the management stipulation no longer justified; or
- the proposed operation would not cause unacceptable impacts. Requests from the operator should contain, at a minimum, a plan (including related on- or off-site mitigation efforts) to adequately protect affected resources; data collection and monitoring efforts; and timeframes for initiation and completion of construction, drilling, and completion operations. The operator's request may be included in an APD, NOS, Sundry Notice, or letter. The BLM may also proactively initiate the process.

During the review process, BLM coordinates with other state or federal agencies as appropriate, and documented. For example, it may be appropriate to coordinate the review of wildlife WEMs with the local office of the state wildlife agency. The BLM will also consult with the federal surface management agency (if it is an agency other than the BLM).

In areas where oil and gas development may conflict with other resources, the areas may be closed to leasing in accordance with decisions made from this document. Regulations at part 43 CFR 3100.0-3(d); the Secretary's general authority to prevent the waste and dissipation of public property; and the Attorney General's Opinion of April 2, 1941 (Vol. 40 Op. Atty. Gen 41) allow the BLM to lease lands that are otherwise unavailable for leasing if oil and gas is being drained from such lands. If the unavailable lands were under the jurisdiction of another agency, leasing of such lands would only occur following consultation, and consent if necessary, from the surface management agency.

Unavailable lands would be leased only if a state or private well is proposed or completed within the same spacing unit, or if the lands are within a unit agreement. These lands would be leased with an NSO stipulation without WEM provisions. There would only be a paper transaction with no physical impacts on the unavailable lands. There would be no exploration or development (drilling or production) within the unavailable lands. After issuance of a lease, the lease would be committed to a communitization agreement or unit agreement and the United States would then receive revenue according to terms of the agreement.

The BLM will analyze and document how the WEM is in conformance with the land use plan and identify the plan decision (including goals, objectives, or desired outcomes) supported by the proposed WEM. If existing NEPA analysis does not support the WEM, the BLM must conduct the appropriate environmental review and NEPA analysis. If the proposed WEM is not in conformance with the land use plan or that document does not disclose the conditions under which such proposed change would be allowed, BLM must either amend the plan or deny the WEM.

The applicant is then provided with a written notification of the decision. Decisions on WEMs are subject to administrative review by the State Director and thereafter may be appealed to the IBLA pursuant to 43 CFR Part 4. However, decisions on WEMs submitted by the operator after drilling has commenced are final for the Department of the Interior and not subject to administrative review by the State Director or appeal pursuant to 43 CFR Part 4.

After the project has commenced, the BLM may consider verbal requests for, and grant verbal approvals of, WEMs. However, the operator must submit a written notice within 7 days following the verbal request. The

BLM must also confirm verbal approvals in writing. For minerals, this requirement is provided for in Onshore Oil and Gas Order No. 1 (BLM and USFS 2007a).

Adding, Deleting, or Modifying an Existing Leasing Decision or Stipulation in the Land Use Plan

It may be necessary to add, delete, or modify management stipulations as a result of lease parcel reviews, statewide lease stipulation consistency reviews, plan amendments, changed circumstances on the ground, or changed resource protection priorities. This is accomplished and documented through either the plan maintenance or the plan amendment process, which are explained below.

Management stipulations changed through plan maintenance do not generally require public notification. Plan maintenance is easily documented in an RMP Plan Maintenance Tracking Log or other tracking system. Changes made through the more involved RMP amendment process require public notification as part of the plan amendment process. Public review of at least 30 days must also be provided for any waiver or modification of a management stipulation that involved an issue of major concern to the public.

The guidance provided in the Land Use Planning Handbook H-1601-1, Section VI (H), Maintenance and Section VII (B), Amendment, further explains how and when management stipulations may be added, deleted, or modified.

PUBLIC NOTIFICATION

Public notification (30-day public review) is generally not required for exceptions because exceptions are seldom a substantial modification or waiver of a lease term or management stipulation (43 CFR 3101.1-4), particularly if the exception criteria is outlined in the lease or the land use plan. Public review is not required for waivers or modifications that the AO determines not to be substantial and do not substantially waive or modify the terms of the lease. “Substantial” in this case would include the waiver or modification having a “substantial” effect on the environment that was not previously considered. However, the applicable land use plan may contain additional notification requirements. The public notice, if required, should include identification of the modified lease terms and a description or map of the affected lands.

When public notice is appropriate, the procedures described below may apply.

- For approval of a WEM with the APD, Sundry Notice, or NOI approval:
    - a notice describing the modified lease terms, when required, may be posted for 30 days in the BLM office;
    - posted on the BLM website;
    - posted in a local paper as a legal notice or incorporated into a newspaper article; or
    - the notice may be included as part of the NEPA document’s public review (if the NEPA document is offered for review).
- For approval after the APD, Sundry Notice, or NOI has been approved:
    - public notice, if required, may take the form of a 30-day posting on the BLM website;
    - a legal notice or article in the newspaper; or
    - a notice and associated public review conducted as part of the public review of a NEPA document.

Unless specified in the RPD/ARMP, it is unlikely public notification will be necessary for approval after project action or mineral drilling has commenced.

The process for adding, deleting, or modifying an existing leasing decision or management stipulation in the land use plan does not usually require a public review if the change occurs through the maintenance; however, the process might include a public review if the change occurs through amendment. The guidance provided in

the Land Use Planning Handbook H-1601-1, Section VI (H), Maintenance, and Section VII (B), Amendment, further explains how and when leasing decisions or stipulations may be added, deleted, or modified in the RMP.

OIL AND GAS LEASE STIPULATIONS

NO SURFACE OCCUPANCY

Resource – Makoshika State Park

- Stipulation – Surface occupancy and use is prohibited within Makoshika State Park.
- Objective – To maintain the recreation, visual, sensitive soil, paleontological, and cultural values within the area.
- Exception – None
- Modification – None
- Waiver – None

Resource – Coal

- Stipulation – Surface occupancy and use is prohibited within existing coal leases with approved mining plans.
- Objective – To protect existing coal leases with approved mining plans.
- Exception – An exception may be granted by the AO if the operator submits a plan of operations (PO) that is compatible with existing or planned coal mining operations and approved by all affected parties.
- Modification – The area affected by this stipulation can be modified by the AO if it is determined that portions of the area are not needed for existing or planned mining operations or where mining operations have been completed and the modification is approved by all affected parties.
- Waiver – This stipulation can be waived by the AO if it is determined that all coal lease operations within the leasehold have been completed or the lease is terminated, canceled, or relinquished.

Resource – Visual Resource Management (VRM) Class I

- Stipulation – Surface occupancy and use is prohibited in VRM Class I areas (for example, wild and scenic rivers or WSAs).
- Objective –To preserve the existing character of the landscape.
- Exception – None.
- Modification – None.
- Waiver – None.

Resource – Cultural Areas of Critical Environmental Concern (ACECs)

- Stipulation – Surface occupancy and use is prohibited within designated ACECs, including the Big Sheep Mountain, Hoe, Jordan Bison Kill, Powder River Depot, and Seline cultural ACECs.
- Objective – To protect those cultural properties for which the site or area was designated (including the Big Sheep Mountain, Hoe, Jordan Bison Kill, Powder River Depot, and Seline Cultural ACECs).
- Exception – An exception to this stipulation may be granted by the AO if the lessee or operator submits a plan that demonstrates that the cultural resource values that formed the basis for designation will not be affected or that adverse impacts are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified if the AO determines that portions of the designated site or area can be occupied without adversely affecting the cultural resource values for which the site or area was designated.
- Waiver – This stipulation can be waived if the AO determines that all designated sites or areas within the leasehold can be occupied without adversely affecting the cultural resource values for which such sites or areas were designated or all designated sites or areas within the leasehold are allocated for other uses.

Resource – Paleontological ACECs

- Stipulation – Surface occupancy and use is prohibited within designated paleontological localities (including the Ash Creek Divide, Hell Creek, Sand Arroyo, and Bug Creek ACECs).
- Objective – To protect significant paleontological localities.
- Exception – An exception to this stipulation may be granted by the AO if the lessee or operator submits a plan that demonstrates that the paleontological resource values that formed the basis for designation are not affected or adverse impacts are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified if the AO determines that portions of the designated locality can be occupied without adversely affecting the paleontological resource values for which the locality was designated or the boundaries of the designated locality are changed.
- Waiver – This stipulation can be waived if the AO determines that all designated localities within the leasehold can be occupied without adversely affecting the paleontological resource values for which the localities were designated or all designated localities within the leasehold are allocated for other uses.

Resource – Finger Buttes ACEC

- Stipulation – Surface occupancy and use is prohibited in the Finger Buttes ACEC.
- Objective – To help control the visual impacts of activities and facilities and to help meet the visual quality objectives for the area.
- Exception – An exception to this stipulation may be granted by the AO if the lessee or operator submits a plan where BLM determines the scenic values for which the area was designated are not affected or adverse impacts can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified if the AO determines that portions of designated area can be occupied without adversely affecting the scenic values for which the area was designated.
- Waiver – This stipulation can be waived if the AO determines that areas within the leasehold can be occupied without adversely affecting the scenic values for which the area was designated.

Resource – Smoky Butte ACEC

- Stipulation – Surface occupancy and use is prohibited in the Smoky Butte area.
- Objective – To protect the local and regional scenic values, historic values, and unique geologic values and to protect the special geologic values of the area.
- Exception – An exception to this stipulation may be granted by the AO if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified by the AO if the boundaries of the ACEC are changed.
- Waiver – This stipulation can be waived by the AO if the area can be occupied without adversely affecting the scenic, historic, and cultural values.

Resource – Badlands, Rock Outcrop

- Stipulation – Surface occupancy and use is prohibited on badlands and rock outcrop.
- Objective – To prevent excessive soil erosion and to avoid disturbing areas subject to potential reclamation problems.
- Exception – The AO may not grant exceptions to this stipulation.
- Modification – The AO may modify the area affected by this stipulation if it is determined that portions of the leasehold do not include these types of areas.
- Waiver – The AO may waive this stipulation if it is determined that the entire leasehold does not include these types of areas.

Resource – Streams, Waterbodies, Riparian, Wetland, and Floodplains

- Stipulation – Surface occupancy and use is prohibited within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas.
- Objective – To protect the unique biological and hydrological features and functions associated with perennial and intermittent streams, lakes, ponds, reservoirs, floodplains, wetlands, and riparian areas.
- Exception – No exceptions would be allowed in streams, natural lakes, or wetlands. An exception may be granted by the AO for riparian areas, floodplains, and artificial ponds or reservoirs if the operator can demonstrate that:
    - there are no practicable alternatives to locating facilities in these areas,
    - the proposed actions would maintain or enhance resource functions, and
    - all reclamation goals and objectives would be met.
- Modification – The AO may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include these types of areas.
- Waiver – The AO may waive this stipulation if it is determined that the entire leasehold does not include these types of areas.

Resource – Source Water Protection Areas

- Stipulation – Surface occupancy and use is prohibited within State-designated Source Water Protection Areas.
- Objective – To protect human health by minimizing the potential contamination of public water systems. Source water is untreated water from streams, rivers, lakes, or aquifers used to supply public water systems. Ensuring that source water is protected from contamination can reduce the costs of treatment and risks to public health. This stipulation would protect the State-designated Source Water Protection Areas that protect public water systems from potential contamination.
- Exception – The AO may not grant exceptions to this stipulation.
- Modification – The AO may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include Source Water Protection Areas.
- Waiver – The AO may waive this stipulation if it is determined that the entire leasehold does not include Source Water Protection Areas.

Resource –Colonial Nesting Waterbirds

- Stipulation – Surface occupancy and use is prohibited within 0.25 mile of waterbird nesting colonies.
- Objective – To protect nesting colonial-nesting birds identified as BLM priority species for management.
- Exception – The AO may grant an exception if the action will not result in colony abandonment.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of colonial nest bird sites.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.25 mile of nest sites historically used by colonial-nest birds or if the habitat has been altered to an extent, future use by colonial nesting birds is unlikely.

Resource – Raptors

- Stipulation - Surface occupancy and use is prohibited within 0.25 mile of raptor nest sites active within the preceding 7 years.
- Objective – To protect nest sites of raptors identified as BLM priority species for management (burrowing owl, golden eagle, ferruginous hawk, Swainson's hawk, prairie falcon, and northern goshawk).
- Exception – The AO may grant an exception if the action will not to result in nest territory abandonment.

- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of raptor nest sites active within the past 7 years.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.25 mile of raptor nest sites active within the past 7 years or if the habitat has been altered to an extent, future use by nesting raptors is unlikely.

Resource – Bald Eagles

- Stipulation - Surface occupancy and use is prohibited within 0.50 mile of bald eagle nest sites active within the preceding 5 years.
- Objective – To protect nest sites and nesting activities of bald eagles, BLM priority species for management.
- Exception – The AO may grant an exception, subject to coordination with the USFWS, if the action will not to result in nest territory abandonment.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.50 mile of bald eagle nest sites active within the past 5 years.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.50 mile of bald eagle nest sites active within the past 5 years or if the habitat has been altered to an extent, future use by nesting bald eagles is unlikely.

Resource – Piping Plover

- Stipulation – Surface occupancy and use is prohibited in and within 0.25 mile of piping plover habitat.
- Objective – To protect the nesting habitat of the federally threatened piping plover.
- Exception – The AO, subject to consultation with the USFWS, grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.
- Modification – The AO may modify the boundaries of the stipulated areas if portions of the leasehold are no longer within 0.25 mile of piping plover habitat.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.25 mile of piping plover nesting habitat.

Resource – Interior Least Tern

- Stipulation – Surface occupancy and use is prohibited in and within 0.25 mile of interior least tern habitat.
- Objective – To protect the nesting habitat of the federally endangered interior least tern habitat.
- Exception – The AO, subject to consultation with the USFWS, grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.
- Modification – The AO may modify the boundaries of the stipulated areas if portions of the leasehold are no longer within 0.25 mile of interior least tern habitat.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.25 mile of interior least tern nesting habitat.

Resource – Black-footed Ferrets

- Stipulation - Surface occupancy and use is prohibited within 0.25 mile of black-footed ferret habitat (complex of prairie dog towns within 1.5 km of each other comprising a total of at least 1,500 acres).
- Objective – To protect habitat for the federally endangered black-footed ferret.
- Exception – The AO, subject to consultation with the USFWS, may grant an exception if the action will not impair the function or suitability of the black-footed ferret habitat.
- Modification - The AO, subject to confirmation from the USFWS, may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of current or potential black-footed ferret habitat.

- Waiver – The AO, subject to consultation with the USFWS, may waive this stipulation, if the entire leasehold is no longer within 0.25 mile of current or potential black-footed ferret habitat.

Resource – Pallid Sturgeon Habitat

- Stipulation - Surface occupancy and use is prohibited within 0.25 mile of the water's edge of the Missouri and Yellowstone Rivers.
- Objective - To protect the habitat of the federally endangered pallid sturgeon.
- Exception - The AO, subject to consultation with the USFWS, may grant an exception if the action will not impair habitat of the pallid sturgeon.
- Modification - The AO may modify the boundaries of the stipulated area if portions of the leasehold are not within 0.25 mile of the water's edge of the Yellowstone or Missouri Rivers.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.25 mile of the water's edge of the Yellowstone or Missouri Rivers.

Resource – Sage-grouse Habitat – Priority Areas, West Decker Restoration Area, South Carter Restoration Area

- Stipulation – Surface occupancy and use is prohibited within sage-grouse priority areas, West Decker Restoration area, and South Carter Restoration Area.
- Objective – To maintain and enhance the most important of habitats needed by priority sage-grouse populations.

  (i) No waivers or modifications to a fluid mineral lease no-surface occupancy stipulation will be granted. The Authorized Officer may grant an exception to a fluid mineral lease no-surface occupancy stipulation only where the proposed action would not have direct, indirect, or cumulative effects on GRSG or its habitat; or,
  (ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG.

  Exceptions based on conservation gain (ii) may only be considered in (a) PHMAs of mixed ownership where federal minerals underlie less than fifty percent of the total surface, or (b) areas of the public lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid Federal fluid mineral lease existing as of the date of this RMP revision. Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts.

  Any exceptions to this lease stipulation may be approved by the Authorized Officer only with the concurrence of the State Director. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfied (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly.

Resource – Sage-grouse Habitat – General Habitat Management Areas

- Stipulation – Surface occupancy and use is prohibited within 6/10 mile of the perimeter of sage-grouse leks.
- Objective – To maintain the integrity of general sage-grouse habitat and promote movement and genetic diversity to support sustainable sage-grouse populations.
- Exception – The AO, may grant an exception if the action will not result in sage-grouse lek abandonment.

- Modification – The AO, may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 6/10 mile of the perimeter of an active lek, or a portion of the habitat has been altered to the point sage-grouse no longer occupy the site and there is no likelihood of habitat capable of supporting sage-grouse being restored.
  Waiver – The AO, may waive this stipulation if no portion of the leasehold is within 6/10 mile of the perimeter of an active lek.

Resource – Recreation

- Stipulation – Surface occupancy and use is prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use.
- Objective – To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.
- Exception – An exception to this stipulation may be granted by the AO if the project proponent submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified by the AO if the recreation area boundaries are changed.
- Waiver – This stipulation can be waived if the AO determines that the entire leasehold or area no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

Resource – Lands with Wilderness Characteristics

- Stipulation: Surface occupancy and use is prohibited within areas that are managed to protect wilderness characteristics.
- Objective: To protect wilderness characteristics as a priority over other multiple uses.
- Exception: None
- Modification: None
- Waiver: None

Resource – National Historic Trails

- Stipulation: Surface occupancy and use is prohibited within the National Trail Management Corridor of designated National Historic Trails. Designated National Historic Trails include the Lewis and Clark Trail and the Nez Perce Trail.
- Objective: To protect the nature and purpose; trail resources, qualities, values, and associated settings; and primary use or uses of the historic trail, in accordance with National Trail System Act.
- Exception: An exception to this stipulation may be granted by the AO if the lessee or project proponent completes a comprehensive trail inventory, as outlined in Manual 6280, and presents a proposal which demonstrates resource values are not affected or that adverse impacts can be adequately mitigated to prevent impact to:
  - The nature and purposes of the National Trail.
  - National Trail resources, qualities, values, and associated settings.
  - National Trail primary use or uses.
  - The National Trail from the cumulative or trail-wide perspective.
- Modification: None
- Waiver: None

Resource – Significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs

- Stipulation – Surface occupancy and use is prohibited in the site or within the area surrounding the site where an undertaking's area of potential effect (APE) could have a potential effect on the site's setting in:

    - sites or areas designated or sites or areas that meet the criteria for allocation for designation for scientific use, conservation use, traditional use (socio-cultural use), public use, and experimental use;
    - the boundaries of sites or districts eligible for or included on the NRHP; and
    - the boundaries of TCPs, or sites or areas designated as such, or sites or areas that meet the criteria for allocation for designation for traditional use (socio-cultural use).

  Activity is prohibited in cultural properties determined to be of particular importance to American Indian groups, TCPs, or sites designated for traditional use. (Such properties include, but are not limited to, burial locations, pictograph and petroglyph sites, vision quest locations, plant-gathering locations, and areas considered sacred or used for religious purposes.)
- Objective – To protect and avoid disturbance and inadvertent impacts to significant cultural properties, districts, and their settings; NRHP-eligible properties and districts; TCPs or those designated for traditional use and the settings in which they occur; and those properties determined to be of particular importance to American Indian groups.
- Exception – An exception to this stipulation may be granted by the AO if the conditions described below are met.

    - The lessee or project proponent submits a plan demonstrating that adverse impacts or effects to the cultural property can be avoided by project redesign or relocation within the buffer area; or the project is located so that it and any associated surface disturbance will not alter the characteristics of the cultural or historic property by diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association; or so that there will be no destruction, damage, or alteration to all or part of the cultural resource's visual, atmospheric, or audible elements that could diminish the integrity of the property's significant historic features (e.g., project placed behind a hill or screened from view or by some other method within the buffer area).
    - The lessee or project proponent submits a plan demonstrating that the adverse impacts to cultural properties can be mitigated through data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the BLM, surface occupancy in the area will be prohibited.
    - The lessee or operator submits a plan demonstrating that operations will be designed or located in such a manner as to have a minimal impact to the natural setting and characteristics of the immediate area and demonstrating that adverse impacts to TCPs can be mitigated in consultation with, and to the satisfaction of, affected American Indian Tribes or American Indian groups.

- Modification – None
- Waiver – None

Resource – Paleontological Resources

- Stipulation – Surface occupancy and use is prohibited in significant paleontological localities.
- Objective – To preserve and protect significant vertebrate fossils and paleontological localities.
- Exception – An exception may be granted by the AO if the lessee or project proponent submits a plan demonstrating that the adverse impacts to paleontological localities can be mitigated through data recovery and extensive recordation. Where impacts to paleontological resources cannot be mitigated to the satisfaction of the BLM, surface occupancy on that area will be prohibited.
- Modification – None
- Waiver – None

Resource – Cultural ACECs

- Stipulation – Surface occupancy and use is prohibited within sites or areas designated for scientific use, conservation use, public use, or socio-cultural use.
- Objective – To protect those cultural properties identified for scientific use, conservation use, public use, and socio-cultural use, including the Battle Butte Battlefield, Reynolds Battlefield, Cedar Creek Battlefield, Long Medicine Wheel and Walstein ACECs.
- Exception – An exception to this stipulation may be granted by the AO if the lessee or operator submits a plan demonstrating that the cultural resource values forming the basis for designation will not be affected or that adverse impacts are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified if the AO determines that portions of the designated site or area can be occupied without adversely affecting the cultural resource values for which the site or area was designated.
- Waiver – This stipulation can be waived if the AO determines that all designated sites or areas within the leasehold can be occupied without adversely affecting the cultural resource values for which such sites or areas were designated or all designated sites or areas within the leasehold are allocated for other uses.

Resource – Paleontological ACECs

- Stipulation – Surface occupancy and use is prohibited within significant paleontological localities, such as the Flat Creek, and Powderville ACECs (and the paleontological component of the Long Medicine Wheel and Walstein ACECs).
- Objective – To protect significant paleontological localities.
- Exception – An exception to this stipulation may be granted by the AO if the lessee or operator submits a plan demonstrating that the paleontological resource values forming the basis for designation of the area are not affected or adverse impacts are acceptable or can be adequately mitigated.
- Modification – The boundaries of the stipulated area can be modified if the AO determines that portions of the designated area can be occupied without adversely affecting the paleontological resource values for which the area was designated or the boundaries of the designated area are changed.
- Waiver – This stipulation can be waived if the AO determines that all localities within the leasehold can be occupied without adversely affecting the paleontological resource values for which the area was designated or all localities within the leasehold are allocated for other uses.

Resource – National Historic Landmarks (NHLs) and Historic Battlefields and the Lewis and Clark National Historic Trail

- Stipulation – Surface occupancy and use and surface disturbance is prohibited within NHLs and Historic Battlefield including the following historic properties: Wolf Mountains Battlefield NHL and Battle Butte Battlefield ACEC; Reynolds Battlefield site and Reynolds Battlefield ACEC; Cedar Creek Battlefield site and Cedar Creek Battlefield ACEC; and the Long Medicine Wheel ACEC, and all significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs, NHLs and Historic Battlefields and the Lewis and Clark National Historic Trail.
- Objective – To protect inadvertent impacts to significant cultural properties, districts, and their settings; NRHP-eligible properties and districts; TCPs or those designated for traditional use and those properties determined to be of particular importance to American Indian groups, and NHLs and historic sites eligible for the NRHP and the setting or viewshed in which they occur.
- Exception: The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the action will not result in a more than a weak contrast rating. The Plan may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.
- Modification: The BLM authorized officer may modify the area subject to the stipulation based on local evaluation. The stipulation may be modified based on negative or positive monitoring results

from similar proposed actions on similar sites. The modification may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.

- Waiver: The BLM authorized officer determines that the entire lease area does not contribute to the setting of a historic property, the waiver may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.

Resource – National Historic Landmarks (NHLs) and Historic Battlefields and the Lewis and Clark National Historic Trail

- Stipulation – Surface occupancy and use and surface disturbance is prohibited within the visible area also called the Setting Consideration Zone where the integrity of the setting is a contributing element of NRHP significance of a property, for NHLs and Historic Battlefields including the following historic properties: Wolf Mountains Battlefield NHL and Battle Butte Battlefield ACEC; Reynolds Battlefield site and Reynolds Battlefield ACEC; Cedar Creek Battlefield site and Cedar Creek Battlefield ACEC; and the Long Medicine Wheel ACEC, and all significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs, NHLs and Historic Battlefields and the Lewis and Clark National Historic Trail.
- Objective – To protect inadvertent impacts to significant cultural properties, districts, and their settings; NRHP-eligible properties and districts; TCPs or those designated for traditional use and the settings in which they occur; and those properties determined to be of particular importance to American Indian groups, and NHLs and historic sites eligible for the NRHP and the setting or viewshed in which they occur.
- Exception: The BLM authorized officer may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the action will not result in a more than a weak contrast rating. The Plan may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.
- Modification: The BLM authorized officer may modify the area subject to the stipulation based on local evaluation. The stipulation may be modified based on negative or positive monitoring results from similar proposed actions on similar sites. The modification may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.
- Waiver: The BLM authorized officer determines that the entire lease area does not contribute to the setting of a historic property, the waiver may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.

<u>CONTROLLED SURFACE USE</u>

Resource – Air Resources

- Stipulation – Surface occupancy and use is subject to the requirement that each diesel-fueled non-road engine with greater than 200 horsepower design rating to be used during drilling or completion activities meets one of the following two criteria: (1) the engine was manufactured to meet USEPA NO_x emission standards for Tier 4 non-road diesel engines, or (2) the engine emits NO_x at rates less than or equal to USEPA emission standards for Tier 4 non-road diesel engines.
- Objective – To protect air resources and meet the 1-hour NO_2 NAAQS.
- Exception – An exception may be granted by the AO if air quality modeling, air quality monitoring, or other information demonstrates compliance with the NO_2 NAAQS.
- Modification – This stipulation may be modified if the EPA or the Montana Department of Environmental Quality (MDEQ) adds, deletes, or revises NO_x emission standards for drill rig, completion rig, or non-road engines.
- Waiver – The stipulation may be waived if new information demonstrates that compliance with the NO_2 NAAQS will be achieved consistently throughout the lease area. The stipulation may also be waived if the NO_2 NAAQS is revoked or otherwise rendered inapplicable to drilling/completion operations.

Resource – Soils, Sensitive Soils

- Stipulation – Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use, prior to surface disturbance on sensitive soils, a reclamation plan must be approved by the administrative officer. Sensitive soils are determined using a combination of slope and soil erodibility. The plan must demonstrate the following:

    - no other practicable alternatives exist for relocating the activity,
    - the activity will be located to reduce impacts to soil and water resources,
    - site productivity will be maintained or restored,
    - surface runoff and sedimentation will be adequately controlled,
    - on- and off-site areas will be protected from accelerated erosion,
    - that no areas susceptible to mass wasting would be disturbed, and
    - surface-disturbing activities will be prohibited during extended wet periods.

- Objective – To maintain the chemical, physical, and biotic properties of soils which includes maintaining soil productivity, soil stability, and soil biotic properties. This will prevent excessive erosion, potential mass wasting, and improve the likelihood of successful reclamation..
- Exception – The administrative officer may grant an exception to this stipulation if the operator can demonstrate that the proposed action will not contribute to degradation of the soil resource (e.g. excessive soil erosion, mass wasting, and/or lost productivity) or downslope resource conditions (e.g. reduced water quality due to sedimentation).
- Modification – The administrative officer may modify the area affected by this stipulation if it is determined that portions of the leasehold do not contain sensitive soils.
- Waiver – The administrative officer may waive this stipulation if it is determined that the entire leasehold does not contain sensitive soils.

Resource – Riparian, Wetlands

- Stipulation – Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use within 300 feet of riparian and/or wetland areas, a plan must be approved by the AO with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas. The plan would address:

    - potential impacts to riparian and wetland resources,
    - mitigation to reduce impacts to acceptable levels (including timing restrictions),
    - post-project restoration, and
    - monitoring (the operator must conduct monitoring capable of detecting early signs of changing riparian and/or wetland conditions).

- Objective – To protect the unique biological and hydrological features associated with riparian and wetland areas. Disturbances adjacent to riparian and/or wetland areas (including road use) can adversely impact these sensitive areas. This stipulation would protect these features from indirect effects produced within the adjacent ground. This would also encompass the floodplain along most first to third order streams.
- Exception – The AO may grant and exception to this stipulation if the operator can demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality.
- Modification – The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain wetlands or riparian areas.
- Waiver – This stipulation can be waived by the AO if it is determined that the entire lease area does not contain wetlands or riparian areas.

Resource – Big Game Crucial Winter Range

- Stipulation – Surface occupancy and use is subject to the following operating constraint: prior to surface occupancy and use within crucial winter ranges for big game wildlife, a plan must be approved by the AO that maintains the functionality of habitat.
- Objective – To facilitate long-term maintenance of big game wildlife populations and protect white-tailed deer, mule deer, elk, and antelope crucial winter ranges from disturbance during winter use season.
- Exception – None
- Modification – The boundaries of the stipulated area can be modified if the AO determines portions of the leasehold no longer contain crucial winter range for big game wildlife.
- Waiver – This stipulation can be waived if the AO determines the entire leasehold no longer contains crucial winter range for big game wildlife.

Resource – Sharp-tailed Grouse Leks and Nesting Habitat

- Stipulation – Surface occupancy and use is subject to design features on or within 2 miles of sharp-tailed grouse lek sites to protect breeding, nesting, and brood-rearing habitats at a level capable of supporting the long-term populations associated with the lek.
- Objective – To protect sharp-tailed grouse lek sites and nesting habitats.
- Exception – The AO, in coordination with MFWP, may grant an exception if the action will not result in nest abandonment or decrease productivity, by interfering with breeding, nesting, feeding, or brood rearing activities.
- Modification – The AO may modify the boundaries of the stipulated area in coordination with MFWP, if portions of the leasehold are no longer within 2 miles of a lek active within the past 5 years, or not considered sharp-tailed grouse habitat.
- Waiver – The AO may waive this stipulation in coordination with MFWP if the entire leasehold is no longer within 2 miles of a lek, active within the past 5 years.

Resource – Bighorn Sheep Habitat

- Stipulation – Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use a plan shall be prepared by the proponent and approved by the AO with confirmation from MFWP. The plan must demonstrate to the AO's satisfaction, the function and suitability of the habitat will not be impaired.
- Objective – To protect and maintain bighorn sheep and their habitats, a BLM priority species for management.
- Exception – The AO, in coordination with MFWP, may grant an exception if the action will not impair the function or suitability of the bighorn sheep habitat.
- Modification – The AO, in coordination with MFWP, may modify the boundaries of the stipulated area if portions are no longer bighorn sheep habitat.
- Waiver – The AO, in coordination with MFWP, may waive this stipulation if the entire leasehold is no longer bighorn sheep habitat.

Resource – Black-tailed Prairie Dogs

- Stipulation – Surface occupancy and use within black-tailed prairie dog colonies active within the past 10 years would be allowed with design features that maintain functionality of the habitat.
- Objective – To protect black-tailed prairie dog habitat, a BLM priority species for management, as well as obligate species.
- Exception – The AO may grant an exception if the action will not impair the function or suitability of the prairie dog habitat.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer prairie dog habitat active within the past 10 years.

- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within prairie dog colonies active within the past 10 years.

Resource – Sage-grouse General Habitat Management Areas

- Stipulation – Surface occupancy and use within 2 miles of the perimeter of a lek active within the past 5 years may be restricted or prohibited. Prior to such activities, a plan to mitigate impacts to breeding or nesting sage-grouse; or breeding, nesting, or brood rearing habitat will be prepared by the proponent and implemented upon approval by the AO.
- Objective – To protect breeding, nesting and brood rearing activities and habitat.
- Exception – The AO may grant an exception if the action would not agitate or bother breeding, or nesting sage-grouse to a degree that causes or is likely to cause:
    - physical injury, or,
    - decrease productivity, by substantially interfering with normal breeding, feeding, nesting or brood rearing activities; or nest abandonment.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 2 miles of a lek, active within the past 5 years.
- Waiver – The AO may waive this stipulation if no portion of the leasehold is within 2 miles of the perimeter of an active lek.

Resource – Sage-grouse Habitat - Cedar Creek Restoration Habitat Management Area

- Stipulation – Surface occupancy and use would be allowed with design features to minimize disturbance to sage-grouse habitat.
- Objective – To minimize disturbance to sage-grouse habitat and maximize restoration efforts while allowing for the permitted uses.
- Exception – The AO may grant an exception if the proposed action will meet the goals and objectives for sage-grouse habitat.
- Modification – The AO, in coordination with MFWP, may modify the boundaries of the stipulated area if portions of the leasehold are no longer sage-grouse habitat and future use by sage-grouse is unlikely.
- Waiver – This stipulation may be waived if:
    - sage-grouse are no longer a BLM special status species,
    - no reasonable alternative development scenario exists, or
    - the habitat has been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of sage-grouse reoccupying the site.

Resource – Designated Sport-fish Reservoirs

- Stipulation – Surface occupancy and use would be allowed in and within 0.25 miles of sport-fish reservoirs with design features to minimize impacts.
- Objective – To protect fisheries habitat and recreational values of sport-fish reservoirs.
- Exception – An exception to this stipulation may be granted by the AO if the authorized activity will not compromise the fisheries habitat or recreational experience of those using the reservoir.
- Modification – The boundaries of the stipulated area may be modified if the AO determines portions of the leasehold or area no longer contain sport-fish reservoirs.
- Waiver – This stipulation may be waived if the AO determines the reservoir is not capable of supporting a sport fishery in the present or future.

Resource – VRM Classes II

- Stipulation – In order to retain the existing character of the landscape (VRM Class II Objective), oil and gas development activities will be located, designed, constructed, operated, and reclaimed within 2

years from initiation of construction so that activities should not attract attention of the casual observer. This stipulation does not apply to maintenance or workover activities.

- Objective – To protect visual resource values while allowing energy development and related activities to occur which have been mitigated to retain the existing character of the landscape.
- Exception – None
- Modification – None
- Waiver – None

Resource – Recreation

- Stipulation – Surface occupancy and use is subject to the following operating constraints: operations within developed and undeveloped recreation areas receiving concentrated public use must be conducted in a manner that minimizes encounters and conflicts with recreation users. Proposed activities may not alter or depreciate important recreational values located within these developed and undeveloped areas.
- Objective – To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use such as the Strawberry Hill area.
- Exception – An exception to this stipulation may be granted by the AO if the project proponent submits a plan demonstrating that the impacts to recreation values and recreation users are acceptable or can be adequately mitigated.
- Modification – The area affected by this stipulation may be modified by the AO if the boundaries of the areas are changed.
- Waiver – None

Resource – Significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs, NHLs and Historic Battlefields

- Stipulation – Surface occupancy and use and surface disturbance is restricted within the Setting Consideration Zone where the integrity of the setting is a contributing element of NRHP significance of a property, for the following historic properties: Wolf Mountains Battlefield NHL and Battle Butte Battlefield ACEC; Reynolds Battlefield site and Reynolds Battlefield ACEC; Cedar Creek Battlefield site and Cedar Creek Battlefield ACEC; and the Long Medicine Wheel ACEC, and all significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs, NHLs and Historic Battlefields and the Lewis and Clark National Historic Trail. Prior to surface disturbance, occupancy or use within the Setting Consideration Zone of the identified historic properties a mitigation plan (Plan) must be submitted to the BLM by the applicant as a component of the APD (BLM Form 3160-3) or Sundry Notice (BLM Form 3160-5) – Surface Use Plan of Operations. The operator may not initiate surface-disturbing activities unless the BLM AO has approved the Plan or approved it with conditions. (b) The Plan must demonstrate to the AO's satisfaction that the infrastructure will either not be visible or will result in a weak contrast rating and would not have an adverse effect on the setting of the historic properties, ensuring the setting of historic properties.
- Objective – To protect inadvertent impacts to significant cultural properties, districts, and their settings; NRHP-eligible properties and districts; TCPs or those designated for traditional use and the settings in which they occur; and those properties determined to be of particular importance to American Indian groups, and NHLs and historic sites eligible for the NRHP and the setting or viewshed in which they occur.
- Exception: The BLM AO may grant an exception if it is determined that the action is of a scale, sited in a location, or otherwise designed so that the action will not result in a more than a weak contrast rating. The Plan may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.
- Modification: The BLM AO may modify the area subject to the stipulation based on local evaluation. The stipulation may be modified based on negative or positive monitoring results from similar proposed actions on similar sites. The modification may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.

- Waiver: The BLM AO determines that the entire lease area does not contribute to the setting of a historic property, the waiver may be subject to consultation with Montana SHPO, applicable tribes, and other interested parties.

TIMING LIMITATION

Resource – Raptors

- Stipulation - Surface use is prohibited within 0.50 mile of active raptor nest sites from March 1 through July 31.
- Objective – To protect nesting activities associated with raptors identified as BLM priority species for management.
- Exception – The AO may grant an exception if the action will not to result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.50 mile of an active raptor nest.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.50 mile of an active raptor nest.

Resource – Colonial Nesting Waterbirds

- Stipulation - Surface use is prohibited within 0.50 mile of waterbird nesting colonies from April 1 through July 15.
- Objective – To protect nesting activities associated with colonial-nesting birds identified as BLM priority species for management.
- Exception – The AO may grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.
- Modification – The AO may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.50 mile of an active nesting colony.
- Waiver – The AO may waive this stipulation if the entire leasehold is no longer within 0.50 mile of an active colonial nesting bird colony.

LEASE NOTICE

Resource - Air Resource Analysis

The lessee/operator is given notice that prior to project-specific approval, additional air resource analyses may be required in order to comply with the NEPA, FLPMA, and/or other applicable laws and regulations. Analyses may include equipment and operations information, emission inventory development, dispersion modeling or photochemical grid modeling for air quality and/or air quality related value impact analysis, and/or emission control determinations. These analyses may result in the imposition of additional project-specific control measures to protect air resources.

Resource - Special Status Species

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. 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. BLM will not approve any ground-disturbing activity that may affect any such species

or requirements of the ESA as amended, 16 U.S.C. § et seq., including completion of any required procedure for conference or consultation.

Resource - Migratory Bird Treaty Act

The Operator is responsible for compliance with provisions of the Act by implementing one of the following measures; a) avoidance by timing; ground disturbing activities will not occur from April 15 to July 15, b) habitat manipulation; render proposed project footprints unsuitable for nesting prior to the arrival of migratory birds (blading or pre-clearing of vegetation must occur prior to April 15 within the year and area scheduled for activities between April 15 and July 15 of that year to deter nesting, or c) survey-buffer-monitor; surveys will be conducted by a BLM approved biologist within the area of the proposed action and a 300 foot buffer from the proposed project footprint between April 15 to July 15 if activities are proposed within this timeframe. If nesting birds are found, activities would not be allowed within 0.1 miles of nests until after the birds have fledged. If active nests are not found, construction activities must occur within 7 days of the survey. If this does not occur, new surveys must be conducted. Survey reports will be submitted to the appropriate BLM Office.

Resource - Black-footer Ferret Surveys

Surface occupancy or use is subject to the following special operating constraints: prior to surface disturbance, prairie dog colonies and complexes 80 acres or more in size will be examined to determine the presence or absence of black-footed ferrets. The findings of this examination may result in some restrictions to the operator's plans or may even preclude use and occupancy. The lessee or operator may, at their own option, conduct an examination to determine the presence or absence of black-footed ferrets. This examination must be done by or under the supervision of a qualified resource specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency documenting the presence or absence of black footed ferrets and identifying the anticipated effects of the proposed action on the black-footed ferret and its habitat.

Resource - Cultural Resources Setting Consideration Zones

This lease is known to contain historic properties or resources protected under NHPA that contain a Setting Consideration Zone where the integrity of the setting is known to be an important contributing element of NRHP significance of the property, and applies to the following historic properties: Wolf Mountains Battlefield NHL and Battle Butte Battlefield ACEC; Reynolds Battlefield site and Reynolds Battlefield ACEC; Cedar Creek Battlefield site and Cedar Creek Battlefield ACEC; and the Long Medicine Wheel ACEC, and all significant Cultural Resources, NRHP-eligible Properties and Districts, and TCPs, NHLs and Historic Battlefields and the Lewis and Clark National Historic Trail.

Resource – Setback from Human Occupied Residences Requirement

The lease area may contain human occupied residences. Under Regulation 43 CFR 3101.1-2 and terms of the lease (BLM Form 3100-11), the authorized officer may require reasonable measures to minimize adverse impacts to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, which may require relocating proposed operations up to 200 meters, but not off the leasehold.

The setback requirement of 500 feet from human occupied residences has been established based upon the best information available. The following condition of approval may be applied as a result of the Application for Permit to Drill (APD) process during the on-site inspection and the environmental review unless an acceptable plan for mitigation of impacts is reached between the resident, lessee and BLM:

- **Facilities will not be allowed within 500 feet of human occupied residences.**

The intent of this Lease Notice is to provide information to the lessee that would help design and locate oil and gas facilities to preserve the aesthetic qualities around human occupied residences.

Resource - Cultural Resources and Tribal Consultation

This lease may be found to contain historic properties or resources protected under NHPA, the American Indian Religious Freedom Act (42 U.S.C. 1996), Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.), Executive Order 13007 (May 24, 1996), or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., state historic preservation officer and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

Resource - Cultural Resources

The surface management agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in NTL-MSO-85-1. This notice would be consistent with present Montana guidance for cultural resource protection related to oil and gas operations (NTL-MSO-85-1).

Resource – Paleontological Resources

This lease has been identified as being located within geologic units rated as being moderate to very high potential for containing significant paleontological resources. The locations meet the criteria for class 3, 4 and/or 5 as set forth in the Potential Fossil Yield Classification System, WO IM 2008-009, Attachment 2-2. The BLM is responsible for assuring that the leased lands are examined to determine if paleontological resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in WO IM 2008-009 dated October 15, 2007, and WO IM 2009-011 dated October 10, 2008.

Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or project proponent shall contact the BLM to determine if a paleontological resource inventory is required. If an inventory is required, the lessee or project proponent will complete the inventory subject to the following:

- the project proponent must engage the services of a qualified paleontologist, acceptable to the BLM, to conduct the inventory;
- the project proponent will, at a minimum, inventory a 10-acre area or larger to incorporate possible project relocation which may result from environmental or other resource considerations; and
- paleontological inventory may identify resources that may require mitigation to the satisfaction of the BLM as directed by WO IM 2009-011.

Resource – Sprague's Pipit Habitat

The lease area may contain habitat for the federal candidate Sprague’s pipit. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on Sprague’s pipits, their habitat and overall population. Such measures would be developed during the APD and environmental review processes, consistent with lease rights.

If the USFWS lists the Sprague’s pipit as threatened or endangered under the ESA, the BLM would enter into formal consultation on proposed permits that may affect the Sprague’s pipit and its habitat. Restrictions, modifications, or denial of permits could result from the consultation process.

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APPENDIX H
ADAPTIVE MANAGEMENT STRATEGY FOR GRSG HABITAT MANAGEMENT

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ADAPTIVE MANAGEMENT STRATEGY FOR GRSG HABITAT MANAGEMENT

Adaptive management is a decision process that promotes flexible resource management decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps with adjusting resource management directions as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits.

In relation to the BLM National Greater Sage-grouse Planning Strategy, adaptive management will help identify if sage grouse conservation measures contain the needed level of certainty for effectiveness. Principles of adaptive management are incorporated into the conservation measures in the plan to ameliorate threats to a species, thereby increasing the likelihood that the conservation measure and plan will be effective in reducing threats to that species. The following provides the BLM's adaptive management strategy.

This ROD/ARMP contains a monitoring framework plan (Appendix D GRSG Monitoring Framework) that includes an effectiveness monitoring component. The BLM intends to use the data collected from the effectiveness monitoring to identify any changes in habitat condition related to the goals and objectives of the plan and other range-wide conservation strategies (US Department of the Interior 2004; Striver et al. 2006; US Fish and Wildlife Service 2013). The information collected through the Monitoring Framework Plan outlined in the GRSG Monitoring Framework Appendix will be used by the BLM to determine when adaptive management hard and soft triggers (discussed below) are met. The GRSG adaptive management plan provides regulatory assurance that the means of addressing and responding to unintended negative impacts to greater sage-grouse and its habitat before consequences become severe or irreversible.

Adaptive Management Triggers

Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting GRSG conservation objectives. The BLM will use soft and hard triggers.

Soft Triggers:

Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action. The soft trigger is any negative deviation from normal trends in habitat or population in any given year, or if observed across two to three consecutive years. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM field offices, local Montana Fish, Wildlife and Parks (FWP) offices, and GRSG working groups will evaluate the metrics. The purpose of these strategies is to address localized GRSG population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies.

Each major project (EIS level) will include adaptive management strategies in support of the population management objectives for GRSG set by the State of Montana, and will be consistent with this GRSG Adaptive Management Plan. These adaptive management strategies will be developed in partnership with the State of Montana, project proponents, partners, and stakeholders, incorporating the best available science.

If the BLM finds that the State of Montana is implementing a GRSG Habitat Conservation Program that is effectively conserving the GRSG, the BLM will review the management goals and objectives to determine if they are being met and whether amendment of the BLM plan is appropriate to achieve consistent and effective conservation and GRSG management across all lands regardless of ownership.

In making amendments to this plan, the BLM will coordinate with the USFWS as BLM continues to meet its objective of conserving, enhancing and restoring GRSG habitat by reducing, minimizing or eliminating threats to that habitat.

Soft Triggers Response:

Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short- or long-term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The BLM and the adaptive management group will implement an appropriate response strategy to address causal factors not addressed by specific project adaptive management strategies, not attributable to a specific project, or to make adjustments at a larger regional or state-wide level.

Hard Triggers:

Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered an indicator that the species is not responding to conservation actions, or that a larger-scale impact is having a negative effect.

Hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.

Within the context of normal population variables, hard triggers shall be determined to take effect when two of the three metrics exceeds 60% of normal variability for the BSU in a single year, or when any of the three metrics exceeds 40% of normal variability for a three year time period within a five-year range of analysis. A minimum of three years is used to determine trends, with a five- year period preferred to allow determination of three actual time periods (Y1-2-3, Y2-3-4, Y3-4-5). Baseline population estimates are established by pre-disturbance surveys, reference surveys and account for regional and statewide trends in population levels. Population count data in Montana are maintained by Montana Fish, Wildlife, and Parks (MFWP). Estimates of population are determined based upon survey protocols determined by MFWP, and are implemented consistently throughout the state. Population counts are tracked for individual leks and are then summarized for each Priority Habitat Management Area (PHMA).

Hard Trigger Response:

Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from GRSG conservation objectives set forth in the BLM plan. As such, the ROD/ARMP includes a "hard-wired" plan-level response; that is, it provides that, upon reaching the trigger, a more restrictive alternative, or an appropriate component of a more restrictive alternative analyzed in the PRMP/FEIS will be implemented without further action by the BLM. Specific "hard-wired" changes in management are identified in Table 2-3, Specific Management Responses.

In addition to the specific changes identified in Table 2-3, the BLM will review available and pertinent data, in coordination with GRSG biologists and managers from multiple agencies including the USFWS, NRCS, and the State of Montana, to determine the causal factor(s) and implement a corrective strategy. The corrective strategy will include the changes identified in Table 2-3 and could also include the need to amend or revise the RMP to address the situation and modify management accordingly.

When a hard trigger is hit in a BSU including those that cross state lines, the WAFWA Management Zone Greater Sage-Grouse Conservation Team will convene to determine the causal factor, put project-level responses in place, as appropriate and discuss further appropriate actions to be applied. (BSU is the total of all

the PHMA within a GRSG population delineated in the COT report.) Adoption of any further actions at the plan level may require initiating a plan amendment process.

TABLE 2-3.
SPECIFIC MANAGEMENT RESPONSES

Program	Adaptive Management Response
GRSG Management	Areas within and adjacent to PHMA where a hard trigger has been reached will be the top priority for regional mitigation habitat restoration and fuels reduction treatments.
Vegetation Management	PHMA will be the top priority for regional mitigation, habitat restoration and fuels reduction treatments.
Wildland Fire Management	Reassess GRSG habitat needs to determine if priorities for at risk habitats, fuels management areas, preparedness, suppression and restoration have changed.
Livestock Grazing	For areas not achieving the GRSG habitat objectives due to grazing, apply adjustments to livestock grazing to achieve objectives.
Rights of Way – Existing Corridors	Retain the corridors as mapped, but limit the size of new lines within the corridors to same as existing structures, or not larger than 138kV.
Wind Energy Development	No change from ROD/ARMP.
Industrial Solar	No change from ROD/ARMP.
Comprehensive Travel and Transportation Management	If travel management planning has not been completed within GRSG habitat, PHMA areas where the hard trigger was met would be the highest priority for future travel management planning efforts. If travel management has been completed within GRSG habitat in the PHMA where the hard trigger was met, re-evaluate designated routes to determine their effects on GRSG. If routes are found to be causing population-level impacts, revise their designation status to reduce the effect.
Fluid Minerals	No change from ROD/ARMP.
Locatable Minerals	No change from ROD/ARMP.
Salable Minerals	No change from ROD/ARMP.
Non-energy Leasable Minerals	No change from ROD/ARMP. Not known to exist in the planning area (see Chapter 1).

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APPENDIX I
AIR RESOURCES AND CLIMATE

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AIR RESOURCES AND CLIMATE

INTRODUCTION

Tables and figures providing air resource and climate information for the planning area may be found in the PRMP/FEIS (BLM 2015). The following is the Bureau of Land Management (BLM) *Miles City Field Office Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources* (ARMP)

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MILES CITY FIELD OFFICE AIR RESOURCE MANAGEMENT PLAN: ADAPTIVE MANAGEMENT STRATEGY FOR OIL AND GAS RESOURCES

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Abbreviations and Acronyms

AQRV	Air Quality Related Value
AQTW	Air Quality Technical Workgroup
ARMP	Air Resource Management Plan
BLM	Bureau of Land Management
CO	Carbon Monoxide
CBNG	Coal Bed Natural Gas
CFR	Code of Federal Regulations
FLPMA	Federal Land Policy and Management Act
IWG	Interagency Working Group
MAAQS	Montana Ambient Air Quality Standards
MCFO	Miles City Field Office, Bureau of Land Management
MDEQ	Montana Department of Environmental Quality
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NPS	National Park Service
O_3	Ozone
PGM	Photochemical Grid Modeling
$PM_{2.5}$	Particulate Matter with a Diameter Less than or Equal to 2.5 Microns
PM_{10}	Particulate Matter with a Diameter Less than or Equal to 10 Microns
POD	Plan of Development
ppb	Parts per Billion
ppm	Parts per Million
PRB	Powder River Basin
RMP	Resource Management Plan
ROD	Record of Decision
SO_2	Sulfur Dioxide
µg/m3	Micrograms per Cubic Meter
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WRF	Weather Research and Forecasting

1.0 INTRODUCTION

1.1 PURPOSE OF THE AIR RESOURCE MANAGEMENT PLAN

The Bureau of Land Management (BLM) *Miles City Field Office Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources* (ARMP) for oil and gas activities describes the air resource adaptive management strategy that will be used to assess future air quality and air quality related values (AQRVs) and identify mitigation measures to address unacceptable impacts that may be associated with future oil and gas development. The adaptive management strategy focuses on oil and gas activity because aggregated emissions from multiple small sources at well sites can potentially cause air quality and AQRV impacts under certain circumstances. The oil and gas adaptive management strategy was prepared in collaboration or with the review of the United States Environmental Protection Agency (USEPA) and three federal land management agencies under the *Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process* (USDA, USDI, and USEPA 2011). This agreement is described in more detail in Section 4.

The ARMP includes both near-term actions and long-term actions. In the near-term, the ARMP sets forth initial actions to maintain good air quality until regional modeling can be performed to further assess potential impacts to air quality and AQRVs. In the long-term, the ARMP provides ongoing management strategies to assess and adapt to new air quality and AQRV ambient monitoring and modeling data during the life of this resource management plan (RMP).

The ARMP includes a multifaceted approach involving the following activities:

- oil and gas activity assessment,
- ambient air quality monitoring support,
- air quality and AQRV assessment,
- future air quality and AQRV modeling, and
- initial and enhanced mitigation.

Pollutant emissions addressed by the ARMP include the criteria air pollutants listed below:

- carbon monoxide (CO),
- nitrogen dioxide (NO_2),
- ozone (O_3),
- particulate matter with a diameter less than or equal to 10 microns (PM_{10}),
- particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$), and
- sulfur dioxide (SO_2).

The ARMP also addresses modeling and mitigation for the following AQRVs:

- deposition of sulfur and nitrogen,
- lake acid neutralizing capacity, and
- visibility.

The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not have been predicted during RMP development and allows for the use of new technology and methods that may minimize or reduce impacts.

1.2 REVISION OF THE AIR RESOURCE MANAGEMENT PLAN

This ARMP may be modified as necessary to comply with law, regulation, and policy and to address new information and changing circumstances. Changes to the goals or objectives set forth in the Miles City Field

Office (MCFO) RMP would require maintenance or amendment of the RMP while changes to the implementation, including modifying this ARMP, may be made without maintaining or amending the RMP.

1.3 CURRENT AIR QUALITY

Based on available monitoring data for rural oil and gas nativity areas in eastern Montana, air quality is good as described in Chapter 3, *Affected Environment*. Non-tribal areas within the MCFO attain the National Ambient Air Quality Standards (NAAQS) and state-based standards, which are known as the Montana Ambient Air Quality Standards (MAAQS).

For all criteria pollutants except ozone, ambient monitoring data available as of December 31, 2012 indicate that concentrations at the Birney, Broadus, and Sidney monitors near oil and gas areas within the planning area are less than 55 percent of the NAAQS and MAAQS. Ozone concentrations are no more than 75 percent of the 8-hour ozone standard. Table ARMP-1 provides recent concentration data for each pollutant monitored at the Birney, Broadus, and Sidney monitors. NAAQS and MAAQS set forth allowable concentrations in terms of parts per million (ppm) or parts per billion (ppb) for gaseous pollutants while particulate pollutant concentrations are provided in micrograms per cubic meter ($\mu g/m^3$).

1.4 BACKGROUND OF THE AIR QUALITY TECHNICAL WORKGROUP AND THE MEMORANDUM OF UNDERSTANDING REGARDING AIR QUALITY ANALYSES AND MITIGATION FOR FEDERAL OIL AND GAS DECISIONS THROUGH THE NATIONAL ENVIRONMENTAL POLICY ACT PROCESS

The Air Quality Technical Workgroup (AQTW) is required to include representatives from the following agencies: the BLM, USEPA, United States Forest Service (USFS), United States Fish and Wildlife Service (USFWS), and the National Park Service (NPS). Each of these agencies is a party to the *Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process* (USDA et al. 2011) (referred to as the MOU). This agreement is designed to "... facilitate the completion of NEPA [National Environmental Policy Act] environmental analyses for Federal land use planning and oil and gas development decisions"(USDA et al. 2011, p. 1). Additional entities, such as the Montana Department of Environmental Quality (MDEQ) and tribal entities, may also participate in the AQTW.

This MOU sets forth collaborative procedures that the AQTW agencies use to analyze potential air quality and AQRV impacts. The agencies also work together to identify potential mitigation measures that may be needed to reduce impacts to air quality and AQRVs. The lead agency (the BLM in this case), in collaboration with the other agencies, has the responsibility to identify reasonable mitigation and control measures and design features to address adverse impacts to air quality. Mitigation measures may also address impacts to AQRVs at Class I areas and at sensitive Class II areas that have been identified by the BLM, USFS, USFWS, and NPS.

The AQTW provided input to this ARMP and will continue to work collaboratively on future modeling efforts associated with this RMP. Provisions of the MOU continue to apply to future oil and gas activities in the planning area. In some cases, air quality and AQRV modeling performed under this ARMP may be sufficient to address modeling needs for future oil and gas projects that would otherwise require additional modeling under the MOU. However, the ARMP in no way replaces provisions of the MOU. Determinations of existing modeling adequacy for future oil and gas activities that trigger the MOU would be made collaboratively by the AQTW using the procedures included in the MOU.

The MDEQ has the primary authority to protect air quality within the state. Although the MDEQ is not a signatory to the national MOU, successful air quality management of BLM-authorized oil and gas activities depends on a close working relationship between the BLM and the MDEQ. The two agencies have worked together to improve air quality monitoring and will continue to cooperate by sharing data, planning modeling efforts, and working together to identify emission reduction measures needed to maintain good air quality.

**TABLE ARMP-1.
AMBIENT CONCENTRATION DATA FOR POLLUTANTS
MONITORED IN THE PLANNING AREA**

Pollu-tant	Avg. Period	Metric	Form	NAAQS	NAAQS Units	Monitored Concentrations During Monitored Years (Birney, Broadus, Sidney)[1]	Percentage of Standard (Birney, Broadus, Sidney) (%)
NO_2	1-hour	98th Percentile	3-year average	100	ppb	8, 16, 9	8%, 16%, 9%
O_3	8-hour	4th maximum	3-year average	0.075	ppm	0.056, 0.055, 0.056	75%, 73%, 75%
$PM_{2.5}$	24-hour	98th Percentile	3-year average	35	µg/m^3	12, 16, 43	34%, 46%, 43%
	Annual	Mean	3-year average	12.0 [2]	µg/m^3	4.9, 6.2, 6.6	41%, 52%, 55%
PM_{10}	24-hour	Not to be exceeded more than once per year	3-year average	150	µg/m^3	Not exceeded, not exceeded, not exceeded	13%, 21%, 16% [3]
SO_2	1-hour	99th Percentile	3-year average	75	ppb	NA/NA/5	NA/NA/7%

Source: MDEQ 2013.
NA = not available
[1]Based on calendar year 2010 to 2012 data.
[2]The annual $PM_{2.5}$ primary NAAQS was revised from 15.0 µg/m^3 to 12.0 µg/m^3, effective on March 18, 2013.
[3]Estimated by comparing the second maximum value to the NAAQS.

1.5 MDEQ AIR QUALITY MANAGEMENT AND BLM MITIGATION MEASURES

Primary air quality management authority and responsibility for the planning area rest with the MDEQ (for non-tribal areas of the planning area) and the USEPA for tribal areas. However, the BLM also plays a role in protecting air resources under the Federal Land Policy and Management Act (FLPMA) and NEPA. Due to the nature of NEPA analyses for land use planning, the BLM's air resource management role is forward-looking because air resource impacts are analyzed for future activities that may or may not occur.

1.5.1 MDEQ Air Quality Programs

The MDEQ has been delegated Federal Clean Air Act authority from USEPA to regulate air quality and air emissions requirements within the non-tribal areas of Montana. The MDEQ also implements state ambient air quality standards for additional air pollutants and has established more stringent standards for some criteria air pollutants, as shown in Table ARMP-3. As part of NAAQS implementation, the MDEQ operates air quality monitors through Montana.

The MDEQ has State Implementation Plan approved New Source Review permitting programs, which include Prevention of Significant Deterioration, Nonattainment Area, and minor source programs. The MDEQ's

Prevention of Significant Deterioration and Nonattainment Area permitting programs impose controls on major stationary sources in order to control emissions of regulated pollutants. Emission controls are typically required through the application of Best Available Control Technology or Lowest Achievable Emission Rate, depending on the applicable New Source Review permitting program. In addition, the MDEQ implements a minor source New Source Review permitting program (e.g. minor source Montana Air Quality Permits and registrations). The MDEQ's minor source New Source Review program requires sources with a potential to emit greater than 25 tons per year of any regulated air pollutant to apply for a permit to construct pursuant to the Montana Air Quality Permits requirements or register with the MDEQ pursuant to the registration requirements under the Administrative Rules of Montana. To ensure compliance with the NAAQS, MDEQ's minor New Source Review program contains regulatory requirements that track activity and require the application of Best Available Control Technology. Additionally, the Administrative Rules of Montana require reasonable precautions to limit fugitive particulate emissions from all activities in Montana (i.e., permitted, registered, and those facilities that do not require a permit/registration). MDEQ's New Source Review program not only provides the emission benefits necessary to attain Montana's air quality goals, but also includes many features that provide regulatory certainty while still allowing flexibility in the implementation of Montana's air quality programs.

1.5.2 MDEQ Oil and Gas Emission Control Requirements

The MDEQ minor source permitting and registration program for oil and gas facilities includes a robust set of emission controls. MDEQ rules require oil or gas well facilities to control emissions from the time the well is completed until the source is registered or permitted. Facilities that choose to register must meet the emission control requirements contained in Administrative Rules of Montana 17.8.17. If a source cannot meet these requirements it must apply for an Montana Air Quality Permits. The Montana Air Quality Permits requires a case-by-case Best Available Control Technology analysis. A case-by-case Best Available Control Technology analysis may include design, equipment, work practice, or operational standards in place of or in combination with an emission limitation.

Examples of MDEQ emission control requirements for oil and gas facilities (defined as those with a potential to emit more than 25 tons per year of any airborne pollutant) include the following measures to limit emissions.

- Each piece of oil or gas well facility equipment containing volatile organic compound (VOC) vapors (as defined in the permitting or registration regulations) with a potential to emit 15 tons per year or more must be routed to a gas pipeline or to air pollution control equipment with 95 percent or greater control efficiency (registered facilities). This requirement applies to the following equipment.
  - Oil and gas wellhead production equipment including, but not limited to, wellhead assemblies, amine units, prime mover engines, phase separators, heater treatment units, dehydrator units, storage tanks, and connector tubing
  - Transport vehicle loading operations
- Hydrocarbon liquids must be loaded into transport vehicles using submerged fill technology.
- Stationary internal combustion engines greater than 85 brake horsepower must be equipped with nonselective catalytic reduction (for rich burn engines) or oxidation catalytic reduction (for lean burn engines) or equivalent emission reduction technologies.
- Piping components containing VOCs must be inspected for leaks each month. The first attempt to repair any leaking VOC equipment must occur within 5 days and the repair must be completed no later than 15 days after the leak is initially detected unless facility shutdown is required. Facilities are required to maintain monthly leak inspection and repair records.

Although MDEQ emission control requirements do not mention Greenhouse Gas, the VOC emission control measures would also reduce methane emissions, while the engine emission controls would reduce nitrous oxide emissions.

The MDEQ oil and gas emission control requirements have successfully protected air quality throughout the planning area, as evidenced by ambient air quality monitoring data that indicate good air quality in oil and gas activity areas.

1.5.3 BLM Air Resource Management and MDEQ Coordination

The BLM's authority to address air resources derives primarily from FLPMA and NEPA. Under FLPMA, the BLM must "provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans" in the development and revision of land use plans (Section 202 (c)(8)). FLPMA also authorizes the BLM to manage public lands "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values" (Section 102 (8)).

Under NEPA, the BLM ensures that information on the potential environmental and human impact of Federal actions is available to public officials and citizens before decisions are made and before actions are taken. One of the purposes of the Act is to "promote efforts which will prevent or eliminate damage to the environment and biosphere," and to promote human health and welfare (Section 2). NEPA requires that BLM and other federal agencies prepare a detailed statement on the environmental impact of the proposed action for major Federal actions expected to significantly affect the quality of the human environment (Section 102 (C)).

The BLM's authority under the Clean Air Act primarily derives from the requirement that BLM-authorized activities comply with the Clean Air Act. BLM-authorized activities may not violate the Clean Air Act or federal and state regulations and State Implementation Plans issued to implement the Act. When air quality or AQRV modeling performed during NEPA analysis predicts potential violations of the Clean Air Act or unacceptable AQRV impacts, the BLM evaluates the data and determines whether mitigation measures are needed. For example, the initial mitigation measure requiring drill rig engines to meet Tier 4 emission standards reduces NO_2 emissions and was demonstrated via modeling to prevent NAAQS violations from multiple large drill rig engines that may operate on one well pad. The mitigation measure includes an exception that allows use of drill rig engines meeting Tier 1, 2, or 3 emission standards if future modeling or near-field monitoring demonstrates compliance with the NAAQS.

When determining whether mitigation measures are needed, the BLM reviews current and proposed federal, state, and local regulations to determine whether mitigation will occur due to other agency actions. If the BLM determines that additional mitigation is needed while implementing this ARMP, the BLM will work closely with the MDEQ to coordinate future mitigation measures for BLM-authorized activities.

1.6 RELATIONSHIP TO THE MONTANA RECORD OF DECISION FOR THE SUPPLEMENT TO THE MONTANA STATEWIDE OIL AND GAS ENVIRONMENTAL IMPACT STATEMENT AND AMENDMENT OF THE POWDER RIVER AND BILLINGS RESOURCE MANAGEMENT PLANS ARMP

This ARMP integrates and supplements earlier ARMP provisions within the *Record of Decision for the Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* (BLM 2008b). Provisions of this document's ARMP are currently in effect and were developed to address substantial predicted growth in coal bed natural gas (CBNG) drilling and production in the Powder River Basin (PRB). Based on extensive air quality and AQRV far-field modeling, predicted impacts described in the *Supplemental Air Quality Analysis to the Draft Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* (BLM 2007; BLM 2008a) were associated primarily with projected emission increases from the operation of additional compressor engines. Consequently, increases in total compression horsepower were determined to be an indicator of growth in oil and gas activity that could potentially degrade air quality and AQRVs.

ARMP provisions included in the BLM's 2008 *Record of Decision for the Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* are summarized below.

Emission Mitigation

- Fugitive dust controls are required to reduce particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) emissions from unpaved roads.
- The number of wells connected to each compressor must be maximized and natural-gas-fired or electrical compressors or generators are required.
- Operators within 5 miles of the Northern Cheyenne Indian Reservation and the Crow Indian Reservation may be required to restrict the timing or location of CBNG development if monitoring or modeling by the MDEQ finds that their CBNG development is causing or threatening to cause noncompliance with applicable local, state, tribal, and federal air quality laws, regulations, and standards, as well as state implementation plans developed by the MDEQ.

Activity and Emission Monitoring

- Compression horsepower associated with CBNG is required to be reviewed.
- Annual emission inventory reports for CBNG operations are required to be submitted by operators.

Ambient Air Quality Monitoring

- The BLM will develop monitoring plans to track regional cumulative impacts to air quality and establish programmatic mitigation at predetermined action levels.
- Ambient concentration data from the Birney and Broadus sites will be used to meet ambient monitoring requirements included in Table MON-1 in the *Monitoring Appendix* of the BLM's 2008 *Record of Decision for the Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans*.

Air Quality Impact Review

- Oil and gas operators are required to provide information necessary for the BLM to conduct an analysis of air quality impacts when submitting exploration applications for permits to drill or field development project plans for CBNG development. The BLM uses the information to determine the individual and cumulative impacts on Tribal air quality, disclose the analysis results in the appropriate NEPA document, and consult with the Tribe when the analysis shows impacts from a specific drilling or development proposal.
- An interagency working group (IWG) was formed consisting of the BLM, USEPA, NPS, and USFS and other federal, state agencies, and tribal authorities to address CBNG development in the Montana portion of the PRB and its impacts to air quality. In addition to other resource responsibilities, the IWG is responsible for developing and recommending the monitoring and mitigation measures needed for each agency to ensure its actions achieve compliance with applicable air quality standards across jurisdictional boundaries.

Air Quality and Visibility Modeling

- The MDEQ agreed to complete an annual cumulative air quality impact model to track air quality impacts of CBNG development, including relevant CBNG development in Wyoming.
- The BLM and the MDEQ will perform additional visibility modeling to assess visibility impacts when horsepower requirements for new CBNG wells in the Montana portion of the PRB exceed 133,956 horsepower.

The above requirements are being integrated into this ARMP. Some provisions are being updated to reflect the current state of knowledge while other provisions are being expanded to provide for a more comprehensive adaptive management strategy. Modeling provisions within the ARMP included in the BLM's 2008 *Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* are being revised to reflect an improved modeling

approach (described in Section 5.1 of visibility and criteria pollutants, including ozone. CBNG development in the Montana portion of the PRB did not materialize as predicted at the time of the BLM's *Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans*. According to the MDEQ, CBNG compression within the PRB has decreased by 1,676 horsepower since January 1, 2010 (MDEQ 2011). Because of the lack of CBNG development and the lack of new compression equipment to model, the MDEQ determined that additional ambient air quality monitoring would be the best air quality indicator. With funding provided by the BLM, two new monitoring stations were installed in the PRB near Birney (Rosebud County) and Broadus (Powder River County) in 2009. Due to the low level of oil and gas activity in the area, the following two emission reduction provisions from the Supplemental Environmental Impact Statement are not carried forward by this ARMP: (1) maximize the number of wells connected to each compressor, and (2) utilize natural gas or electrical compressors or generators. The need for these measures will be assessed during review of photochemical grid modeling (PGM) results from modeling performed as part of this ARMP. The PGM will use emission inventories reflecting more recent oil and gas activity data.

The remainder of this ARMP describes each of the provisions being carried forward from the ARMP included in the BLM's 2008 *Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans*.

2.0 OIL AND GAS ACTIVITY ASSESSMENT

Each year, the BLM will track the number and locations of new oil and gas wells drilled on federal mineral estate and the number of new and abandoned producing wells on federal mineral estate. These numbers will be compared to the planning area reasonably foreseeable development and to the level of oil and gas development identified in the PRMP/FEIS (BLM 2015).

In addition, the BLM will estimate oil and gas emissions from federal mineral estate every 3 years for oil and gas wells drilled and producing after the record of decision (ROD) is signed. Emission estimates will be based on well types, well numbers, and knowledge of typical equipment and operations. Methods used to estimate emissions are expected to improve over time as better data become available. The emission estimates will also account for implemented mitigation measures and for new emission control regulations as they become effective. Each 3-year oil and gas emission inventory will be compared to emission estimates for the reasonably foreseeable development for the PRMP/FEIS (BLM 2015). BLM will collect additional data related to oil and gas equipment and operations to improve emission inventory quality. One area identified for improvement involves acquiring better data on oil and gas equipment used in the planning area. In order to improve fugitive dust emission estimates, the number, type, and length of vehicle trips in high-activity areas will be assessed.

For the portion of the PRB located in the MCFO, increases in compressor horsepower will be tracked annually using data provided by the MDEQ.

3.0 AMBIENT AIR QUALITY MONITORING SUPPORT

The Air Resources Management Bureau of the MDEQ has primary responsibility for siting and operating ambient air quality monitors within Montana and for reporting monitoring data to the USEPA and to the public. As described in its annual *State of Montana Air Quality Monitoring Network Plan* (MDEQ 2013), the MDEQ identifies monitoring objectives for assessing ambient concentrations of criteria air pollutants and assessing compliance with the NAAQS and MAAQS. Historically, most MDEQ monitors were placed in cities to assess human health impacts in the more densely populated areas of Montana.

The BLM is working collaboratively with the MDEQ to place ambient air quality monitors in less densely populated areas in which oil and gas activities are occurring or may occur in the future. The purpose of these monitors is:

- to assess compliance with ambient air quality standards, and
- to provide background ambient air quality concentrations for use in modeling efforts.

Using cooperative agreements, the BLM has provided funding to help purchase, install, and operate monitoring equipment at the locations shown in Table ARMP-2.

Each of the monitors described above measures ambient concentrations of nitrogen dioxide, nitric oxide, nitrogen oxides, ozone, particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$), as well as meteorological parameters such as temperature, wind speed, and wind direction. In addition, the Sidney monitoring station began monitoring sulfur dioxide during 2011.

TABLE ARMP-2.
MILES CITY FIELD OFFICE MONITORING STATIONS

Station Name	Monitored Pollutants	Year Installed	Station Number	County	Latitude	Longitude
Birney	NO, NO_2, NO_x, O_3, PM_{10}, $PM_{2.5}$	2010	30-87-0001	Rosebud	45.3662	-106.4894
Broadus	NO, NO_2, NO_x, O_3, PM_{10}, $PM_{2.5}$	2010	30-75-0001	Powder River	45.4403	-105.3702
Sidney	NO, NO_2, NO_x, O_3, PM_{10}, $PM_{2.5}$, SO_2[1]	2008	30-83-001	Richland	47.8034	-104.4856

[1]SO_2 monitoring began in June 2011.

In its 2013 *State of Montana Air Quality Monitoring Network Plan*, the MDEQ proposed to change the status of particulate matter (PM_{10}) monitors at the Birney, Broadus, and Sidney monitoring sites (MDEQ 2012). Particulate matter (PM_{10}) monitors at the Birney and Broadus sites are currently designated as State or Local Air Monitoring Station monitors, which are used to determine compliance with the NAAQS and MAAQS. However, the MDEQ has proposed to the USEPA that the Birney and Broadus particulate matter (PM_{10}) monitors be redesignated to non-regulatory special purpose monitors because the monitors are located within 60 meters of unpaved gravel roads used for ranching access. High episodic particulate matter (PM_{10}) levels have been measured at the Birney and Broadus sites. The MDEQ characterizes the high episodic monitored concentrations as "... not indicative or representative of general PM_{10} concentrations in the desired monitored area" (MDEQ 2012, p. 14).

Existing monitors at the Sidney monitoring station are currently designated as "industrial-non-regulatory" monitors. In response to a request from the USEPA, the MDEQ intends to redesignate each of the Sidney monitors to State or Local Air Monitoring Station monitors, except for the particulate matter (PM_{10}) monitor. Because of concerns regarding episodic particulate matter (PM_{10}) concentrations associated with travel on unpaved gravel roads, the MDEQ does not plan to change the status of the Sidney particulate matter (PM_{10}) monitor (MDEQ 2012).

Although the particulate matter (PM_{10}) monitors proposed for redesignation indicate high particulate matter (PM_{10}) concentrations, data through 2011 indicate that particulate matter (PM_{10}) concentrations are well below the NAAQS and MAAQS at the Birney and Sidney monitors (Table ARMP-1). In contrast, 24-hour particulate matter (PM_{10}) concentrations at the Broadus monitor (based on only 1 year of data) are approaching the NAAQS.

4.0 AIR QUALITY AND AQRV ASSESSMENT

The BLM will assess air quality and AQRVs on an annual basis using quality-assured data from the USEPA, MDEQ, USFS, USFWS, NPS, and other sources. In addition, preliminary assessments of ozone concentrations will be performed on a weekly basis using data provided by the MDEQ.

4.1 ANNUAL NATIONAL AMBIENT AIR QUALITY STANDARDS AND MONTANA AMBIENT AIR QUALITY STANDARDS ASSESSMENT

Based on the monitors listed in Section 3.0, the BLM will assess air quality monitoring data annually and share the results of the assessment with the MDEQ and AQTW. The purposes of the annual assessment are to compare monitored data to NAAQS and MAAQS and to identify seasonal and long-term trends in air pollutant concentrations. The BLM will complete the annual assessment by May 31 of each year in order to ensure that quality-assured data are available for review. Monitoring data associated with exceptional events, typically due to wildfires, will be excluded from the assessment.

NAAQS and MAAQS are provided in Table ARMP-3 for pollutants monitored within the planning area. Montana standards are shown only if they are more stringent than the NAAQS. As of November 1, 2012, lead and carbon monoxide are criteria pollutants that are not monitored within the planning area. With regard to pollutants regulated exclusively under the MAAQS, hydrogen sulfide and settleable particulate matter are not monitored within the planning area. Hydrogen sulfide is not monitored because ambient concentrations are believed to be very low due to low sulfur levels in gas produced in the area. Settleable particulate matter is not monitored in the area because the MDEQ prioritizes monitoring of pollutants subject to NAAQS and settleable particulate matter is a state ambient air quality standard.

The BLM will use design values to compare ambient monitoring data to the NAAQS. Design values reflect the form of the NAAQS and MAAQS; they define the statistical metric used to compare monitoring data to federal and state standards. Depending on the pollutant and averaging time being assessed, a NAAQS is typically stated in terms of the maximum or second maximum concentration, average concentration, or a percentile of the standard. The form of a standard also states whether the design value is determined based on 1 or more years of monitoring data. USEPA-calculated design values serve a critically important regulatory purpose of determining whether areas are designated attainment or nonattainment. As such, the USEPA's design value determinations may take more than a year to finalize.

In order to review air quality trends more quickly, the BLM will determine "mitigation design values" by May 31 of each year for the previous calendar year or years. The mitigation design value would be a metric calculated by the MDEQ or BLM that uses procedures similar to the USEPA's regulatory design value calculation methodology, with the advantage that the MDEQ/BLM-calculated mitigation design values can be determined more quickly. The timing allows the MDEQ adequate time to quality assure monitoring data. However, the MDEQ may not yet have USEPA concurrence on data that has been flagged by the MDEQ resulting from exceptional events, such as wildfires. Consequently, the MDEQ/BLM-calculated mitigation design values will exclude monitoring data associated with MDEQ-identified exceptional events. Each BLM annual assessment would look back the requisite number of years for each pollutant and include data from the time period prior to ROD issuance for the first several annual BLM assessments. Additional information concerning design value calculations is provided in Section 6.2.3. The BLM will work closely with the MDEQ to ensure that only data certified by the MDEQ and procedures consistent with MDEQ procedures are used in design value calculations.

Results of the annual NAAQS assessment will be used to determine if additional mitigation measures were needed to reduce air quality impacts from oil and gas operations, as discussed in Section 6.2.2 or 6.2.4.

4.2 PRELIMINARY OZONE ASSESSMENT

The BLM will perform weekly preliminary ozone concentration reviews to determine if high ozone events occur at the monitors listed in Section 3.0. If a high-ozone event occurred, the BLM will document meteorological and other conditions that may have contributed to the event. Because high-ozone events in other rural parts of the nation are not well understood and contributing factors can be site-specific, the BLM will gather data to develop baseline information relevant to any high-ozone events that may occur within the planning area. Relevant baseline information includes capturing meteorological data for each event, determining the amount of snow on the ground (if applicable), and identifying any other data that may help describe

circumstances associated with the event. For the purposes of this effort, a high-ozone event will be defined as a day for which the maximum 8-hour average ozone concentration is at or above 0.065 ppm.

In order to quickly ascertain relevant circumstances, the preliminary ozone assessments will use non-quality-assured data provided by the MDEQ. As part of the annual NAAQS assessment, quality-assured ozone data will be reviewed to determine if the preliminary ozone monitoring data were valid or if monitored high ozone concentrations were due to monitor malfunctions or exceptional natural events.

If high-ozone events occur within the planning area, a summary of events and a discussion of relevant meteorological data and circumstances will be developed as part of the annual NAAQS assessment. These summaries and the underlying data will create baseline information describing ozone behavior in the planning area. The data may provide important information that can be used to identify mitigation measures that could prevent future events.

TABLE ARMP-3.
AMBIENT AIR QUALITY STANDARDS FOR
POLLUTANTS MONITORED IN THE PLANNING AREA

Pollutant	Averaging Period	Federal NAAQS[1]			MAAQS[2]
		Concentration	Standard Type	Form of NAAQS Primary Standard	Concentration
NO_2	1-hour	100 ppb	Primary	3-year average of the 98th percentile concentrations	0.30 ppm
	Annual	53 ppb	Primary, Secondary	Annual mean	0.05 ppm[7]
Ozone	1-hour	0.10 ppm	---	---	0.12 ppm[8]
	8-hour	0.075 ppm	Primary, Secondary	3-year average of the fourth daily maximum 8-hour average	---
$PM_{2.5}$	24-hour	35 µg/m^3	Primary, Secondary[3]	3-year average of the maximum	---
	Annual	12.0 µg/m^3	Primary[8]	Annual mean	---
	Annual	15.0 µg/m^3	Secondary[8]	Annual mean	---
PM_{10}	24-hour	150 µg/m^3	Primary, Secondary	Not to be exceeded more than one per year on average over 3 years	---
	Annual	Revoked[4]	---	---	50 µg/m^3[3, 6]
SO_2	1-hour	75 ppb	Primary	3-year average of the 99th percentile concentrations	0.50 ppm
SO_2	3-hour	0.5 ppm	Secondary	Annual 2nd maximum	---
	24-hour	0.14 ppm[5]	Primary	Annual 2nd maximum	0.10 ppm
	Annual	0.030[5]	Primary	Annual mean	0.02 ppm[7]

[1]NAAQS are codified in Title 40 of the Code of Federal Regulations (CFR), Part 50.
[2]Montana AAQS are codified in Title 17, Chapter 8, Subchapter 2 of the Ambient Air Quality in the Administrative Rules of Montana.
[3]USEPA proposed a new secondary standard for $PM_{2.5}$ visibility of 28 or 30 deciviews (equivalent to 24 or 19 kilometers [15 or 12 miles] standard visual range).
[4]The annual PM_{10} NAAQS was revoked October 17, 2006.
[5]The existing annual and 24-hour SO_2 NAAQS will be revoked 1 year after the effective date in areas with a designated attainment status for the revised SO_2 NAAQS, per 40 CFR §50.4(e).
[6]Based on annual second maximum.
[7]Not to be exceeded in the averaging period specified.
[8]State violation when exceeded more than once during any 12 consecutive months.

4.3 ASSESSMENT

Federal land managers track the status, condition, and trends of AQRVs for Class I and sensitive Class II areas under their jurisdictions. Consequently, the BLM will request visibility, sulfur, and nitrogen deposition, and lake acid neutralizing capacity data from the USFS, USFWS, and NPS and would include agency-submitted data in the BLM's annual review of AQRV trends. The annual review will also include AQRV data from any Class I or data for sensitive Class II areas BLM jurisdiction.

Based on these reviews, the BLM will maintain an awareness of AQRV trends. However, it should be noted that the reviews will not necessarily link AQRV trends to oil and gas development. AQRV impacts are often associated with pollutants that can be transported long distances from many different types of sources. For example, visibility degradation in eastern Montana primarily results from large stationary sources such as electric generating units and cement kilns, as described in the Montana Regional Haze Federal Implementation Plan (USEPA 2012).

PGM will provide information concerning the potential impact of oil and gas activities on AQRVs.

5.0 FUTURE MODELING

The BLM has committed to perform PGM in order to assess regional air quality and AQRV impacts. Because of insufficient monitoring and regional emissions data available during development of the RMP, PGM is incomplete. In order to complete PGM expeditiously, the BLM has begun data acquisition and PGM protocol development. When PGM is completed and the results assessed, the BLM may identify additional emission mitigation measures for oil and gas activities.

5.1 PHOTOCHEMICAL GRID MODELING

Comprehensive regional air quality and AQRV regional modeling of emission sources within the MCFO and surrounding areas requires PGM. This type of modeling can predict ozone and regional haze impacts (major pollutants and precursors can be transported for many hundreds of miles).

5.1.1 Data Acquisition

PGM requires three main types of concurrent data:

- meteorological data,
- ambient monitoring data, and
- comprehensive emission data.

The BLM's analysis determined that the latter two types of data need to be augmented and updated prior to performing PGM.

5.1.1.1 Additional Monitoring

Ambient monitoring data throughout the PGM domain (which will extend throughout most of Montana and into adjacent states) are needed in order to validate model performance, which is assessed by modeling a previous year and comparing the model's predicted concentrations to actual monitored concentrations.

In cooperation with the MDEQ, the BLM funded two new monitoring stations in north-central Montana and would provide staffing and additional funding to operate the monitors. One monitor is located near Malta in Phillips County and the other is located in Lewistown (Fergus County). Both monitors became operational in July 2012 and measure ambient concentrations of nitric oxide (NO), nitrogen dioxide, nitrogen oxides (NO_x, an ozone precursor), ozone, particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). These data will be

particularly helpful in assessing the model's ability to accurately predict concentrations of these pollutants and its ability to accurately predict regional haze and visibility impacts west of the planning area.

5.1.1.2 Updating Emission Inventories

Comprehensive emission inventories are also critically important in predicting cumulative air quality and AQRV impacts. Prior to 2012, oil and gas regional emission inventories lacked comprehensive coverage of Montana sources and also underestimated emissions of VOCs, which contribute to ozone formation.

The BLM Montana and Dakotas State Office is providing financial assistance to the Western States Air Resources Council to complete oil and gas emission inventories for the Williston Basin and the Central Montana (Great Plains) Basin. These inventories represent calendar year 2011 emissions. In addition to covering the planning area, the inventories include comprehensive recent emission estimates for oil and gas activity in North Dakota and South Dakota.

5.1.2 Photochemical Grid Modeling Schedule

In order to use ambient air quality monitoring data from the new Malta and Lewistown monitors, PGM includes an October 1, 2012 through September 30, 2013 12-month baseline period. Weather modeling from the baseline period combined with future year emission predictions will be used to predict future year air resource impacts. Modeling is expected to be completed in late 2014, with impact analysis expected to be done in early 2016. Table ARMP-4 provides the planned data acquisition and PGM schedule.

The Weather Research and Forecasting (or WRF) model will likely be used to model meteorological conditions and the PGM to be used will be either the USEPA Models-3/Community Multiscale Air Quality modeling system or the Comprehensive Air Quality Model with Extensions. In addition, multiple models will be used to develop and process emission inventories for input into the PGM. When modeling is completed, an air resource technical support document will be developed.

Initial PGM includes future year modeling for a year between 2017 and 2020 using emissions representing full development of BLM oil and gas resources under the selected Alternative; the specific year will be determined by the BLM based on the ability to predict future cumulative regional oil and gas emissions in the Williston and Central Montana basins. After initial PGM is completed, the BLM will begin an assessment process to determine when additional PGM may be needed. Factors to be considered in determining when additional PGM is needed include the adequacy of the adaptive management strategy to maintain good air quality, and the level of BLM-authorized oil and gas activity and emissions compared to modeled levels.

5.1.3 Air Quality Technical Workgroup and Interagency Working Group Review and Input to Photochemical Grid Modeling

Throughout the PGM data collection and modeling process, the BLM will work collaboratively with the MDEQ and the AQTW that was formed to work on this RMP, and with a other agencies or Tribes that request to be involved in the PGM effort. These collaborators provided technical review and comment on the draft modeling protocol, and will review and comment on the WRF and PGM performance evaluations, and on the draft air resource technical support document. Substantial time has been included in the schedule shown in Table ARMP-4 to allow adequate review and comment periods during the PGM process.

5.1.4 Availability of Photochemical Grid Modeling Results

Future PGM results will be presented in the final air resource technical support document and in a summary of the results. The air resource technical support document and summary document will be posted on the MCFO BLM website. In addition, the modeling protocol document will be provided via the website when the photochemical modeling air resource technical support document is made available. Outreach information regarding the availability of the results will be made through the MDEQ, AQTW, IWG, and agencies involved in the PGM process, as well as other interested parties.

5.2 LIMITED CALPUFF VISIBILITY MODELING

Through their participation under the air quality MOU, the USFWS and the NPS specifically requested that limited CALPUFF modeling be prepared between the Draft and the Final RMP. This limited modeling effort was performed and assessed direct visibility impacts from potential future BLM-authorized oil and gas sources in the northern portion of the planning area near the USFWS UL Bend Wilderness and Medicine Lake Wilderness.

The CALPUFF modeling was used as a screening tool to estimate direct oil and gas visibility impacts at Class I and sensitive Class II areas. In addition, potential plume blight impacts were assessed using the VISCREEN model. Results of these efforts are disclosed in Chapter 4.

TABLE ARMP-4.
DATA ACQUISITION AND PHOTOCHEMICAL GRID MODELING SCHEDULE

Task/Subtask	Duration (calendar days)	Start Date	End Date
Pre-Modeling Emission Inventory and Protocol Development			
Western Regional Air Partnership Williston and Central Montana Basin Inventory	426	11/1/2012	12/31/2013
Develop WRF and PGM Protocol	195	10/1/2012	4/15/2013
Base Year Modeling and Evaluation *			
WRF Modeling	142	10/1/2013	2/20/2014
Draft WRF Model Evaluation	30	2/20/2014	3/22/2014
AQTW and IWG WRF Evaluation Review	30	3/22/2014	4/21/2014
Emission Modeling (Base and Future Year) and Report	120	10/23/2013	2/20/2014
PGM of Base Year	150	2/20/2014	7/20/2014
Draft PGM Evaluation	30	7/20/2014	8/19/2014
AQTW and IWG PGM Evaluation Review	30	8/19/2014	9/18/2014
Finalize WRF and PGM Evaluations	21	9/18/2014	10/9/2014
Future Year Modeling and Evaluation *			
PGM of Future Year	150	10/9/2014	3/8/2015
Analyze Air Quality and AQRV Impacts	21	3/8/2015	3/29/2015
Draft air resource technical support document	21	3/29/2015	4/19/2015
AQTW and IWG air resource technical support document review	30	4/19/2015	5/19/2015
Finalize air resource technical support document	21	5/19/2015	6/9/2015

*** Duration and dates are subject to revision; they are estimated to provide the general timing of future modeling activities.**

Regional far-field visibility and other AQRV impact analysis for this RMP will be based on results from future PGM. Photochemical grid models are recommended for AQRV analysis of large domains in the Appendix to the MOU (USDA et al. 2011).

5.3 POST-PHOTOCHEMICAL GRID MODELING

To the extent that future emission increases are within the levels modeled with PGM or other modeling and are proximate to modeled emission locations, far-field air quality and AQRV impact analysis may incorporate by reference PGM and other modeling results. The BLM and the AQTW will determine whether previous

modeling is sufficient to satisfy MOU requirements. This air quality management approach is consistent with the MOU (USDA et al. 2011) and allows for efficient air quality and AQRV impact analysis.

If additional modeling is performed after PGM is complete, an assessment of air quality and AQRV impacts will be made and, if necessary, additional mitigation measures may be identified.

6.0 MITIGATION

Air quality and AQRV impact mitigation will involve two types of mitigation:

- initial mitigation measures effective signing of the ROD and
- enhanced mitigation measures that may be identified based on future ambient monitoring data or modeling results.

6.1 INITIAL MITIGATION ACTIONS

The air quality mitigation measures described below will be applied through leasing documents and project-specific NEPA documents. To the extent practical, emission reductions associated with these mitigation measures have been included in the MCFO emission inventory.

1. Design and construct roads and well pads to reduce the amount of fugitive dust generated by traffic or other activities. During construction activities, apply water, apply dust-suppression chemicals, apply gravel, or use other control methods to achieve 50-percent fugitive dust control efficiency except when the ground is wet or frozen.
2. Use water or other BLM-approved dust suppression during drilling, completion, and well workover operations for dust abatement on access roads, as needed, to achieve 50-percent fugitive dust control efficiency except when ground is wet or frozen.
3. Use water or other BLM-approved dust suppression in high traffic areas during production operations for dust abatement, as needed, to achieve 50-percent fugitive dust control efficiency except when ground is wet or frozen. Operators would work with local government agencies to improve dust suppression on roads.
4. For oil and gas project plans of development (PODs), oil and gas operators would establish speed limits for project-required unpaved roads in and adjacent to the project area; oil and gas operator employees would comply with these speed limits.
5. For oil and gas project PODs, oil and gas operators would be encouraged to reduce surface disturbance, vehicle traffic, and fugitive dust emissions by consolidating facilities (e.g., using multi-well pads, storage vessels) when feasible.
6. Diesel drill rig engines greater than 200 horsepower will meet Tier 4 emission standards for non-road diesel engines. Alternatively, oil and gas operators may use drill rig engines that exceed Tier 4 emission standards if modeling or monitoring at the project level or at a programmatic level demonstrates compliance with the NAAQS and protection of AQRVs.
7. For hydraulically fractured gas wells that do not qualify as “low pressure wells”, “wildcat,” or “delineation” wells, oil and gas operators would comply with reduced emissions completion requirements specified in Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution (40 CFR Section 60.5375) within 6 months of ROD issuance.
8. Non-road diesel engines would be required to use ultra-low sulfur diesel fuel (15 parts per million weight as required by 40 CFR Section 80.610(e)(3)(iii).
9. Natural-gas-fired or electrical compressors or generators would be required at compressor stations in the PRB.
10. CBNG operators proposing a POD within 5 miles of the Northern Cheyenne Indian Reservation or the Crow Indian Reservation would be required to provide the information necessary for the BLM to conduct an analysis of air quality impacts. The BLM will use the information to determine the impact on air quality in the Northern Cheyenne Indian Reservation and the Crow Indian Reservation, disclose the analysis results and subsequent mitigation in the appropriate NEPA document, and consult with the

Tribes when the analysis shows that air quality or AQRV impacts are anticipated from a specific development proposal.

11. CBNG operators within 5 miles of the Northern Cheyenne Indian Reservation and the Crow Indian Reservation may be required to restrict the timing or location of CBNG development if monitoring or modeling by the MDEQ finds that their CBNG development is causing or threatening to cause noncompliance with applicable local, state, Tribal, and federal air quality laws, regulations, and standards, as well as state implementation plans developed by the MDEQ.

6.2 MONITORING-BASED MITIGATION

Enhanced mitigation will be evaluated and implemented if ambient monitoring data at monitors located in oil and gas activity areas within the planning area indicate that pollutant concentrations are approaching or threatening the NAQQS or MAAQS. Prior to completion of initial PGM, monitoring-based thresholds will be based on evaluation of exceedances of the NAAQS, as described in Section 6.2.1. After completion of initial PGM, monitoring-based thresholds will be based on BLM-calculated design values, as described in Section 6.2.3.

6.2.1 Monitoring-based Thresholds before Photochemical Grid Modeling Completion

Based on requests from the USEPA during the MOU review process, the BLM will review NAAQS exceedances and determine if enhanced mitigation is warranted during the interim period between ROD issuance and PGM completion. Unless the BLM determines that enhanced mitigation is not warranted after completing specified steps (as outlined below and in Section 6.2.2), the BLM will require enhanced mitigation for BLM-authorized oil and gas activities if there is a monitored exceedance of the NAAQS at the Birney, Broadus, or Sidney monitors.

1. The BLM will notify the USEPA and the MDEQ within 30 days after monitoring data showing an exceedance has been posted on the USEPA's Air Quality System. An exceedance is defined as any monitored concentration (other than one occurring during an exceptional event) that is greater than the NAAQS, without consideration of the statistical form of the NAAQS or multi-year averaging. The notification will state that (1) the BLM requests concurrence from the MDEQ and USEPA that an exceedance occurred, and (2) the BLM will, upon concurrence by both agencies, review the exceedance according to this procedure.
2. After consulting with the MDEQ, the BLM will determine whether an exceptional event may have caused the exceedance[1].

    - If the MDEQ informs the BLM that an exceptional event likely caused the exceedance, the BLM would provide a letter to that effect to the USEPA and no further action would be necessary.
    - If an exceptional event did not cause the exceedance or if the MDEQ would not submit an exceptional event waiver to the USEPA, the BLM would perform Step 3.

3. The BLM will conduct a screening level analysis[2] to determine the likely source and location of the exceedance and whether mitigation is needed.[3]

[1] The BLM would not formally decide that an exceptional event occurred, because this decision would be made by MDEQ. Until a final determination of an exceptional event is presented to the USEPA by the MDEQ and the USEPA has concurred, the BLM would assume that an exceptional event occurred based on a stated intention by the MDEQ to submit an exceptional event waiver.

[2] Publicly available web-based applications suggested by the USEPA to identify sources of air pollution and potential impacts include the following sites: trajectory analysis tools like HySplit (http://ready.arl.noaa.gov/), air quality data at the USEPA's air quality system site (http://airnow.gov), state regulatory agency sites and airnowtech.org, an interactive snow site (http://www.nohrsc.nws.gov/interactive/html/map.html), daily ozone modeling (http://airquality.weather.gov/), daily ozone and PM2.5 modeling site (http://www.getbluesky.org/), and daily satellite imagery site (http://ge.ssec.wisc.edu/modis-today/).

[3] If data necessary to conduct a screening level analysis is not available, the BLM would consult with the MDEQ and the USEPA regarding source attribution and the need for mitigation.

- If the screening analysis indicates that the exceedance was not caused by BLM-authorized oil and gas sources within the planning area or indicates that the BLM-authorized oil and gas sources within the planning area did not contribute to the exceedance, the BLM will convey this finding in writing to the MDEQ and USEPA for review and comment. No further action would be necessary.
- If the screening analysis indicates that the exceedance was caused or contributed to by BLM-authorized oil and gas sources inside the planning area, the BLM will perform Step 4.

4. The BLM will consult with the MDEQ and USEPA to determine whether there is a need for a refined attribution analysis (e.g., attribution test using Comprehensive Air Quality Model with Extensions ozone source attribution technology or anthropogenic precursor's culpability assessment), or mitigation on BLM-authorized oil and gas emission sources within the planning area. If the refined analysis:

    - is warranted, the BLM will perform the refined analysis within 6 months of completing Step 3 in consultation with MDEQ and USEPA;
    - indicates that the exceedance was not caused or contributed to by BLM-authorized oil and gas sources inside the planning area, the BLM will provide that recommendation to the MDEQ and USEPA for review and comment (no further action would be necessary); or
    - indicates that the exceedance was caused by BLM-authorized oil and gas sources within the planning area, the BLM will evaluate enhanced mitigation measures as described in Section 6.2.2.

6.2.2 Determination of Enhanced Mitigation Measures before Photochemical Grid Modeling Completion

If a NAAQS exceedance occurs prior to completion of PGM and the refined analysis in Step 4 above determined that the exceedance was caused by BLM-authorized oil and gas sources within the planning area, one or more enhanced mitigation measures would be evaluated and selected by the BLM, in cooperation with the MDEQ, IWG, and AQTW, when appropriate. The geographic extent of the mitigation measure(s) would be determined based on the analysis performed under Section 6.2.1 and would be limited to the area determined to be at risk for future exceedances. Preference would be given to mitigation methods that the MDEQ intends to impose as new regulations or air quality permitting provisions. Selected mitigation measures would be implemented within 1 year after the BLM decision to apply additional mitigation.

Potential enhanced mitigation measures may include one or more of the measures listed below. Additional measures or equivalent methods or emission restrictions may be identified in the future. Potential measures include:

- drilling or blowdown activity restrictions based on meteorological conditions,
- construction activity restrictions based on meteorological conditions,
- centralization of gathering facilities,
- electric drill rigs,
- field electrification for compressors or pumpjack engines,
- plunger lift systems with smart automation,
- oil tank load out vapor recovery,
- VOC controls on tanks with a potential to emit less than 5 tons per year,
- selective catalytic reduction on non-drill rig stationary engines,
- reduced emission completions beyond those required by USEPA regulations if determined to be technically and economically feasible,
- well pad density limitations,
- a reduced total number of drill rigs operating simultaneously,
- seasonal reductions or cessations of drilling during specified periods,
- use of only lower-emitting drill and completion rig engines during specified time periods,
- use of natural-gas-fired drill and completion rig engines,

- replacement of internal combustion engines with gas turbines for natural gas compression,
- employment of a monthly, forward-looking infrared leak detection program to reduce VOCs,
- tank load out vapor recovery,
- enhanced VOC emission controls with 95-percent control efficiency on additional production equipment having a potential to emit of greater than 5 tons per year, and
- enhanced direct inspection and maintenance program.

6.2.3 Monitoring-Based Thresholds after Photochemical Grid Modeling Completion

By May 31 of each year following completion of PGM and annually thereafter, the BLM will calculate design values for each pollutant monitored at a federal reference monitor or federal equivalent method monitor within the planning area and identified as a representative monitor in Section 3.0. The design value will be calculated based on calendar year monitoring data available at the time. For pollutants requiring 3 years of monitoring data for design value calculation, data from the appropriate prior period will be used. For example, based on PGM completion in mid-2015, the first annual design value calculation will be performed by May 31, 2016, and will include monitoring data for calendar years 2013, 2014, and 2015 for 3-year design values and on monitoring data for calendar year 2015 for single-year design values.

Calculation methods will, to the extent possible, follow USEPA procedures provided in the appendices described below within Title 40 of the CFR, Part 50 in effect as of December 1, 2012:

- nitrogen dioxide (Appendix S),
- ozone (Appendix P),
- particulate matter (PM_{10}) (Appendix K),
- fine particulate matter ($PM_{2.5}$) (Appendix N), and
- sulfur dioxide (Appendix T).

These procedures may be updated by future USEPA regulations and this section of the ARMP would be revised to reflect changing regulations.

Design values will be calculated on a site-specific basis (i.e., no spatial averaging of multiple monitors). BLM design value calculations will exclude data associated with MDEQ-identified exceptional events and be performed in accordance with USEPA regulations and guidance.

6.2.4 Determination of Enhanced Mitigation Measures after Photochemical Grid Modeling Completion

If the air quality assessment described in Section 6.2.3 indicates that a BLM-calculated design value is greater than 85 percent of a NAAQS, one or more enhanced mitigation measures addressing that pollutant or pollutant precursor will be evaluated and could be selected by the BLM, in cooperation with the MDEQ, IWG, and USEPA. The geographic extent of the mitigation measure(s) would be determined based on the analysis performed in Section 6.2.3. Potential enhanced mitigation measures include the measures listed above in Section 6.2.2 as well as additional measures that may be identified in the future. Selected mitigation measures will be implemented within 1 year after the BLM decision to apply additional mitigation.

6.3 MODELING-BASED MITIGATION

6.3.1 Modeling-based Thresholds

Future modeling will assess air quality and AQRV impacts from future BLM-authorized oil and gas activity and include regional PGM and project-specific modeling. Modeling-based thresholds for evaluating enhanced mitigation would include potential future impacts on NAAQS or MAAQS or impacts above specific levels of concern for AQRVs in Class I or sensitive Class II areas (as identified on a case-by-case basis by MDEQ or a federal land management or Tribal agency).

6.3.2 Determination of Modeling-based Enhanced Mitigation Measures

If BLM-authorized oil and gas activity is predicted to cause or contribute to impacts above the thresholds described above, the BLM will facilitate an interagency process to ensure that a comprehensive strategy is developed to manage air quality impacts from future oil and gas development within the region. The local, state, federal, and Tribal agencies involved in the regulation of air quality and the authorization of oil and gas development will evaluate modeling results from future modeling studies and identify potential air quality concerns and necessary reductions in air emissions. If the modeling predicts significant impacts, these agencies would use their respective authorities to implement enhanced emission control strategies, operating limitations, equipment standards, or pacing of development as necessary to ensure continued compliance with applicable ambient air quality standards, including the enhanced mitigation measures listed in Section 6.2.2; other future mitigation measures identified through the BLM's adaptive management strategy; or reasonable mitigation measures suggested by the MDEQ, IWG, or AQTW. If necessary, implementation of mitigation measures will occur within 1 year of obtaining final modeling results for mitigation measures that conform to currently implemented land use planning decisions and constraints.

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APPENDIX J
FISH, AQUATIC AND WILDLIFE HABITAT INCLUDING SPECIAL STATUS SPECIES

APPENDIX J
FISH, AQUATIC, AND WILDLIFE HABITAT, INCLUDING SPECIAL STATUS SPECIES

INTRODUCTION

This appendix contains in-depth information and specific conservation plans, actions, and guidelines to guide wildlife management in the resource management plan (RMP) planning area, including:

- A complete list of aquatic species occurring in the planning area is included in this appendix.
- A list of Bureau of Land Management (BLM) designated Special Status Species (SSS) potentially occurring in the planning area.
- Guidance for terrestrial wildlife in this appendix includes the following.
    - Bighorn sheep management, which includes information for specialized design features to minimize or prevent contact between bighorn sheep and domestic sheep or goats.
    - Sage-grouse management, which includes the Western Association of Fish and Wildlife Agencies (WAFWA) sage-grouse guidelines and guidance for monitoring of sage-grouse and sagebrush habitat.
    - Migratory bird conservation guidelines, which include guidance and conservation strategies under applicable plans.
    - BLM SSS list for the planning area.
    - Special status wildlife species information, which includes a list of relevant plans and detailed information regarding consultation with the United States Fish and Wildlife Service (USFWS).
    - Survey and monitoring protocols for entities seeking to conduct surface disturbing or disruptive activities on BLM lands and those lands underlain with federal mineral estate.

AQUATIC WILDLIFE

AMPHIBIANS

The planning area supports six species of amphibians in the planning area (and possibly the nonnative American bullfrog) (Table 1).

TABLE 1.
NATIVE AND NONNATIVE AMPHIBIAN SPECIES OCCURRING IN THE PLANNING AREA

Native		Nonnative	
Boreal chorus frog	*Pseudacris maculata*	American bullfrog[1]	*Rana catesbeiana*
Great plains toad	*Bufo cognatus*		
Northern leopard frog	*Rana pipiens*		
Plains spadefoot	*Spea bombifrons*		
Tiger salamander	*Ambystomia tigrinum*		
Woodhouse's toad	*Bufo woodhousii*		

[1]Although the American bullfrog has not been officially documented in the planning area, it is likely present in low abundance.

REPTILES

The planning area supports 14 species of reptiles in the planning area (Table 2).

TABLE 2.
NATIVE AND NONNATIVE REPTILE SPECIES OCCURRING IN THE PLANNING AREA

Native		Nonnative
Common gartersnake	*Thamnophis radix*	There are no known introduced reptiles in the planning area.
Common sagebrush lizard	*Sceloporus gracious*	
Eastern racer	*Coluber constrictor*	
Greater short-horned lizard	*Phrynosoma hernandesi*	
Gophersnake	*Pituophis catenifer*	
Milksnake	*Lampropeltis triangulum*	
Painted turtle	*Chrysemys picta*	
Plains gartersnake	*Thamnophis radix*	
Western rattlesnake	*Crotalus viridis*	
Smooth greensnake	*Opheodrys vernalis*	
Snapping turtle	*Chelydra serpentine*	
Spiny softshell turtle	*Apalone spinifera*	
Terrestrial gartersnake	*Thamnophis elegans*	
Western hog-nosed snake	*Heterdon nasicus*	

FISH

The planning area supports 63 species of fish, including 35 native and 28 nonnative (introduced) species (Holton and Johnson 2003; MFWP 2010b) (Table 3).

TABLE 3.
NATIVE AND NONNATIVE FISH SPECIES OCCURRING IN THE PLANNING AREA

Native	**Nonnative**
Bigmouth buffalo *(Ictiobus cyprinellus)*	Black bullhead *(Ameiurus melas)*
Blue sucker *(Cycleptus elongatus)*[3]	Black crappie *(Pomoxis nigromaculatus)*
Brassy minnow *(Hybognathus hankinsoni)*	Bluegill *(Lepomis macrochirus)*
Brook stickleback *(Culaea inconstans)*	Brook trout *(Salvelinus fontinalis)*
Burbot *(Lota lota)*	Brown trout *(Salmo trutta)*
Channel catfish *(Ictalurus punctatus)*	Chinook salmon *(Oncorhynchus tshawytscha)*
Creek chub *(Semotilus atromaculatus)*	Cisco *(Coregonus artedi)*
Emerald shiner *(Notropis atherinoides)*	Common carp *(Cyprinus carpio)*
Fathead minnow *(Pimephales promelas)*	Golden shiner *(Notemigonus crysoleucas)*
Flathead chub *(Hybopsis gracilis)*	Green sunfish *(Lepomis cyanellus)*
Freshwater drum *(Aplodinotus grunniens)*	Goldfish *(Carassius auratus)*
Goldeye *(Hiodon alosoides)*	Kokanee salmon *(Oncorhynchus nerka)*
Iowa darter *(Etheostoma exile)*	Lake trout *(Salvelinus namaycush)*
Lake chub *(Couesius plumbeus)*	Largemouth bass *(Micropterus salmoides)*
Longnose dace *(Rhinichthys cataractae)*	Northern pike *(Esox lucius)*
Longnose sucker *(Catostomus catostomus)*	Plains killifish *(Fundulus kansae)*
Northern redbelly dace (*Phoxinus eos)*	Pumpkinseed *(Lepomis gibbosus)*
Northern red-belly x finescale dace hybrid *(Phoxinus eos x phoxinus eogaeus)*[3]	Rainbow smelt *(Osmerus mordax)*
Paddlefish *(Polyodon spathula)*[3]	Rainbow trout *(Oncorhynchus mykiss)*

Native	**Nonnative**
Pallid sturgeon *(Scaphirhynchus albus)*[1]	Rock bass *(Ambloplites rupestris)*
Pearl dace *(Margariscus margarita)*[3]	Smallmouth bass *(Micropterus dolomieu)*
Plains minnow *(Hybognathus placitus)*	Spottail shiner *(Notropis hudsonius)*
River carpsucker *(Carpiodes carpio)*	Walleye (*Sander vitreus)*
Sand shiner (*Notropis stramineus)*	Western mosquitofish *(Gambusia affinis)*
Sauger *(Stizostedion canadense)*[3]	White bass *(Morone chrysops)*
Shorthead redhorse *(Moxostoma macrolepidotum)*	White crappie *(Pomoxis annularis)*
Shortnose gar *(Lepisosteus platostomus)*[1]	Yellow bullhead *(Ameiurus natalis)*
Shovelnose sturgeon *(Scaphirhynchus platorynchus)*	Yellow perch *(Perca flavescens)*
Sicklefin chub *(Macrohybopsis meeki)*[1]	
Smallmouth buffalo *(Ictiobus bubalus)*	
Stonecat *(Noturus flavus)*	
Sturgeon chub *(Macrohybopsis gelida)*[3]	
Western silvery minnow *(Hybognathus argyritis)*	
White sucker *(Catostomus commersoni)*	

[1]Montana Fish, Wildlife, and Parks (MFWP) species of special concern
[2E]ndangered species and BLM SSS
[3] MFWP species of special concern and BLM sensitive species

TERRESTRIAL WILDLIFE

SPECIAL STATUS SPECIES

Special status species (SSS), collectively, are USFWS federally listed or proposed species, and the BLM sensitive species from the 2009 Montana/Dakota's sensitive species list. The Montana/Dakotas sensitive species list is revised periodically. BLM sensitive species also include both federal candidate species and delisted species within 5 years of delisting. Table 4 includes a list of species, BLM and USFWS status and whether the planning area is within the current range of the species.

TABLE 4.
SPECIAL STATUS SPECIES

Species	USFWS Status	BLM Status	Known to occur in Planning Area
Mammals			
Gray Wolf*	None	Sensitive	Yes
Grizzly Bear**	Threatened	SSS	No
Black-footed ferret (BFF)	Endangered	SSS	No
Black-tailed prairie dog	None	Sensitive	Yes
Swift fox	None	Sensitive	Yes
Fisher	None	Sensitive	No
Great Basin Pocket Mouse	None	Sensitive	No
North American Wolverine	None	Sensitive	No
Pygmy rabbit	None	Sensitive	No
Fringed Myotis	None	Sensitive	Yes
Pallid bat	None	Sensitive	Yes
Northern Myotis	None	Sensitive	Yes
Townsend's big-eared bat	None	Sensitive	Yes
White-tailed prairie dog	None	Sensitive	No

Species	USFWS Status	BLM Status	Known to occur in Planning Area
Birds			
Franklin's gull	None	Sensitive	Yes
Interior least tern	Endangered	SSS	Yes
Black tern	None	Sensitive	Yes
White-faced ibis	None	Sensitive	Yes
Whooping crane	Endangered	SSS	Yes
Yellow rail	None	Sensitive	Yes
Piping plover	Threatened, with critical habitat	SSS	Yes
Mountain plover	None	Sensitive	Yes
Long-billed curlew	BCC	Sensitive	Yes
Greater sage-grouse	Candidate	Sensitive	Yes
Burrowing owl	BCC	Sensitive	Yes
Great gray owl	None	Sensitive	No
Trumpeter swan	None	Sensitive	No
Flammulated owl	None	Sensitive	No
Bald eagle	BCC	Sensitive	Yes
Golden eagle	None	Sensitive	Yes
Ferruginous hawk	None	Sensitive	Yes
Peregrine falcon	None	Sensitive	Yes
Sage thrasher	BCC	Sensitive	Yes
Sprague's pipit	Candidate	Sensitive	Yes
Loggerhead shrike	BCC	Sensitive	Yes
Chestnut-collared longspur	BCC	Sensitive	Yes
McCown's longspur	BCC	Sensitive	Yes
Baird's sparrow	BCC	Sensitive	Yes
Brewer's sparrow	BCC	Sensitive	Yes
American bittern	BCC	None	Yes
Yellow-billed Cuckoo	BCC	Sensitive	Yes
Lewis's woodpecker	BCC	None	No
Red-headed woodpecker	BCC	Sensitive	Yes
Black-backed woodpecker	None	Sensitive	Yes
Sage sparrow	BCC	Sensitive	Yes
Blue-gray natcatcher	None	Sensitive	No
Amphibians			
Great Plains toad	None	Sensitive	Yes
Northern leopard frog	None	Sensitive	Yes
Plains spadefoot toad	None	Sensitive	Yes
Boreal/Western Toad	None	Sensitive	No
Fish			
Pallid Sturgeon	Endangered	SSS	Yes
Northern Redbelly Dace***	None	None	Yes
Northern Redbelly X Finescale Dace	None	Sensitive	Yes
Paddlefish	None	Sensitive	Yes
Pearl Dace	None	Sensitive	Yes
Sauger	None	Sensitive	Yes
Iowa Darter***	None	None	Yes
Sicklefin Chub***	None	None	Yes

Species	USFWS Status	BLM Status	Known to occur in Planning Area
Sturgeon Chub	None	Sensitive	Yes
Reptiles			
Snapping turtle	None	Sensitive	Yes
Spiny softshell	None	Sensitive	Yes
Greater short-horned lizard	None	Sensitive	Yes
Milk snake	None	Sensitive	Yes
Western hog-nosed snake	None	Sensitive	Yes

Sources: Montana Bird Distribution Committee 2012; Werner, Maxell, Hendricks, and Flath. 2004; Foresman 2001; MTNHP, 2010; BLM, 2009; USDA – NRCS Plants Database, 2010
***Gray wolf has been delisted so has been moved to the sensitive list**
****Grizzly bear has been delisted for the Greater Yellowstone ecosystem. In that area it is a Bureau sensitive species.**
***** Iowa darter, northern redbelly dace, and sicklefin chub are listed as species of concern by MFWP.**

BIGHORN SHEEP

The following guidelines are design features to reduce contact between bighorn sheep and domestic sheep and goats:

- Provide instructions addressing management, retrieval, and disposition of any stray domestic sheep and goats used for invasive weed control left on public lands;
- use of herders, dogs, or other guarding animals trained to repel animals foreign to domestic sheep bands or goat flocks;
- confinement of domestic sheep and goats at night to minimize strays and the use of adequate fencing configurations designed to achieve the most effective separation possible; and
- evaluation of timing of permitted domestic sheep and goat trailing or grazing activities to reduce disease transmission risk.

MIGRATORY BIRD CONSERVATION

The Miles City Field Office (MCFO) will use the following to implement migratory bird conservation in the planning area. Management actions should focus on providing a variety of habitat characteristics that support successful breeding by migratory birds. This generally requires providing properly functioning habitats with the appropriate vegetation diversity, density, and structure based on site potential to support nesting, security and foraging. Vegetation modification actions that reduce the capability of habitats to support these needs, such as prescribed fire, timber harvest, and livestock grazing, need to be evaluated for potential adverse impacts, particularly if they occur during the spring or early summer. The timing and intensity of these actions, as well as the type of habitat and bird species present, may substantially influence the level of impact to migratory birds. Such impacts have been considered to represent “take” per USFWS regulations and have management implications.

BLM MIGRATORY BIRD CONSERVATION STRATEGY

Non-game migratory birds are the primary concern under migratory bird conservation. Whereas waterfowl and migratory game birds are cooperatively managed by individual states and the USFWS, there has been less emphasis on developing and implementing management strategies to protect populations and habitat for other migratory birds, particularly neotropical migrants. Neotropical migrants are species of songbirds, shorebirds, and raptors that typically breed in North America but winter in Latin or South America. Because of these long-range migrations, it is important that quality habitats are present in their breeding habitat and adequately distributed along their migration routes to successfully reach their breeding, nesting and wintering grounds. It is also essential to provide sufficient quantities of suitable breeding habitat to maintain viable populations.

The BLM's *Nongame Migratory Bird Habitat Conservation Plan* (McClure et al. 1992) provides the foundation for proactive habitat management on behalf of non-game birds that migrate to the tropics or use neotropical habitats. The overall intent is to reverse the decline in some bird populations and to implement this proactive program for other migratory species. The plan addresses goals for inventory and monitoring, habitat management, research and studies, training, education, outreach and communication, domestic partnerships, and international partnerships. Habitat management goals, management opportunities, and recommended strategies from the plan include those described below.

MILES CITY FIELD OFFICE MIGRATORY BIRD TREATY ACT GUIDELINES

The following guidance is for those entities intending to conduct surface disturbing or disruptive activities on BLM administered lands.

The Operator is responsible for compliance with provisions of the Act by implementing one of the following measures;

a) **avoidance by timing**; ground disturbing activities will not occur from April 15 to July 15,

b) **habitat manipulation**; render proposed project footprints unsuitable for nesting prior to the arrival of migratory birds (blading or pre-clearing of vegetation must occur prior to April 15 within the area scheduled for activities between April 15 and July 15 of that year to deter nesting,) or

c) **survey-buffer-monitor**; surveys will be conducted by an operator funded, BLM approved biologist within the area of the proposed action and a 300 foot buffer from the proposed project footprint between April 15 to July 15 if activities are proposed within this timeframe. If nesting birds are found, activities would not be allowed within 0.1 miles of nests until after the birds have fledged. If active nests are not found, construction activities must occur within 7 days of the survey. If this does not occur, new surveys must be conducted. Survey reports will be submitted to the BLM-MCFO.

OTHER CONSERVATION PLAN OBJECTIVES

The North American Wetland Conservation Act (16 United States Code [U.S.C.] 4401 et seq.) provides the primary funding source for joint venture projects that can now be implemented for all bird species and their habitats, based on national priorities. The objectives for all of these plans are similar:

1. determine population status and trends and identify their habitats on the public lands,
2. restore, maintain, and enhance populations through habitat management,
3. conduct research and studies to obtain knowledge needed for informed decision making for on-the-ground management of the importance of birds and their value to our natural heritage,
4. develop a broad awareness and understanding of the importance of birds and their value to our natural heritage,
5. build on existing relationships and create new partnerships to foster conservation programs, and
6. establish international relationships to enhance hemispheric conservation programs for migratory species.

PRIORITY SPECIES OF CONCERN

Many of the high priority bird species identified in bird conservation plans are not currently included on BLM SSS lists. It is the intent of the BLM to work with the bird conservation initiatives and the Partners in Flight prioritization process to identify where SSS recognition is warranted (see BLM Manual Supplement 6840, *Special Status Species Management*). BLM sensitive species lists are reviewed periodically at the state level and should ensure coordination with USFWS and Partners in Flight priority bird lists (USFWS 2008).

The USFWS provides a list of Birds of Conservation Concern for specific geographic areas (USFWS 2008). The MCFO is included in the Northern Rockies Bird Conservation Region (also known as BCR10), which recognizes the following priority species (USFWS 2008):

- Swainson's hawk,
- golden eagle,
- peregrine falcon,
- American golden-plover,
- mountain plover,
- upland sandpiper,
- yellow-billed cuckoo,
- black swift,
- Lewis' woodpecker,
- red-naped sapsucker,
- loggerhead shrike,
- Virginia's warbler,
- McCown's longspur,
- ferruginous hawk,
- prairie falcon,
- Brewer's sparrow,
- snowy plover,
- solitary sandpiper,
- whimbrel,
- long-billed curlew,
- sanderling,
- Wilson's phalarope,
- marbled godwit,
- flammulated owl,
- Williamson's sapsucker,
- white-headed woodpecker,
- pygmy nuthatch, and
- yellow rail.

Partners in Flight lists are developed nationally, regionally, and by individual states through specific plans. The *Montana Bird Conservation Plan* identifies numerous priority species for grassland, shrubland, forest, riparian and wetland habitats with reasons for concern, management issues and recommendations, and population and habitat objectives (Montana Partners in Flight 2000). The following are considered Priority 1 species in the plan:

- common loon,
- trumpeter swan,
- piping plover,
- mountain plover,
- flammulated owl,
- black-backed woodpecker,
- brown creeper,
- Sprague's pipit,
- Baird's sparrow,
- olive-sided flycatcher,
- burrowing owl,
- harlequin duck
- sage-grouse, and
- interior least tern.

SPECIAL STATUS WILDLIFE SPECIES

Table 5 lists plans and regulations for SSS management in the planning area.

TABLE 5.
RELEVANT PLANS AND REGULATIONS FOR SPECIAL STATUS SPECIES IN THE PLANNING AREA

Document Title	Year	Relevance
BLM Documents		
BLM National Greater Sage-grouse Land Use Planning Strategy, IM No. 2012-044	2011	Provides land-use plan direction for sage-grouse conservation and consideration of measures identified in the BLM's 2011 *A Report on National Greater Sage-grouse Conservation Measures* in accordance with the 2011 *National Greater Sage-grouse Land Use Planning Strategy*.
WAFWA Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004)	2004	Establishes a comprehensive approach to management of sage-grouse habitat on public lands.
Miles City District Black-tailed Prairie Dog Management Plan	1986	Provides guidelines on prairie dog control or management activities.
BLM Manual 6840	2008	Provides guidelines for the management of SSS.
BLM Use Planning Handbook H-1601	2005	This manual provides guidance for the BLM to manage species of special concern in a manner that will not cause these species to become threatened or endangered.
*Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakot*a	1997	Guideline 13 states that grazing management practices should maintain or improve habitat for federal listed threatened, endangered, and special status plants and animals.
Other Federal and Tribal Regulations and Plans		
Endangered Species Act	1973	Provides guidelines in the protection of federally listed species (16 U.S.C. 1531 et seq.).
Bald and Golden Eagle Protection Act	1940/1962	Provides guidelines for the protection of bald eagles (16 U.S.C. 668–668d).
Migratory Bird Treaty Act	1918/1972	Prohibits the take, capture, or kill any migratory bird, any part, nest, or eggs of any such bird (16 U.S.C. 703(a)), this includes all special status avian species (16 U.S.C. 703–712).
Multi-State Conservation Plan for the Black-tailed Prairie Dog in the United States	2002	Guidelines to develop management plans for individual states and their respective working groups. The plan for state of Montana has been developed.
Black-footed Ferret Recovery Plan	1988	Outlines steps for recovery of the BFF throughout its historic range, including Montana. Includes captive rearing with establishment of at least ten populations in the wild.
Conservation Assessment and Conservation Strategy for Swift Fox in the United States	1997	Provides objectives, strategies, and activities designed to achieve the goal of maintaining and restoring swift fox populations in ten states, including Montana.

Document Title	Year	Relevance
Recovery Plan for the Interior Population of the Least Tern	1990	Provides recovery objectives, and the actions needed to achieve those objectives, for the interior least tern population.
Draft International Recovery Plan for the Whooping Crane	2005	Plan provides a recovery strategy to achieve the goal of establishing multiple self-sustaining whooping crane populations in North America.
Revised Recovery Plan for Piping Plovers	1994	Provides piping plover recovery objectives, and the actions needed to achieve those objectives, in the Northern Great Plains and Great Lakes.
State Plans		
Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana	2002	Plan establishes workgroups to identify opportunities to manage prairie dogs so that the distribution and abundance objectives from the state plan are met. Workgroups are to identify specific prairie dog complexes and priority areas for maintaining and enhancing their numbers.
Montana Bald Eagle Management Plan and the Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan	1994/2010	Provides specific direction to use nest site management zones to eliminate potential threats to nesting bald eagles.
Management Plan and Conservation Strategies for Sage-grouse in Montana-Final	2004	Plan establishes a process to achieve sage-grouse management objectives and provide framework to guide local management efforts. Overall goal of the plan is to provide for the long-term conservation and enhancement of the sagebrush steppe/mixed-grass prairie complex within Montana in a manner that supports sage-grouse, other wildlife, and human uses.
Montana's Comprehensive Fish and Wildlife Conservation Strategy-Draft	2005	Provides priorities for management to preserve wildlife and habitat for those species in greatest need.
Montana Interior Least Tern Management Plan	2006	Recommends specific management and research activities believed necessary to sustain the population and aid long-term recovery efforts.
Montana Piping Plover Management Plan	2006	Provides recommendations as a multifaceted approach to managing piping plover breeding habitat and increasing levels of productivity.

The following Wildlife Survey Protocols were developed for entities wishing or directed to conduct wildlife surveys in advance of BLM authorized surface disturbing or disruptive activities. These protocols shall be adhered to in order for BLM to address current resources and accurately assess impacts of these proposed activities through the appropriate NEPA document.

TABLE 6.
MILES CITY FIELD OFFICE WILDLIFE SURVEY PROTOCOL

SPECIES	PROTECTED ACTIVITY	HABITAT	SURVEY DISTANCE FROM ACTIVITY*	SURVEY DATES
Bald Eagle	Winter Roosts	Stands of mature trees within or adjacent to riverine or perennial riparian systems	1.0 mile	Dec. 1 – Feb. 28
All raptor and owl species, excluding burrowing owls	Nesting	Nesting Substrates: mature trees, outcrops, cliffs, stream banks, ridges, knolls, trees, etc.	1.0 mile	April 15 – June 15
Black-tailed prairie dog	Prairie dog colonies	Prairie habitats	0.5 miles	Year-round
Mountain Plover	Nesting	Flat, shortgrass prairie, low/sparse veg., alkali flats, prairie dog towns	0.25 miles	May 1 – June 15
Burrowing owl	Nesting	Prairie dog/other burrows (active or inactive)	Prairie dog towns and burrows within 0.5 miles	June - August
BFF	To be Determined (TBD) in coordination w/United States Fish and Wildlife Service (USFWS)	Prairie dog colonies/complexes	Colonies ≥80 acres within project area; or all complexes (2 or more colonies within 1.5 km of each other, with at least a portion of 1 colony within project area) totaling ≥80 acres	See USFWS BFF Surveys guidelines (1989)
Greater Sage Grouse	Strutting Grounds (leks)	Openings within sagebrush	2.0 miles	April 1 – May 7
Greater Sage Grouse	Winter habitat	Sagebrush Grasslands	2.0 miles	Dec. 1 – Feb. 28
Plains Sharp-tailed Grouse	Dancing Grounds (leks)	Ridges, high points, knobs, or other flat areas within grasslands habitat	2.0 miles	April 1 – May 7
Wading Birds	Rookeries	Mature trees within riparian corridors, or ground nesting on islands	1.0 mile	April 15 – Aug. 31
All Other Migratory Birds**	Nesting	All	Project area plus 300 foot buffer.	April 15 – July 15 (if project activities occur within this timeframe)
Other Threatened, Endangered, Sensitive Species; and /or other general wildlife species inventory/monitoring	TBD, as necessary in coordination with USFWS and MFWP			

***For linear projects such as pipelines and other major Rights-Of-Ways (ROWs), each side is to be surveyed out to the identified distance in the column.**
****Actions affecting all other migratory birds (ex. ground nesting songbirds) may defer to any agreement in place between project proponent and USFWS.**

See "Wildlife Survey Protocol for Coal Bed Natural Gas Development, Powder River Basin Wildlife Taskforce" (BLM 2005h) for survey specifics, forms, and reporting requirements. For any discrepancies in survey dates and distances, use the table above.

<The following was sent to the USFWS Field Supervisor, Helena, MT, on March 17, 2011.>

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301-0940
http://www.mt.blm.gov/mcfo/

Memorandum

To: Field Supervisor, U.S. Fish and Wildlife Service, Montana Ecological Services Field Office, Helena, Montana

From: Deborah K. Johnson, Field Manager

Subject: Preparation of Resource Management Plan for the Miles City Field Office Planning Area

The Bureau of Land Management (BLM) Miles City Field Office (MCFO) is preparing a new resource management plan (RMP) for the MCFO planning area. The new RMP would replace the existing Big Dry RMP and the Powder River RMP. The new Miles City Field Office RMP would guide management actions for the BLM on federal surface and federal mineral estate within the MCFO planning area.

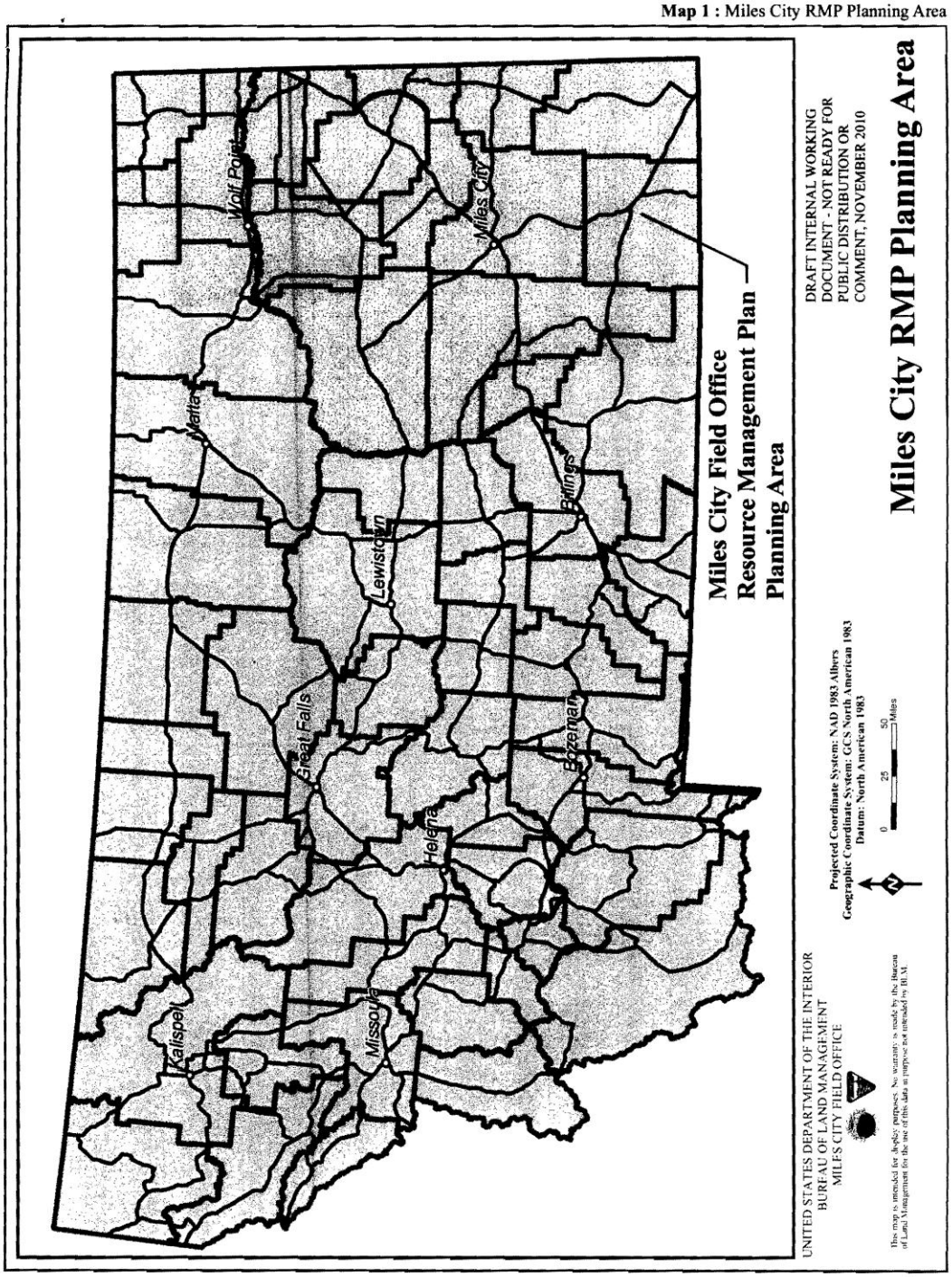
The MCFO staff is preparing a draft environmental impact statement (EIS) in compliance with the National Environmental Policy Act of 1969 and the Federal Land Policy and Management Act of 1976. The EIS will address effects of the new RMP on public lands and mineral estate within the MCFO planning area. The EIS will also evaluate potential effects of management actions approved through the new RMP on federally listed species listed and critical habitat.

Therefore, we request that the U.S. Fish and Wildlife Service specify what federally listed, proposed, or candidate species, as well as **c**ritical habitat or proposed critical habitat, may be in or immediately adjacent to the MCFO planning area (see attached map). The planning area includes the following counties: Carter, Powder River, Fallon, Custer, Rosebud, Wibaux, Prairie, Garfield, McCone, Dawson Richland, Roosevelt, Sheridan, Daniels, Treasure, and the eastern one-third of Valley County, and the southeast corner of Bighorn County.

If you have any questions on this request or require additional information, please contact Kent Undlin, Wildlife Biologist, at 406-233-2845.

Attachment: MCFO planning area map

Map 1 : Miles City RMP Planning Area



pg 1

<End of letter.>

<Letter from the United States Fish and Wildlife Service>

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
585 SHEPARD WAY
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

M.02 BLM (MCFO) June 27, 2011

Memorandum

To: Deborah K. Johnson, Field Manager, Bureau of Land Management, Miles City Field Office

From: R. Mark Wilson, Field Supervisor, Montana Ecological Services Field Office, Helena, Montana

Subject: Preparation of Resource Management Plan for the Miles City Field Office Planning Area

This is in response to your request for information from the U.S. Fish and Wildlife Service (Service) regarding federally listed and proposed threatened and endangered species, candidate species, and critical habitat that may occur in the vicinity of the Miles City Field Office (MCFO) planning area. The planning area includes Carter, Powder River, Fallon, Custer, Rosebud, Wibaux, Prairie, Garfield, McCone, Dawson, Richland, Roosevelt, Sheridan, Daniels, and Treasure counties, as well as the eastern one third of Valley County and the southeast corner of Big Horn County.

In accordance with section 7(c) of the Endangered Species Act, the Service has determined that the following listed species may be present in the MCFO planning area counties:

County/Scientific Name	Common Name	Status
CARTER		
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
POWDER RIVER		
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
FALLON		
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C

County/Scientific Name	Common Name	Status
CUSTER		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Mustela nigripes	Black-footed Ferret	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
ROSEBUD		
Mustela nigripes	Black-footed Ferret	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
WIBAUX		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
PRAIRIE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
GARFIELD		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
McCONE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Mustela nigripes	Black-footed Ferret	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
DAWSON		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C

County/Scientific Name	Common Name	Status
Anthus spragueii	Sprague's Pipit	C
RICHLAND		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
ROOSEVELT		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Anthus spragueii	Sprague's Pipit	C
SHERIDAN		
Charadrius melodus	Piping Plover	LT, CH
Grus americana	Whooping Crane	LE
Anthus spragueii	Sprague's Pipit	C
DANIELS		
Grus americana	Whooping Crane	LE
Anthus spragueii	Sprague's Pipit	C
TREASURE		
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
VALLEY		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Mustela nigripes	Black-footed Ferret	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
BIG HORN		
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C

* LT = Listed Threatened; LE = Listed Endangered; CH = Critical Habitat; C = Candidate

Section 7(c) of the Act requires federal agencies that authorize, fund or carry out major construction activities complete a biological assessment to determine the effects of the proposed actions on listed and proposed species. A major construction activity is defined as "a construction project (or other undertaking having similar physical impacts) which is a major federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act" (50 CFR Part 402). If a biological assessment is not required (i.e., all other actions), the federal agency is still required to review their proposed

activities to determine whether listed species may be affected. If such a determination is made, formal consultation with the Service is required.
For those actions wherein a biological assessment is required, the assessment should be completed within 180 days of initiation. This time frame can be extended by mutual agreement between the federal agency or its designated non-federal representative and the Service. If an assessment is not initiated within 90 days, this list of threatened and endangered species should be verified with the Service prior to initiation of the assessment. The biological assessment may be undertaken as part of the federal agency's compliance of section 102 of the NEPA and incorporated into the NEPA documents. We recommend that biological assessments include the following:

1. A description of the project.
2. A description of the specific area that may be affected by the action.
3. The current status, habitat use, and behavior of T/E species in the project area.
4. Discussion of the methods used to determine the information in Item 3.
5. An affects analysis of the action for listed species and proposed species and their habitats, including an analysis of any cumulative effects.
6. Coordination/mitigation measures that will reduce/eliminate adverse impacts to T/E species.
7. The expected status of T/E species in the future (short and long term) during and after project completion.
8. A determination of "May affect, likely to adversely affect" or "May affect, not likely to adversely affect" for listed species.
9. A determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species.
10. Citation of literature and personal contacts used in developing the assessment.

If it is determined a proposed program or project "is likely to adversely affect" any listed species, formal consultation should be initiated with this office. If it is concluded the project "is not likely to adversely affect" listed species, the Service should be asked to review the assessment and concur with the determination of no adverse effect.

A federal agency may designate a non-federal representative to conduct informal consultation or prepare biological assessments. However, the ultimate responsibility for section 7 compliance remains with the federal agency and written notice should be provided to the Service upon such a designation. We recommend federal agencies provide their non-federal representatives with proper guidance and oversight during preparation of biological assessments and evaluation of potential impacts to listed species.

Section 7(d) of the Act requires that the federal agency and permit/license applicant shall not make any irreversible or irretrievable commitment of resources which would preclude the formulation of reasonable and prudent alternatives until consultation on listed species is completed.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your project planning. If you have questions or comments related to this issue, please contact Jeff Berglund at 406-449-5225 extension 206.

United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
Phone: (406) 449-5225 Fax: (406) 449-5339

File: M02 BLM March 30, 2015

Memorandum

To: Jamie Connell, State Director, Bureau of Land Management, Montana/Dakotas State Office, Billings, Montana

From: *for* Jodi L. Bush, Field Supervisor, U.S. Fish and Wildlife Service, Montana Field Office, Helena, Montana

Subject: Updated List of Endangered, Threatened, Proposed, and Candidate Species

This is in response to your office's March 19, 2015 email request for updated information from the U.S. Fish and Wildlife Service (Service) regarding federally listed and proposed threatened and endangered species, candidate species, and critical habitat that may occur in the vicinity of the Lewistown, Billings and Pompey's Pillar National Monument, HiLine, and Miles City Field Office Resource Management Plan (RMP) Amendment / Revision and Environmental Impact Statement (EIS) planning areas in central and eastern Montana.

We understand the planning areas to include portions of the following counties:

- Lewistown RMP - Chouteau, Fergus, Judith Basin, Meagher, and Petroleum;
- Billings and Pompey's Pillar National Monument RMP - Big Horn, Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Wheatland, and Yellowstone;
- HiLine RMP - Glacier, Toole, Liberty, Hill, Blaine, Phillips, Valley, and Choteau;
- Miles City RMP - Carter, Powder River, Fallon, Custer, Rosebud, Wibaux, Prairie, Garfield, McCone, Dawson, Richland, Roosevelt, Sheridan, Daniels, Treasure, Valley, and Big Horn.

Our comments are provided as a cooperating agency pursuant to the National Environmental Policy Act (NEPA) and 40 Code of Federal Regulations Part 1500-1508, 43 C.F.R. 46.230, and as requested per the March 2012 Memorandum of Understanding (MOU) between BLM, the U.S. Fish and Wildlife Service (Service) and the U.S. Forest Service (USFS). These comments are authorized under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et. seq.), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). In accordance with section 7(c) of the ESA, the Service has determined that the following listed species may be present in the subject planning area vicinities:

1

Species	Status[1]	Resource Management Plan Planning Areas			
		Billings and Pompey's Pillar National Monument	HiLine	Lewistown	Miles City
Black-footed Ferret (*Mustela nigripes*)	LE/XN	x	x	x	x
Whooping Crane (*Grus americana*)	LE		x		x
Least Tern (*Sterna antillarum*)	LE		x		x
Pallid Sturgeon (*Scaphirhynchus albus*)	LE		x	x	x
Grizzly Bear (*Ursus arctos horribilis*)	LT	x	x		
Piping Plover (*Charadrius melodus*)	LT CH		x		x
Canada Lynx (*Lynx Canadensis*)	LT CH	x		x	
Red Knot (*Calidris canutus rufa*)	LT	x	x		x
Northern Long-eared Bat (*Myotis septentrionalis*)	P				x
Greater sage-grouse (*Centrocercus urophasianus*)	C	x	x	x	x
Sprague's Pipit (*Anthus spragueii*)	C	x	x	x	x
Whitebark Pine (*Pinus albicaulis*)	C	x	x	x	

[1] LT = Listed Threatened; LE = Listed Endangered; P = Proposed Threatened or Endangered; CH = Critical Habitat; C = Candidate; XN = Experimental Non-Essential Population

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your project planning. If you have questions or comments related to this issue, please contact Jeff Berglund at (406) 449-5225, extension 206.

2

APPENDIX K
LIVESTOCK GRAZING

LIVESTOCK GRAZING APPENDIX

INTRODUCTION

This appendix contains in-depth information for livestock grazing and management in the planning area. Information includes:

- allotment categories,
- screening criteria for allotments,
- base property criteria, and
- reserve common allotments (RCAs).

ALLOTMENT CATEGORIES

The existing selective management categories (Improve or I, Maintain or M, and Custodial or C) are the foundation for designating allotment categories. The selective management category process was initiated in 1982 and was used primarily to establish priorities for improving management and investing in range improvements. Criteria for the original designations can be found in Handbook 1740-1, Appendix 1, pages 3 and 4.

Below are the criteria in addition to those found in Handbook 1740-1 that are to be used to designate allotments as Category I, M, or C. Allotments are categorized as appropriate and recorded in the Rangeland Administration System. Allotments may be re-categorized as new information from monitoring, land health evaluations, habitat assessments, sensitive species data, or other information becomes available. Assigning allotments to one of the three categories in accordance with the following criteria will help determine priorities for focusing staff and fiscal resources when processing grazing permits and leases, monitoring allotments, evaluating rangeland health, and implementing range improvements.

- Category I: Allotments where current livestock grazing management or level of use on public land is, or is expected to be, a significant causal factor in non-compliance with land health standards, or where a change in mandatory terms and conditions in the grazing authorization is or may be necessary. When identifying Category I allotments, review condition of critical habitat and conflicts with sage-grouse and consider whether projects have been proposed specifically for implementing the land health initiatives.

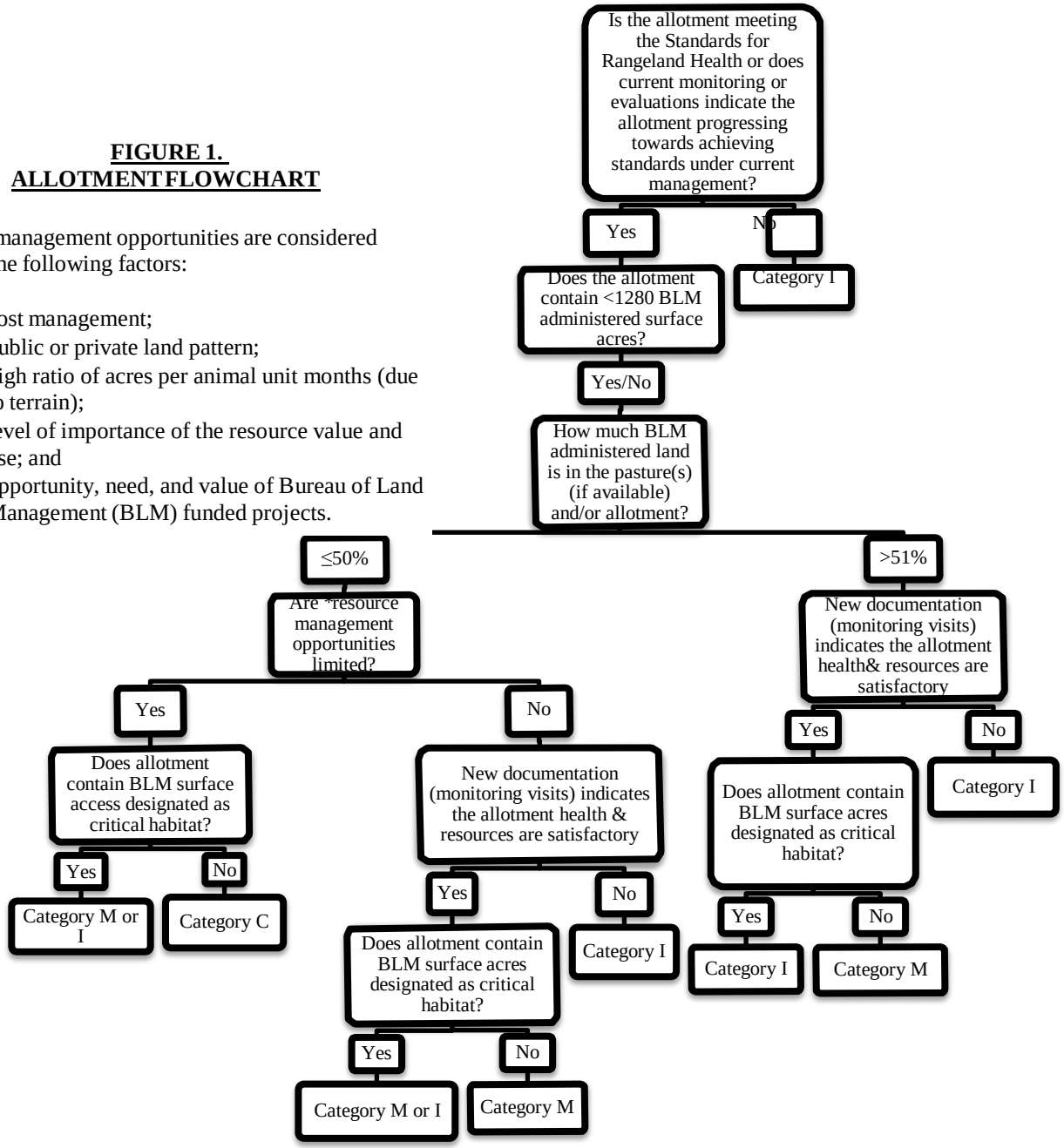
- Category M: Allotments where land health standards are met or where livestock grazing on public land is not a significant causal factor for non-compliance with the standards and current livestock management is in conformance with guidelines developed by State Directors in consultation with Resource Advisory Councils. Allotments where an evaluation of land health standards has not been completed, but existing monitoring data indicates that resource conditions are satisfactory.

- Category C: Allotments where public lands produce less than 50 percent of the forage in the allotment are less than 50 percent of the land area. An allotment should generally not be designated Category C if the public land in the allotment contains critical habitat for a threatened or endangered species. See Figure 1 for more information.

FIGURE 1.
ALLOTMENT FLOWCHART

Resource management opportunities are considered based on the following factors:

- cost management;
- public or private land pattern;
- high ratio of acres per animal unit months (due to terrain);
- level of importance of the resource value and use; and
- opportunity, need, and value of Bureau of Land Management (BLM) funded projects.



SCREENING CRITERIA

A screening criteria checklist will be reviewed prior to transfer or renewal. If an allotment passes the screening checklist, the permit will be renewed. If the allotment does not pass the screening checklist then the proposed transfer or renewal represents an exception and an environmental assessment should be prepared.

SCREENING CRITERIA CHECKLIST FOR 10-YEAR GRAZING PERMITS, LEASE RENEWALS, OR TRANSFERS

This section contains information about current processes used in the Miles City Field Office and is subject to change based on Bureau policy changes. To determine if a proposed renewal or transfer is eligible, the following screening criteria should be applied. If the answer to every question is "Yes", the proposed renewal or transfer qualifies and permits could be renewed or transferred. However, if the answer to any question is "No" the proposal represents an exception and an individual environmental assessment should be prepared.

- Does the allotment contain either a sagebrush focal area (SFA) or Priority Habitat Management Area (PHMA) for sage-grouse?
    - If "Yes" continue to Section B regardless of allotment category.
    - If "No" continue to next question.

- Is the allotment currently categorized as an "I" category allotment?
    - If "Yes", do not use this Screening Criteria, analyze action in appropriate National Environmental Policy Act (NEPA) document.
    - If "No", continue to next question.

- Is the allotment currently categorized as a "C" category allotment?
    - If "Yes", go to Section A.
    - If "No", continue to next question.

- Is the allotment currently categorized as an "M" category allotment?
    - If "Yes", go to Section B.

Section A: ("C" Allotments)

- Does the allotment meet the Miles City Field Office **Standards for Rangeland Health**?

    - Uplands are in proper functioning condition?
    - Riparian areas and wetlands are in proper functioning condition?
    - Water quality meets Montana State standards?
    - Air quality meets Montana State standards?
    - Habitats are provided for healthy, productive, and diverse native plant
      and animal populations and communities. Habitats are improved or
      maintained for special status species (federally threatened, endangered, candidate, or Montana species of special concern, including greater sage-grouse)? (Does the environment contain all the necessary components to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential?)

- Will the proposed renewal or transfer maintain the class of livestock, season of use (14 days), or terms and conditions?

Section B: ("M" Allotments)

- Does field visit information exist that is current (i.e., less than 5 years old)? If yes, does the current information indicate that the allotment meets the Miles City Field Office Standards for Rangeland Health?
  - Riparian areas and wet meadows are present and in proper functioning condition?
  - Uplands are in proper functioning condition? ○ Water quality meets Montana State standards? ○ Air quality meets Montana State standards?
  - Habitats are provided for healthy, productive, and diverse native plant and animal populations and communities. Habitats are improved or maintained for special status species (federally threatened, endangered, candidate or Montana species of special concern)? (Does the environment contain all the necessary components to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential?)
  - Are habitat objectives and management considerations being met in priority sage-grouse habitat?

- If not, allotment conditions must be verified. If allotment conditions are verified, does allotment continue to meet Standards for Rangeland Health?

- Will the proposed renewal or transfer maintain the class of livestock, change in the season of use? (14 days), or change in the terms and conditions?

RESERVE COMMON ALLOTMENT CRITERIA

Establishment of RCAs are evaluated when base property is acquired through land exchange, grazing preference is voluntarily relinquished, or preference is cancelled due to non-compliance with terms and conditions of authorized use.

Priority for using RCAs is as follows:

1) permittees and lessees whose "normally permitted" allotments are under an approved restoration or recovery project, and
2) permittees and lessees whose "normally permitted" allotments are temporarily unavailable because of emergency conditions such as wildfire.

Competing applications will be evaluated based on the benefit to the resource and consider factors such as:

1) amount of public land benefited,
2) the prioritization of projects benefitting special status species, and
3) history of grazing permit compliance.

The authorized officer will make the selection based on the above listed factors.

APPENDIX L
MITIGATION MEASURES AND CONSERVATION ACTIONS

APPENDIX L
MITIGATION MEASURES AND CONSERVATION ACTIONS

INTRODUCTION

The following Mitigation Measures and Conservation Actions are a compilation of Best Management Practices (BMPs) and/or operating procedures used by the BLM to meet statutory requirements for environmental protection and comply with resource specific Goals and Objectives set forward in this PRMP. The BLM will apply mitigation measures and conservation actions to modify the operations of authorized lands uses or activities to meet these obligations. Additional direction regarding mitigation can be found in the Interim Policy, Draft - Regional Mitigation Manual Section - 1794 (IM 2013-142) or subsequent decision documents.

These measures and actions will be applied to avoid, minimize, rectify, reduce, and compensate for impacts if an evaluation of the authorization area indicates the presence of resources of concern which include, but are not limited to air, water, soils, cultural resources, national historic trails, recreation values and important wildlife habitat in order to reduce impacts associated with authorized land uses or activities such as road, pipeline, or powerline construction, fluid and solid mineral development, range improvements, and recreational activities. The mitigation measures and conservation actions for authorizations will be identified as part of the National Environmental Policy Act (NEPA) process, through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners or other Surface Management Agencies. Those measures selected for implementation will be identified in the Record of Decision (ROD) or Decision Record (DR) for those authorizations and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands and minerals to mitigate impacts from those authorizations. Because these actions create a clear obligation for the BLM to ensure any proposed mitigation action adopted in the environmental review process is performed, there is assurance that mitigation will lead to a reduction of environmental impacts in the implementation stage and include binding mechanisms for enforcement (CEQ Memorandum for Heads of Federal Departments and Agencies 2011).

Because of site-specific circumstances and localized resource conditions, some mitigation measures and conservation actions may not apply to some or all activities (e.g., a resource or conflict is not present on a given site) and/or may require slight variations from what is described in this appendix. The BLM may add additional measures as deemed necessary through the environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies. Application of mitigation measures and conservation actions is subject to valid existing rights, technical and economic feasibility.

Implementation and effectiveness of mitigation measures and conservation actions will be monitored to determine whether the practices are achieving resource objectives and accomplishing desired goals. Timely adjustments will be made as necessary to meet the resource goals and objectives.

The list included in this appendix is not limiting, but references the most frequently used sources. The BLM may add additional site-specific restrictions as deemed necessary by further environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies. Because mitigation measures and conservation actions change or are modified, based on new information, the guidelines will be updated periodically. As new publications are developed; the BLM may consider those BMPs. In addition, many BLM handbooks (such as BLM Manual 9113-Roads and 9213-Interagency Standards for Fire and Aviation Operation) also contain BMP-type measures for minimizing impacts. These BLM-specific guidance and direction documents are not referenced in this appendix. The RMP does not decide or dictate the exact wording or inclusion of these mitigation measures and conservation actions. Rather, they are used as a tool to help demonstrate at the Land Use Plan scale how they will be applied in considering subsequent activity plans and site-specific authorizations. These mitigation measures and conservation actions and their wording are matters of policy. As such, specific wording is subject to change.

GENERAL MITIGATION MEASURES AND CONSERVATION ACTION RESOURCES

Air Resource BMPs
Developed by: Bureau of Land Management
Publication reference: BLM/WO Updated May 9, 2011
Available from: Online at:
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/technical_information.html
Description: Identifies a range of typical Best Management Practices for protecting air resources during oil and gas development and production operations.

Erosion and Sediment Control Practices: Field Manual
Developed by: Prepared for the Montana Department of Transportation
Publication reference: FHWA/MT-030003/8165
Available from: National Technical Information Service, Springfield, VA 21161
Description: The Erosion and Sediment Control Best Management Practices Construction Field Manual was developed to assist in design, construction, and post-construction phases of MDT projects. This manual provides background to concepts of Erosion and Sediment Control. Most of MDTs Best Management Practices are listed within the manual based on application categories. Each BMP is described; its applications and limitations are listed, as well as its design criteria. Construction phase and post-construction phase BMPs are described. This manual is a field guide and condensed version of the Erosion and Sediment Control Design Construction Best Management Practices Manual. For more detailed discussion on topic found within, refer to the Erosion and Sediment Control Construction Best Management Practices Manual.

Erosion and Sediment Control Practices: Reference Manual
Developed by: Prepared for the Montana Department of Transportation
Publication reference: FHWA/MT-030003/8165
Available from: National Technical Information Service, Springfield, VA 21161
Description: The Erosion and Sediment Control Construction Best Management Practices Manual was developed to assist in the design, construction, and post-construction phases of Montana Department of Transportation (MDT) projects. This manual provides background to State and Federal regulations associated with erosion and sediment control practices including a general overview of the erosion and sediment processes. Best management practices are listed within the manual based on application categories. Each BMP is described; its applications and limitations are listed, as well as its design criteria. The design phase includes development of construction plans, notice of intent (NOI), and stormwater pollution prevention plan (SWPPP). Construction phase includes the finalization of the SWPPP, NOI, and the implementation of BMPs. Post-construction phase includes monitoring, maintenance, and removal activities.

Fluid Minerals BMPs
Developed by: Bureau of Land Management
Publication reference: BLM/WO/ST-06/021+3071
Available from:
Online at: http://www.blm.gov/bmp/
Online at: http://www.mt.blm.gov/oilgas/operations/goldbook/goldbook1.html
Online at: http://www.mt.blm.gov/oilgas/operations/goldbook/Stand_Enviro_Color.pdf \
Online at: http://www.mt.blm.gov/oilgas/operations/color.pdf
Description: BMPs for oil and gas demonstrate practical ideas which may eliminate or minimize adverse impacts from oil and gas development to public health and the environment, landowners, and natural resources; enhance the value of natural and landowner resources; and reduce conflict. The publication reference is to the "Gold Book" which is formally titled "Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development." In addition, the first internet citation is to a location maintained by the Washington Office of the BLM containing general and technical information on the use and application of BMPs. The second location refers the reader directly to an online version of the "Gold Book." The third and fourth locations refer the reader to color charts for use in selecting paint colors for oil and gas facilities.

Montana Guide to the Streamside Management Zone Law
Developed by: Montana Department of Natural Resources and Conservation Service Forestry Bureau, in cooperation with Montana Department of Environmental Quality, Montana Logging Association, Montana Wood Products Association, Plum Creek Timber LP, USDA Forest Service, USDI Bureau of Land Management
Publication reference: Revised August 2002
Available from: Montana Department of Natural Resources and Conservation, 2705 Spurgin Road, Missoula MT 59801-3199, (406)542-4300, or local MT DNRC field office.
Description: The Montana Guide to the Streamside Management Zone Law is a field guide to compliance with State of Montana Law 77-5-301[1] MCA.) Complementary BMPs are found in the Water Quality BMPS for Montana Forests (also referenced in this appendix). Provides definitions, stream classifications, and guidelines on the seven forest practices prohibited by Montana law in SMZs (broadcast burning, operation of wheeled or tracked vehicles except on established roads, the forest practice of clear-cutting, the construction of roads except when necessary to cross a stream or wetland; the handling, storage, application, or disposal of hazardous or toxic materials in a manner that pollutes streams, lakes, or wetlands, or that may cause damage or injury to humans, land, animals, or plants; the side casting of road material into a stream, lake, wetland, or watercourse; and the deposit of slash in streams, lakes, or other water bodies.

Montana Non-Point Source Management Plan
Developed by: Montana Department of Environmental Quality, Water Quality Planning Bureau, Watershed Protection Section
Publication reference: 2007
Available from: Montana Department of Environmental Quality, Water Quality Planning Bureau, Watershed Protection Section, P.O. Box 200901, Helena, MT 59620-0901.
Online at: http://www.deq.state.mt.us/wqinfo/nonpoint/2007NONPOINTPLAN/Final/NPSPlan.pdf
Description: This document describes the Montana Department of Environmental Quality's (DEQ) updated strategy for controlling nonpoint source (NPS) water pollution, which is the state's single largest source of water quality impairment. NPS pollution is contaminated runoff from the land surface that can be generated by most land use activities, including agriculture, forestry, urban and suburban development, mining, and others. Common NPS pollutants include sediment, nutrients, temperature, heavy metals, pesticides, pathogens, and salt. The purpose of the Montana NPS Pollution Management Plan (Plan) is: 1) to inform the state's citizens about NPS pollution problems; and 2) to establish goals, objectives, and both long-term and short-term strategies for controlling NPS pollution on a statewide basis. The goal of Montana's NPS Management Program is to protect and restore water quality from the impacts of non-point sources of pollution in order to provide a clean and healthy environment.

Montana Placer Mining BMPs
Developed by: Montana Bureau of Mines and Geology
Publication reference: Special Publication 106, October 1993
Available from: Montana Bureau of Mines and Geology, Main Hall, Montana College of Mineral Science and Technology, Butte MT 59701
Description: Provides guidelines for planning, erosion control, and reclamation in arid to semi-arid, alpine, and subalpine environments, to prevent or decrease environmental damage and degradation of water quality.

Water Quality BMPs for Montana Forests
Developed by: Montana State University Extension Service
Publication reference: Logan, R. 2001. Water Quality BMPs – Best Management Practices for Montana Forests. EB158, MSU Extension Forestry, Missoula, MT. 58 pp.
Available from: MSU Extension Forestry, 32 Campus Dr., Missoula MT 59812, OR MSU Extension Publications, PO Box 172040 Bozeman MT 59717
Description: Discusses methods for managing forest land while protecting water quality and forest soils. Intended for all forest land in Montana, including non-industrial private, forest industry, and state or federally-owned forests. These are preferred (but voluntary) methods that go beyond Montana State Law (Streamside Management Zones). Includes definitions, basic biological information, and BMPs for Streamside Management

Zones; road design, use, planning and locating, construction, drainage, and closure; stream crossings, soil, timber harvesting methods, reforestation, winter planning, and clean-up.

Wind Energy BMPs
Developed by: Bureau of Land Management
Publication reference: Wind Energy Development Programmatic EIS
Available from: FEIS Chapter 2 (section 2.2.3.2) at http://windeis.anl.gov/
Description: As part of the proposed action, BLM developed BMPs for each major step of the wind energy development process, including site monitoring and testing, plan of development preparation, construction, operation, and decommissioning. General BMPs are available for each step, and certain steps also include specific BMPs to address the following resource issues: wildlife and other ecological resources, Visual resources, Roads, Transportation, Noise, Noxious Weeds and Pesticides, Cultural/Historic Resources, Paleontological Resources, Hazardous Materials and Waste Management, Storm Water, Human Health and Safety, monitoring program, air emissions and excavation and blasting activities.

Communication Tower BMPs
Developed by: United States Fish and Wildlife Service
Publication reference: Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers
Available from: http://www.fws.gov/habitatconservation/com_tow_guidelines.pdf
Description: These guidelines were developed by Service personnel from research conducted in several eastern, mid-western, and southern States, and have been refined through Regional review. They are based on the best information available at this time, and are the most prudent and effective measures for avoiding bird strikes at towers.

- Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
- If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level, using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.
- If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
- If at all possible, new towers should be sited within existing "antenna farms" (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., State or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
- If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
- Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, DC., 78 pp, and Avian Power Line Interaction Committee (APLIC).

1996. Suggested Practices/or Raptor Protection on Power Lines. Edison Electric Institute by Raptor Research Foundation, Washington, D. C; 128 pp. Copies can be obtained via the Internet at http://www.eei.org/resources/pubcat/enviro/. or by calling 1-800/334-5453).

- Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.
- If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.
- In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
- Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
- If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.
- Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

Grazing Management BMPs (Guidelines)
Guidelines for grazing management are the types of grazing management methods and practices determined to be appropriate to ensure that rangeland health standards can be met or significant progress can be made toward meeting the standards. Guidelines are best management practices (BMP), treatments, and techniques and implementation of range improvements that will help achieve rangeland health standards. Guidelines are flexible and are applied on site specific situations. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for the Miles City Field Office can be found at:
http://www.blm.gov/mt/st/en/prog/grazing.html

BLM BMPs
The website below provides an introduction to BLM BMPs with links to BLM contacts, General BMP Information, BMP Frequently Asked Questions, BMP Technical Information, Oil and Gas Exploration—The Gold Book, Specific Resource BMPs, and, other BLM links.

- http://www.blm.gov/bmp/

Visual Resources
The website below provides numerous design techniques that can be used to reduce the visual impacts from surface-disturbing projects. The techniques described here should be used in conjunction with BLM's visual resource contrast rating process wherein both the existing landscape and the proposed development or activity are analyzed for their basic element of form, line, color, and texture.

- http://www.blm.gov/pgdata/content/wo/en/prog/Recreation/recreation_national/RMS.html

Renewable Energy Development
The following resources provide information on BMPs related to renewable energy development.

- Wind Energy Development Programmatic Environmental Impact Statement: http://windeis.anl.gov/documents/fpeis/index.cfm

- BLM Instruction Memorandum 2009-043, Rights-of-Way, Wind Energy: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-043.htm.
- Solar Energy Development Programmatic Environmental Impact Statement: http://www.solareis.anl.gov/

Healthy Watersheds
The website below provides conservation approaches and tools designed to ensure healthy watersheds remain intact. It also provides site-specific examples.

- http://www.epa.gov/owow/nps/

Storm Water BMPs
The website below provides BMPs designed to meet the minimum requirements for six control measures specified by the EPA's Phase II Stormwater Program.

- http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Pasture, Rangeland, and Grazing Operations BMPs
The website below provides BMPs compiled by the EPA to prevent or reduce impacts associated with livestock grazing.

- http://www.epa.gov/oecaagct/anprgbmp.html

National Range and Pasture Handbook
The website below provides procedures in support of NRCS policy for the inventory, analysis, treatment, and management of grazing land resources.

- http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/rangepasture/?cid=stelprdb1043084

Montana Nonpoint Source Management Program
The website below provides links to information on funding for implementing nonpoint source controls, examples of control projects, and Montana's current Nonpoint Source Management Plan. This plan identifies and provides details for BMPs to improve and maintain water quality.

- http://www.deq.mt.gov/wqinfo/nonpoint/nonpointsourceprogram.mcpx

THE FOLLOWING WILL BE APPLIED, IF WARRANTED, TO ANY BLM AUTHORIZED ACTIVITY

- The total disturbance area will be minimized and to the extent possible.
- Surface disturbances will be co-located in areas of previous or existing disturbance to the extent technically feasible.
- Linear facilities will be located in the same trenches (or immediately parallel to) and when possible, installed during the same period of time.
- Plans of development will be required for major ROWs, renewable energy and minerals development. Such plans will identify measures for reducing impacts.
- Where the federal government owns the surface and the mineral estate is in nonfederal ownership, the BLM will apply appropriate fluid mineral BMPs to surface development.
- Remove facilities and infrastructure when use is completed.
- Vegetation will be removed only when necessary. Mowing is preferred. If mowed, when possible, work will be performed when vegetation is dormant.
- Two-track (primitive) roads will be used when possible.
- Utilization of the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (i.e., The Gold Book) shall be utilized for the design of roads, utilities, and oil and gas operations.
- Directional drilling, drilling multiple wells from the same pad, co-mingling, recompletion, or the use of existing well pads will be employed to the extent technically feasible to minimize surface impacts from oil and gas development.

- Utilities will be ripped or wheel-trenched whenever practical.
- Remote telemetry will be used to reduce vehicle traffic to the extent technically feasible (e.g., monitoring oil and gas operations).
- Perennial streams will be crossed using bore crossing (directional drill) or other environmentally sound method.
- For activities resulting in major surface-disturbance as determined by the AO, a mitigation monitoring and reporting strategy will be developed and implemented (see the Reclamation Appendix for further guidance).
- Operations will avoid sensitive resources including riparian areas, wetlands, floodplains, waterbodies and areas subject to erosion and soil degradation.
- The BLM will, on a case-by-case basis, use temporary or permanent enclosures (e.g., in woody draw or riparian areas) to promote species diversity, recruitment, and structure.
- Accelerated erosion, soil loss, and impacts to water quality will be reduced by diverting stormwater and trapping sediment during activity.
- Pitless or aboveground closed-loop drilling technology will be used to the extent technically feasible. Recycle drilling mud and completion fluids for use in future drilling activities.
- Where needed, pits will be lined with an impermeable liner. Pits will not be placed in fill material or natural watercourses, and pits may not be cut or trenched.
- Fertilizer will not be applied within 500 feet of wetlands and waterbodies.
- Vehicle and equipment servicing and refueling activities will take place 500 feet from the outer edge of riparian areas, wet areas, and drainages.
- Activity may be restricted during wet or frozen conditions. Mechanized equipment use will be avoided if the equipment causes rutting to a depth of 4 inches or greater.
- Vehicle wash stations will be used prior to entering or leaving disturbance to reduce the transport and establishment of invasive species.
- Invasive species plant parts will not be transported off site without appropriate disposal measures.
- Use alternative energy (solar or wind power) to power new water source developments.
- Overhead power lines, where authorized will follow the recommendations in the most recent guidance from the Avian Power Line Interaction Committee (1994, as amended 2006, 2012).
- Weed management prescriptions will be included in all new treatment projects and incorporated into existing contracts, agreements, task forces, designated weed-free management areas, and land use authorizations that resulted in ground-disturbing activities.
- Whenever possible, ROWs will be constructed within or next to compatible ROWs, such as roads, pipelines, communications sites, and railroads.
- The operator shall be responsible for locating and protecting existing pipelines, power lines, communication lines, and other related infrastructure.
- Modify or adapt livestock water pipelines and natural springs, where practical, to create small wet meadows to provide wildlife habitat.
- Authorize new water development resulting from diversion from spring or seep source only when wildlife habitat will benefit from the development. This includes new water sources for livestock as part of an AMP/conservation plan to improve wildlife habitat.
- Analyze spring, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within wildlife habitats. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to wildlife.
- If portions of existing fences or other structures are found to pose a significant threat to wildlife as strike sites, raptor perches, connectivity barriers, etc. mitigate effects through removal, moving or modification; increase visibility of the fences by marking, or through the use of “take-down” fences.
- Evaluate ecological consequences of using pesticides to control grasshoppers or other insects, unless NEPA analysis documents benefits to avian species and their habitat.
- Design new structural range improvement and locate supplements (salt or protein blocks) to conserve or enhance wildlife habitat. Structural range improvements in this context include, but not limited to: cattleguards, fences, exclosures, corrals, or other livestock handling structures; pipelines; troughs; storage tanks (including moveable tanks used in livestock water hauling); windmills; ponds or reservoirs; and spring developments.
- During drought periods, prioritize evaluating effects of the drought in priority wildlife habitat areas relative to their needs for food and cover.

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APPENDIX M
MONITORING

APPENDIX M
MONITORING

PLANNING AREA

INTRODUCTION

For each resource, there are a series of items that will be monitored. Each item is evaluated by location, technique for data gathering, unit of measure, frequency, remedial action threshold, and management option (Table 1). The monitoring and evaluation plan states the event that will be evaluated and lists the key resources that will be managed in the planning area. If an adverse impact can be corrected by a management action within the scope of this plan, the change will be implemented. If the adverse impact can be corrected only by a management action that is outside the scope of this plan, the management change will be a formal amendment.

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
AIR RESOURCES AND CLIMATE							
Air Resources and Climate	Gaseous and particulate regulated air pollutants and air quality related values (AQRVs), such as acid deposition, lake acidification, and visibility	Area-wide	Air quality photochemical grid modeling	Micrograms/cubic meter (µg/m$^{3)}$ and parts per million (ppm) concentrations (as µg/m^3)	Modeling will be performed when adequate data are available to validate model performance (see the *Air Resources and Climate Appendix*)	Predicted exceedances of National Ambient Air Quality Standards (NAAQS) or Montana Ambient Air Quality Standards (MAAQS) or unacceptable impacts to AQRVs	Implement additional emission controls or operating limits
	Gaseous and particulate regulated air pollutants	Sidney, Birney, and Broadus area	Continued automated sampling and analysis	µg/m^3 and ppm concentrations (as µg/m^3)	Continuous	Measured exceedances of NAAQS or MAAQS	Implement additional emission controls or operating limits
	Climate indicators including temperature, precipitation, precipitation timing and intensity, snowfall, snow pack, albedo, greenhouse gas (GHG) concentrations	Area-wide	Analysis of existing climatic data and climate change data available from the National Oceanic and Atmospheric Administration, the Western Regional Climate Center, United States Environmental Protection	Degrees Fahrenheit (°F), degrees Celsius (°C), inches, feet, unitless (albedo), ppm, parts per billion	Annual	None (actions triggered based on resource-specific concerns)	Provide annual updates summarizing recent climate trends to BLM resource management personnel

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
			Agency (USEPA), and other reliable sources of information				
SOILS							
Soils	Soil erosion, uplands	Area-wide where management activities are occurring or expected to occur	Visual observation, photo point, rangeland health assessment, surface aggregate stability test, silt fence, and surveyed erosion pins	Soil loss in tons per acre	Site will be visually examined quarterly. Where erosion is considered excessive, measurements of site characteristics will be taken to determine rate of soil loss.	Visual evidence of pedestal, wind scour, rill greater than 3 inches, active headcutting gully, or sheet erosion. Soil or site stability indicators are not similar to reference rangeland health conditions. Change in surface aggregate stability to a lower class. Loss of soil exceeding 10 tons per acre per year	Report exceedance to the BLM, Montana Department of Environmental Quality (MDEQ), or USEPA. Enforcement action would be taken.
Soils (cont'd)	Soil erosion, streambanks, riparian areas, and floodplains	Area-wide along rivers and tributaries where management activities are occurring or expected to occur	Visual observation, photo point, rangeland health or proper functioning condition (PFC) assessments, silt fence, and surveyed	Area affected in square feet or acres	Site would be visually examined quarterly. Where streambank erosion is considered excessive, measurements of site characteristics	Visual evidence of active headcutting, channelization beyond natural conditions, or bank slump. PFC rated functional-at-risk with a downward trend or nonfunctional. A 10% increase in	Report exceedance to the BLM, MDEQ, or USEPA. Enforcement action would be taken.

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
			erosion pins		will be taken to determine soil loss	streambank loss	
Soils (cont'd)	Compaction	Area-wide where management activities were occurring or expected to occur	Visual inspection, penetrometer, or ratio of penetration resistance or bulk density to that of the reference area	Lbs. per square inch, mass per volume	Site would be visually examined 1 to 2 times yearly; where compaction is considered excessive, measurements would be taken	When an area has a 10% increase in density or ratio of penetration resistance or bulk density to that of the reference area greater than 1 and the compacted area exceeds 10% of surface disturbance	Decompact or close access to compacted site until area recovers from compaction
	Rutting	Area-wide where management activities were occurring or expected to occur	Visual observation and measured depth of rut	Inches	Site would be visually examined 1 to 2 times yearly. Where rutting is considered excessive, measurements would be taken	Ruts exceed 4 inches in depth	Close access to rutted site until soil conditions are not susceptible to rutting and are repaired.
Soils (cont'd)	Subsidence of fill material	Areas where management activities required fill material	Visual observation and measured depth of subsidence	Feet	Site would be visually examined 1 to 2 times yearly; where slumping or piping is considered excessive, measurements would be taken	10% increase in slumping or piping depth	Close access to site until area is reclaimed
WATER							

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
Water	Surface water quality and quantity	In watersheds expected to be affected, potentially affected, or down gradient from coal bed natural gas (CBNG) surface discharge points or regionally at the monitoring stations identified by the interagency working group (refer to *Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans* [FSEIS]). Note that the	As determined by the interagency working group (refer to the FSEIS) or water quality parameters, temperature, and discharge or stage measurements	As determined by the interagency working group (refer to the FSEIS) or feet, cubic feet per second (cfs), and standard quantitative measurements of water quality (e.g., milligrams per liter [mg/L], pH, µS/cm, and °C)	As determined by the interagency working group or based on activity plan schedule (refer to the FSEIS)	Exceedance of any parameter above the State of Montana surface water quality standards or identified BLM thresholds (refer to the FSEIS)	Report exceedances to the MDEQ, which would determine cause and take appropriate actions If monitoring indicates that BLM thresholds were met or exceeded, untreated discharge of CBNG water from federal wells would no longer be allowed upstream from that station. Previous approvals may be modified.

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
		10% of 7Q10 criteria for untreated CBNG water would apply unless stations upstream and downstream from proposed outfalls are monitored (refer to the FSEIS)					
Water (cont'd)	Groundwater drawdown	Regionally at locations determined by the interagency working group (refer to the FSEIS)	Monitoring wells would be finished in bedrock units; especially coal seams expected to be developed for CBNG.	Depth to water reported in hundredths of feet	Depth to water measurements would be made approximately monthly to establish an initial baseline. Measurements would be made approximately quarterly thereafter unless a greater frequency was determined to be necessary. Monitoring would continue until at least 80% recovery of static water level was achieved.	A 20-foot decrease in static water level from seasonally adjusted mean static water level (determined from baseline data) (refer to the FSEIS)	If falling water levels were determined to be caused by CBNG activity, operators must offer water well mitigation agreements to all landowners with water sources in the defined drawdown area (20 feet or greater drawdown) of their development. Hydrologic barriers, such as injection wells, may be an option in some cases to prevent drainage of American Indian gas and water resources.
Water (cont'd)	Groundwater	Alluvial	Monitoring	Standard	Depth to water	A change in	If impacts were

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
	quality and quantity	groundwater would be monitored in stream valleys topographically down gradient from CBNG surface discharge points. Since discharge to ephemeral streams would not be allowed, these wells would be along larger streams (refer to the FSEIS).	wells would be finished in the alluvium. Depth to water measurements and water quality parameters, including (but not limited to) pH, EC, water temperature, common ions (Sodium (Na), Magnesium (Mg), Calcium (Ca), Potassium (K), bicarbonate (HCO_3), Sulfate (SO_4) would be obtained.	quantitative measurements of water quality and static water level (mg/L, °C, µS/cm, and hundredths of feet)	measurements would be made approximately monthly to establish an initial baseline. Depth to water would then be collected approximately quarterly thereafter. Water quality samples would be taken approximately annually unless more frequent monitoring is needed. Monitoring would continue until at least 80% recovery of static water level was achieved.	groundwater chemistry that affects its class of use or rise in static groundwater levels of 5 feet or more that may cause impacts at the ground surface (refer to the FSEIS)	determined to result from CBNG development, direct discharge of CBNG water into waterways in the watershed may be discontinued until modified water management plans were submitted and approved (refer to the FSEIS).
Water (cont'd)	Groundwater quality and quantity	Operators would install monitoring wells adjacent to impoundments (refer to the FSEIS).	A monitoring well would be installed within the first permeable unit and within the first groundwater encountered (up to 50 feet	Depth to water (feet to water reported in hundredths of feet). Water quality samples would be collected if rises in groundwater were observed or	Wells would be gauged monthly for the first year and quarterly thereafter unless a rise was observed. If a rise were observed,	A rise of 1 foot or more in static water levels above seasonally adjusted mean water levels (determined from the first year of data) or a change in the class of use	Any change in class of use would be reported to the MDEQ. Operators may be required to install additional monitoring wells further downgradient, or discharge into impoundments may

TABLE 1. MONITORING TABLE

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Threshold	Management Options
			total depth) to determine effectiveness of infiltration; if evaporation basins were leaking, a water quality sample of the first groundwater (if encountered) would be collected to determine class of use.	if water were observed in a previously dry zone.	monitoring would be monthly. Water quality samples would be collected whenever the water level is above baseline. Monitoring would continue at least until the end of CBNG water discharge into the impoundment.	in the groundwater (refer to the FSEIS).	be required to cease until a revised water management plan is submitted and approved (refer to the FSEIS)
Water (cont'd)	Springs	A network of springs determined to be fed by the regional flow system would be identified along coal outcrops in the CBNG development area (refer to the FSEIS)	Spring discharge and water quality parameters, including (but not limited to) pH, EC, water temperature, and common ions (Na, Mg, Ca, K, HCO_3, SO_4), would be determined from existing springs.	Discharge cubic feet per second (cfs), pH, EC (µS/cm), and water temperature (°C) would be determined in the field. Standard quantitative measurements of water quality also would be used (mg/L).	Field measurement of discharge, pH, EC, and water temperature would be determined approximately quarterly. An initial water quality sample would be collected; additional samples would be analyzed if substantial changes in the field	A 50% decrease in spring discharge below seasonally adjusted mean (determined in the first 3 years) or a significant change in water quality that affects its beneficial use (refer to the FSEIS).	If decreased spring discharges or water quality were determined to result from CBNG activity, operators must offer spring mitigation agreements to landowners who use the spring. If the affected spring were identified as important wildlife habitat, adaptive management practices would be used at the landscape level to improve spring ecosystems. Hydrologic barriers,

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					parameters were observed.		such as injection wells, may be an option in some cases to prevent drainage of American Indian gas and water resources (refer to the FSEIS).
Water (cont'd)	Streambank or channel alteration	Any federal area-wide action in which potential impacts from management activities are occurring or expected to occur	Monumented cross sections, longitudinal profile, visual inspection, photo point, PFC, surveyed erosion pins, and any suitable methods as described in *Grazing Management Processes and Strategies for Riparian-wetland Areas* (Wyman et al. 2006), *Bureau of Land Management Prairie Stream Surveys: Study Plan* (BLM 2010k), and *Stream Channel Reference Sites: An*	Area affected in square feet or acres	Based on activity plan schedule and a minimum of once every 10 years	Trend away from objective, a 10% increase in streambank or channel alteration, exceedance of any parameter above the State of Montana surface water quality standards for sediment, total suspended solids, or turbidity without a variance.	Activities would be required to be altered or discontinued in order to provide environmental factors for increasing functionality or conditions of the streams. Exceedance would be reported to BLM, MDEQ, or USEPA and enforcement action would be taken.

TABLE 1. MONITORING TABLE

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Threshold	Management Options
			Illustrated Guide to Field Technique (Harrelson, Rawlins, and Potyondy 1994).				
Water (cont'd)	Surface water quality and quantity	Any federal area-wide action in which potential impacts from management activities are occurring or expected to occur	Water quality parameters, temperature, discharge, or stage measurements	Feet, cfs, or standard quantitative measurements of water quality (e.g., mg/L, pH, µS/cm, °C)	Based on activity plan schedule	Exceedance of any parameter above the State of Montana surface water quality standards	Activities would be required to be altered or discontinued. Exceedance would be reported to BLM, MDEQ, or USEPA and enforcement action would be taken.
Water, Indian trust	Groundwater	Adjacent to the Northern Cheyenne and Crow Indian Reservations	Sampling of dedicated monitoring wells in the zones of extraction and zones above and below the expected activity; wells are to be placed in the affected areas to areas unaffected by management activities	Standard quantitative measurements of water quality and measurement of depth in feet	Field measurements six times annually prior to production activities and continued throughout the activity period and for the duration of 95% of the recovery of pre-development conditions	Where site-specific studies show a potential to affect Reservation groundwater, the tribe would be consulted as to appropriate protection measures and where continuous monitoring showed a drawdown of groundwater attributed to CBNG production.	The BLM would require the operators to modify federal CBNG production. Mitigation options would include reducing production rates, shutting in the well or wells, establishing a hydrologic barrier, or providing compensation to the affected tribe.

TABLE 1. MONITORING TABLE

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Threshold	Management Options
Water, Indian trust	Groundwater	Adjacent to the Northern Cheyenne and Crow Reservations	Monitoring wells would be established near the mouth of streams containing alluvium	Measurements of depth in feet	Water level measurements would be taken monthly prior to production activity and during development and water quality measurements would be taken 4 times per year	A 20% rise in the water table above its seasonally adjusted elevation, or a 2-unit increase in the SAR value	Discontinue CBNG evaporative ponds in that watershed or require ponds to be lined
VEGETATION							
Trees and shrubs	Functional habitat within desired conditions	Site-specific and landscape-level	Visual observation, photos, utilization, browse-evaluation, trend	Cover, diversity, and composition.	Varies and designed to address objectives	Failure to meet Rangeland Health Standards. Trend moving away from management objectives.	Change in livestock season-of-use, timing, intensity, frequency, and duration
Herbaceous	Functional habitat within desired conditions.	Site-specific and landscape-level	Utilization, visual observation, photos, and trend	Cover, diversity, and composition.	Varies and designed to address objectives	Failure to meet Rangeland Health Standards or trend moving away from management objectives	Change in livestock season-of-use, timing, intensity, frequency, and duration
Riparian and Wetland	Functional rating and trend	Priority allotments with allotment management plans and areas rated as	Lotic and lentic standard PFC checklist and multiple indicators monitoring	Miles or acres based on functional rating and trend	Once every 5 to 10 years based on priority of non-functional and functional-at	Trend away from objective or when no improvement occurs in areas rated as non-functional and	Management changes would address causes of degradation. If impacts to management changes did not maintain or

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
		non-functional or functional-at risk with downward trend	techniques (see *Riparian Area Management, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas,* Technical Reference (TR) 1737-15 [Prichard 1998] and *Riparian Area Management A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas,* TR 1737-16 [Prichard et al. 1999])		risk with downward trend areas	functional-at risk with downward trend	improve riparian and wetland functionality, additional monitoring or project revision would be required. Oil and gas operators would be required to alter activities in order to provide environmental factors for maintaining or improving functionality of riparian and wetland areas.
Invasive Species	Infestations	Inventoried infestations	Photo points, geographic information systems data, mapping, and National Invasive	Infestation size, presence or absence	Annually or every 3 to 5 years and prioritized by species location and treatment	Expansion of weeds, Early Detection Rapid Response, new infestations in areas of high public use, and	Change in control method or combine multiple control methods and strategies

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
			Species Information Management System		method.	public accessible areas	
Fish, Aquatic and Wildlife Habitat, Including Special Status Species							
Fisheries and aquatic wildlife in prairie streams	Habitat conditions and index of biological integrity	All locations within Miles City Field Office (MCFO) prairie stream survey protocol and locations as needed due to degraded habitat, allotment inspections, pre- and post-development, or as other needs arise	*Bureau of Land Management Prairie Stream Surveys: Study Plan* (BLM 2010k) and index of biological integrity approach following *Development and evaluation of a fish assemblage index of biotic integrity for Northwestern Great Plains streams* (Bramblett, Johnson, Zale, and Heggem 2005) and *Fish and Habitat Sampling Protocol for Prairie Streams* (Bramblett 2003)	300 meter stream study reaches	Every 5 years (all sites or streams) As needed: as determined by a decrease in riparian conditions (e.g. declining PFC rating), water quality or water resource parameters indicate a decline in habitat conditions, or land-use or development plans indicate a potential for deleterious impacts to habitat	Decrease in index of biological integrity score, habitat parameters, decreased riparian function, or allotment failing to meet Standards for Rangeland Health	Management changes would address causes of degradation. If impacts to management changes did not maintain or improve prairie stream aquatic wildlife habitat, additional monitoring or project revision would be required. Oil and gas operators would be required to alter activities in order to provide environmental factors for maintaining or improving prairie stream aquatic wildlife habitat.

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
Fisheries and aquatic wildlife in sport-fish reservoirs	Habitat conditions and surveys by MFWP	Designated sport-fish reservoirs	Gill netting and trapping conducted by MFWP	Acres of reservoir	1 to 5 years or determined by MFWP	Decrease in population sizes due to factors related to resource use	Management changes would address causes of degradation. If impacts of management changes did not maintain or improve sport-fish reservoir habitat, additional monitoring or project revision would be required. Oil and gas operators would be required to alter activities to provide environmental factors for maintaining or improving sport-fish reservoir habitat
Upland game birds and migratory bird species (except sage-grouse - see beginning of appendix)	Use and trend	Sharp-tailed leks or winter grounds and migratory bird species habitats	Field inspect leks/breeding bird surveys and strategies outlined in the Wildlife Appendix	Number of males/numbers and species of migratory birds	Monitoring will be tied to yearly (varies per species, 1-5 years for migratory bird species) planning with MFWP or based upon project specific need or existing requirements	Varies and is project-specific (i.e., downward trend in lek attendance)	Extension of timing or project location or re-location, stipulations or Conditions of Approval (COAs), and off-site mitigation
Threatened and	Habitat use and trends	Black-tailed prairie dog	Field surveys that include	Acres and number of	Monitoring will be tied to	Varies and is project-specific	Extension of timing or project location re-

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
endangered species and other special status wildlife species habitat		colonies, interior least terns, and special status species raptor nests	aerial, boat, or ground survey methodologies	prairie dog colonies, least tern numbers and nesting sites, and raptor nest site surveys	yearly planning with MFWP or based upon project-specific need or existing requirements		location; stipulations or COAs; off-site mitigation
Sharp-tailed grouse	Habitat condition or baseline data collection	Sharp-tailed grouse habitats	Methodologies such as line point intercept and other methodologies	Existing habitat conditions, height of residual vegetation, cover, species diversity, and potential habitat trends	Monitoring will be tied to grazing permit renewals, existing conditions, and allotments that contain a high percentage of BLM-administered lands and other actions that cause direct or indirect habitat loss	Varies and is project-specific	Mitigate potential effects of habitat conditions or loss or require changes to livestock season-of-use
Wildland Fire Management and Ecology							
Wildland Fire Management and Ecology	Fire Regime and Condition Class (FR/CC)	Area-wide	FR/CC Standard Landscape Worksheet	Composition of departure and condition classes compared to reference conditions	Field measurements evaluated on a 10-year cycle	A change in the direction of trend away from management	Implement additional vegetation or habitat treatments
CULTURAL RESOURCES							
Areas of Critical Environmental Concern	See *Special Designation Areas* in this table.						

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
(ACECs)							
Cultural Resources (cont'd)	National Historic Trails	Lewis and Clark National Historic Trail	Area inspection to look for vandalism, resource abuse, and to install photo points	Site condition	Annually	User conflicts, resource degradation, or safety hazards	Signing; site mitigation or restoration/remediation; restrict or limit surface disturbing activities
	Random sample of 10 sites	Area-wide	Site inspection	Site, surrounding area	Annually	Any noticeable trend indicating increased disturbance, natural or human-caused	Halt activity affecting sites, increase frequency and monitoring of nearby sites, evaluate damage, apply mitigation or restoration/remediato n
Cultural Resources (cont'd)	Site degradation caused by human activity	Significant cultural sites, area-wide	Inspection of area disturbed	Site, surrounding area	Annually	Any noticeable trend indicating increased human caused disturbance , such as excavations	Closure of areas surrounding site to prevent further disturbance to significant cultural resources, halt activity affecting sites, increase frequency and monitoring of nearby sites, evaluate damage, apply mitigation or restoration/remediatio n and possible civil or criminal action
Cultural Resources (cont'd)	Environmental or naturally caused	Significant cultural sites, area-wide	Inspection of displaced or disturbed area	Site, surrounding area	Annually	Naturally occurring accelerated loss or	Closure of areas surrounding site to prevent further

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
	degradation, such as erosion or trampling					damage to significant cultural material	disturbance to significant cultural resources, halt activity affecting sites, increase frequency and monitoring of nearby sites, evaluate damage, apply mitigation or restoration/remediation
PALEONTOLOGICAL RESOURCES							
ACECs	See *Special Designation Areas* in this table.						
Paleontological Resources	Significant paleontological localities	Area-wide	Inspection of disturbed area	Degradation caused by human or natural activities that lead to loss of significant fossil resources	Annually	Loss or damage to significant fossil resources	Closure of areas surrounding site to prevent further disturbance to significant fossil resources; require reclamation/remediation and possible civil or criminal action
	Random sample of 5 sites	Area-wide	Inspection of disturbed area	Degradation caused by human or natural activities that lead to loss of significant fossil resources	Annually	Loss or damage to significant fossil resources	Closure of areas surrounding site to prevent further disturbance to significant fossil resources; initiate reclamation/remediation actions
	Locality degradation caused by human activity	Significant paleontological localities	Inspection of area disturbed	Percentage of locality	Annually	Any noticeable trend indicating increased human caused	Closure of areas surrounding site to prevent further disturbance to

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
						disturbance such as excavations	significant fossil resources; require reclamation/remediation and possible civil or criminal action
Paleontological Resources (cont'd)	Environmental or naturally caused degradation, such as erosion or trampling	Significant paleontological localities	Inspection of displaced or altered area	Number of fossils	Annually	Naturally occurring accelerated loss or damage to significant fossils	Closure of areas surrounding site to prevent further disturbance to significant fossil resources; initiate reclamation/remediation actions
VISUAL RESOURCE MANAGEMENT (VRM)							
VRM I	(see *Wilderness* in this table)						
VRM II	VRM II	See VRM	Field visit and key observation points	Photo points; Visual Contrast Rating Form	Once every 1 to 5 years	Unanticipated or unacceptable effects or conflicts occurring	Require mitigation; signing; increase enforcement visits; restrict or limit surface disturbing activities; require reclamation/remediat n
VRM III/IV	Large scale-surface disturbing project	Planning area	Field visit and key observation points	Photos points; Visual Contrast Rating Form	As the need arises	Large-scale surface-disturbing project on landscape	Require mitigation
LANDS WITH WILDERNESS CHARACTERISTICS							
LWCs	MCFO LWCs	Devils Creek	Flight, vehicle, and foot review	Surface disturbance	Once every year	Unauthorized actions	Require reclamation/remediation or possible civil or criminal action and public notification
FORESTRY AND WOODLAND PRODUCTS							
Forestry and	Reforestation	MCFO	Site inspection	Trees per acre	Initial survey	Less than 150	Planting of nursery

TABLE 1. MONITORING TABLE

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Threshold	Management Options
Woodland Products (cont'd)			and stocking surveys	and visual evaluation of tree vigor	10 years after harvest or wildfire; subsequent survey after 15 years to determine if artificial regeneration is necessary	trees per acre; trees greater than 4.6 inches diameter at breast height	stock or broadcast seeding
	Silvicultural treatments	MCFO	Site inspection	Trees per acre; basal area per acre; volume per acre (thousand board feet per acre); and size classes; visual evaluation of forest health	Pre- and post-treatment	Obtain current stand data information and evaluate effects of treatments	Stocking surveys, stand exams, forest inventory, permanent plots, and photo points
	Forest health	MCFO	National Agricultural Imagery Program photography, aerial detection surveys, site visits	Visual evaluation	Annually	Evaluate insect and disease damage and tree mortality levels	Silvicultural treatments, sanitation harvest, chemical application (e.g., verbenone, carbaryl)
	Roads	MCFO	Site Inspection	Visual Evaluation	Pre- and post-treatment	Damage to road surface (e.g., rutting, erosion, sediment delivery, or culvert washouts)	Culvert replacement or installation, rolling dips, proper drainage and road placement, reconstruction, cut and fill slope stabilization, surface blading, grass seeding, armoring,

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
							road closures, timing restrictions, and other activities
MINERALS							
Coal	Exploration license	Area-wide	Site inspection	Exploration license	The regulations at 43 CFR 3480.06(d)(4) require inspections of exploration and production as frequently as necessary, but at least quarterly. Exploration license areas must be inspected for compliance with site-specific stipulations, terms and conditions of the license, and reclamation success prior to bond release. Because exploration licenses expire after 2 years license areas are typically inspected after	Non-compliance with the terms and conditions of the exploration license, or operating regulations; poor reclamation; or environmental degradation	Require compliance with terms and conditions of the license, require appropriate reclamation, and eliminate environmental degradation

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					expiration of the license but prior to bond release (or sooner if requested by the proponent)		
Oil, Gas, and Geothermal	Geophysical notice of intent (NOI)	Area-wide	Line or area inspection	Operations conducted in compliance with NOI	Minimum of once during operations	Violation of regulations, change from approved NOI	Issue certified letter with corrective action and timeframe; bond release cannot occur until violations are corrected
Oil, Gas, and Geothermal (cont'd)	Geophysical notice of completion	Area-wide	Line or area inspection	Operations conducted in compliance with notice of completion	Minimum of once during operations, once after reclamation	Violation of regulations, change from approved notice of completion	Issue certified letter with corrective action and timeframe; bond release cannot occur until violations are corrected
	Application for permit to drill operations (surface and technical inspections)	Area-wide	Site inspection	Operations conducted in compliance with applications for permit to drill	Surface Inspections: construction, drilling, and production – Minimum of once and as necessary; Interim and final reclamation – minimum of once and until reclamation is complete; Technical inspection: drilling and	Violations of regulations, change from approved applications for permit to drill	Issue a written order or an incident of non-compliance with timeframe to correct violations or shut in operations

TABLE 1. MONITORING TABLE

Element	Item	Location	Technique	Unit of Measure	Frequency and Duration	Remedial Action Threshold	Management Options
					production – minimum of once and as necessary		
Oil, Gas, and Geothermal (cont'd)	Sundry notice	Area-wide	Site inspection	Operations conducted in compliance with approved sundry notice	As necessary	Violations of regulations, change from approved sundry notice	Issue a written order or an incident of non-compliance with timeframe to correct or shut in operations
	Oil and gas drainage	Area-wide	Drainage evaluation	Radius of drainage	As necessary	The BLM determines that federal oil or gas is being drained (physically removed) by an off-lease well.	Notify lessee of drainage situation. Require lease protection, compensatory royalty, or relinquishment
	Produced water disposal	Area-wide	Site inspection	Operations conducted in compliance with permit	Minimum of once annually or as necessary	Violation of regulations or change from approved permit	Issue a written order or an incident of non-compliance with timeframe to correct or shut in operations
	Spill	Area-wide	Site inspection	Spill area cleaned up and reclaimed	Minimum of once after event and as necessary	Violation of regulations or change from approved permit	Issue a written order or an incident of non-compliance with timeframe for correction
Oil, Gas, and Geothermal (cont'd)	Plugging operations	Area-wide	Site inspection	Operations conducted in compliance with permit	Minimum of once during operations and as necessary	Violation of regulations or change from approved permit	Issue a written order or an incident of non-compliance with timeframe for correction or shut in operations
Locatable Minerals	NOIs	Area-wide	Site inspection	NOI	At least four times each year, the responsible	Non-compliance with the terms and conditions of the NOI or Plan of	Require compliance with the terms and conditions of the NOI or Plan of Operations,

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					field office would inspect an operation if the operator uses cyanide or other leachates or where there is significant potential for acidic or deleterious drainage(43 CFR 3809.600(b). active notices and plans that do not involve leachates should be inspected at least two times per year. These inspection frequencies are minimums; field offices are encouraged to conduct inspections on a more frequent basis where it is deemed necessary. MCFO currently has no plans or	Operations, surface management regulations, poor reclamation, or environmental degradation	surface management regulations, and require that reclamation was appropriately completed and environmental degradation did not occur

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					notices that use leachates		
Mineral Materials	Permits and contracts	Area-wide	Site visit	Permits and contracts	Inspections are required at least once per year for sales less than 5,000 cubic yards and twice per year for sales larger than 5,000 cubic yards	Non-compliance with the terms and conditions of the permit or contract, regulations, poor reclamation, or environmental degradation	Require compliance with the terms and conditions of the permit or contract, regulations, and require that reclamation was appropriately completed and environmental degradation did not occur
RECREATION							
Recreation (cont'd)	General recreation use	Area-wide with emphasis on dispersed use of undeveloped recreational sites (extensive recreation management areas)	Area inspection to look for vandalism and resource abuse and to install photo points	Site condition	Twice a year (e.g., once in June and once in October) and photograph annually	User conflicts, resource degradation, or safety hazards	Signing, fencing or other mitigation measures
	Concentrated recreation use and demand	Special recreation management areas and sites with recreation facilities	Visitor registration, traffic counters, estimates, and photo points	Visitor days and site condition	Visitor registration boxes and counters checked once monthly (at the minimum) and weekly or biweekly	Increased visitor use per year or sustained use that requires additional or improved facilities	Monitor more frequently and signing, fencing, or other mitigation measures

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					during heavy use periods; photograph annually		
		Area-wide commercial and competitive activities (special recreation permits)	Administrative review and site inspection or reviews for permittees with permit stipulations	Permit stipulations, resource condition, and success of reclamation	On site during competitive events, periodic site inspection for commercial operations, and administrative review annually	Violation of permit stipulations, irreparable resource damage, and compromised visitor safety and recreation experience	Monitor more frequently and signing, fencing, or other mitigation measures
RENEWABLE ENERGY							
Renewable Energy (cont'd)	ROWs	Area-wide	Site inspection	ROW	Minimum of once during or for construction within 5 years of issuance, then in the 20th year after issuance and every 10 years thereafter; before release or collection of a bond; before renewal termination or relinquishment acceptance; or as required by specific terms and conditions	Nonuse of the ROW or violation of ROW grant stipulations, the terms of the POD, or regulations	Require compliance with ROW grant stipulations, POD terms, or regulations with possible suspension or termination for non-compliance or nonuse

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					in the ROW grant or the plan of development (POD) or regulations		
TRAVEL MANAGEMENT AND OHV AND BACK COUNTRY BYWAYS							
Travel Management and OHV and Back Country Byways	Track progress on implementation or planning signing, and mapping	Planning-area-wide	Field trips and localized public meetings	Verify minimized resource damage, user conflicts, and new user-created roads	Annual	Effects not anticipated in EIS or unacceptable effects	Require further mitigation or reclamation; restrict or limit surface disturbing activities
LANDS AND REALTY							
Lands and Realty cont'd	2920 Land Use Permits and Leases	Area-wide	Site inspection	Lease or Permit	Minimum of once during or for construction within 2 years of issuance; before release or collection of a bond; before renewal termination or relinquishment acceptance; or as required by specific terms and conditions in the lease or permit or the POD or regulations	Nonuse of the lease or permit or violation of lease or permit stipulations, the terms of the POD, or regulations	Require compliance with lease or permit stipulations, POD terms, or regulations with possible suspension or termination for non-compliance or nonuse
	Other Land Use Authorizations	Area-wide	Site inspection	Use Authorization	Minimum of once during or for	Nonuse of the authorization or violation of	Require compliance with authorization stipulations, POD

TABLE 1. MONITORING TABLE							
Element	**Item**	**Location**	**Technique**	**Unit of Measure**	**Frequency and Duration**	**Remedial Action Threshold**	**Management Options**
					construction; before release or collection of a bond; before renewal termination or relinquishment acceptance; or as required by specific terms and conditions in the authorization or the POD or regulations	authorization stipulations, the terms of the POD, or regulations	terms, or regulations; with possible suspension or termination for non-compliance or nonuse
SPECIAL DESIGNATION AREAS							
ACECs	MCFO ACECs	All	Site inspection	Site, surrounding area	Annually	Any noticeable trend indicating increased disturbance, natural or human-caused	Increase frequency of monitoring to ensure ACEC values were not being impaired; require reclamation/remediation or possible civil or criminal action

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APPENDIX N
RECLAMATION

APPENDIX N
RECLAMATION

INTRODUCTION

This appendix gives guidance for appropriate reclamation planning prior to authorization and following surface disturbance. Prior to a surface-disturbing activity taking place, sites will be evaluated on a case-by-case basis and mitigation measures will be prescribed where appropriate. Reclamation planning will be site-specific, project-specific, and incorporate the project's complexity, environmental concerns, post-disturbance land use, and reclamation potential.

As such, the level of detail and complexity required of reclamation planning will depend on the nature of the resource being impacted and the extent and complexity of the surface-disturbing activity. Some activities may require a highly detailed Reclamation Plan to ensure that reclamation goals and objectives are achieved, while others may have reclamation measures integrated into the engineering design, permit application, or other comparable project documentation.

In cases where a Reclamation Plan is required, the Bureau of Land Management (BLM) will work with the project proponent or proponents to prepare the Plan. Plans will incorporate program or regulation specific requirements. The Reclamation Plan will be considered complete when the applicable requirements described below have been addressed, the techniques to meet the requirements are described in detail, and the BLM approves the Reclamation Plan. Reclamation Plans are periodically reviewed (including monitoring and reporting) and modified as needed. Reclamation is considered successful when all applicable requirements described in the approval document for the proposed activity have been addressed onsite and the BLM approves the reclamation.

RECLAMATION GOALS

The goals for reclamation activities are consistent with the impacted resources' goals and objectives . The short-term goal of reclamation activities includes immediate stabilization of the disturbed area and the creation of conditions needed to meet long-term goals. The long-term goal of reclamation activities is concurrent eventual ecosystem restoration through natural processes, a safe and stable landscape, and achievement of desired conditions.

RECLAMATION OBJECTIVES

These reclamation objectives are applied on a site-specific, project-specific basis. Not all reclamation objectives are appropriate for all surface-disturbing activities, and the project proponents should carefully select reclamation measures based on the characteristics of the site, and surface-disturbing activity. In addition, these objectives are not all inclusive, as specialized experience, evolving technology, and future research may provide additional methodology or refinement of the listed objectives. Where these reclamation guidelines differ from stricter applicable laws, rules, and regulations, those standards replace this policy.

Most landscapes can be reclaimed using established conventional reclamation methods. However, some areas have unique characteristics that make achieving all the reclamation requirements unrealistic (e.g., sensitive soils, sensitive vegetation types, soils with severe physical or chemical limitations, steep slopes). These limited reclamation potential areas may require site-specific measures not addressed in this appendix. For these areas, each project will develop a unique set of requirements for reclamation success.

The reclamation objectives are:

1. **Ensure subsurface integrity and eliminate sources of ground and surface water contamination.**

    a. Maintain all erosion or sediment control devices until vegetation is reestablished, site is stabilized, or the devices are no longer needed.
    b. Fertilizer and soil additives would not be applied where they could adversely impact water quality.
    c. Water bars are required on 25 percent slopes or greater and will be used as necessary on gentler slopes.
        1. Suggested spacing between water bars would follow the guidelines below:
            a. for slopes less than 10 percent, the spacing would be at least every 100 to 400 feet,
            b. for slopes 10 to 19 percent, the spacing would be at least every 75 to 200 feet,
            c. for slopes 20 to 39 percent, the spacing would be at least every 50 feet,
            d. for slopes greater than 39 percent, the spacing would be at least every 25 feet, and
            e. *The Gold Book* (BLM and USFS 2007b) has further guidance and cross-sectional diagrams for water dips that are drivable.
        2. Vary water bar spacing to:
            a. fit site conditions,
            b. promptly intercept surface water before the volume of water and velocity increase enough to generate erosion, and
            c. facilitate drainage toward natural dips, rocky ground, or vegetation to intercept sediment.
        3. Design water bars to:
            a. be 4 to 6 inches high, but could be deeper depending on site conditions,
            b. be at a 20 degree angle to the slope and channel water to the downhill side, and
            c. avoid directing sediment into drainages.

2. **Reestablish slope and surface stability and desired topographic diversity.**

    a. Reconstruct the landscape to blend with adjacent contours and to maintain the approximate original contour. However, if the site has stabilized and recontouring would cause additional disturbance, this step may be waived by the authorized officer.
    b. Maximize geomorphic stability and topographic diversity of the reclaimed topography.
    c. Disturbed areas would be recontoured to provide proper drainage.
    d. Eliminate highwalls, cut slopes, or topographic depressions, unless otherwise directed.
    e. Backfill to prevent surface subsidence. No downward movement of surface material would be evident, and the site would be maintained to correct settling within 1 year of reclamation. See the *Monitoring Appendix* for specific guidelines on subsidence assessment.
    f. There would be no evidence of slope instability on or adjacent to the site, other than minimal sheet, rill, or wind scour erosion within 1 year of reclamation. Minimize accelerated erosion and sedimentation on or adjacent to the reclaimed area with appropriate erosion and sedimentation control measures immediately following disturbance. See the *Monitoring Appendix* for specific guidelines on erosion assessment.
    g. Erosion control matting would be unrolled from the bottom toward the top of the slope, placed along the direction of water-flow and loosely over soils with extreme surface roughness, and in compliance with the manufacturer's instructions (Wright 2000).
    h. Reclaim all roads and trails unless they meet public demand.

i. The Burned Area Emergency Stabilization and Rehabilitation BLM Handbook H-1742-1 contains further guidance on erosion and sedimentation control Best Management Practices (BMPs).

3. Reconstruct and stabilize watercourses and drainage features.

a. Reconstruct drainage basins and reclaim impoundments to maintain the drainage pattern, profile, and dimension to approximate the natural features found in the site's naturally functioning basin or, if appropriate, nearby and similar reference basins.
b. Reconstruct and stabilize stream channels, drainages, and impoundments to exhibit similar hydrologic characteristics found in the site's naturally functioning system or, if appropriate, nearby and similar reference systems. There would be minimal evidence of streambank erosion and no evidence of active headcutting and channelization (beyond that which already exists) within 1 year of the disturbance.
c. Upland erosion would be controlled effectively and sediment would not be transported to stream systems.

4. Maintain the biological, chemical, and physical integrity of the soil resource.

a. Identify, delineate, and salvage all topsoil and subsoil based on a site-specific and project-specific soil evaluation. Subsoil or overburden may be used as suitable growth medium if topsoil is not suitable.
b. When possible, soil would be direct-hauled to similar ecological sites during the reclamation process. If this were not possible, topsoil would be stockpiled separately from subsoil. All stockpiles would be appropriately identified and remain undisturbed until reclamation.
c. Protect all stored soil material from erosion, degradation, and contamination. Stockpiles would be of a stable configuration. Stockpiles would be located above the high water mark and away from riparian areas, floodplains, wetlands, and other sensitive areas. If stored for more than 30 days, erosion control (e.g., water or tackifier) would be applied immediately. If stored during the growing season, native seed would be applied within 30 days of storage. Stockpiles would be stored near the disturbance. Applied water would not degrade soil quality.
d. Displaced farmland, whether in production or not, would be reclaimed to original productivity.

5. Prepare site for revegetation.

a. Provide suitable surface and subsurface physical, chemical, and biological properties to support the long-term establishment and viability of the desired plant community as soon as possible following disturbance.
b. Redistribute soil resources along contours and in a manner similar to the original vertical profile. Incorporate soil material so that it blends in with the adjacent landscape, corresponding to adjacent surface roughness (macro- and microtopography). Avoid scalping more than 1 inch of undisturbed soils when redistributing spoils and salvage piles.
c. Reduce subsoil compaction to a minimum of 18 inches deep, except in bedrock, prior to redistribution of topsoil. Cross-rip along contours with two passes perpendicular to each other.
d. Prepare a proper seedbed when environmental conditions are appropriate (Strom et al. 2010):

    1. Replace topsoil unevenly back over subsoil in order to create microsites.
    2. Seed when a weak ball can be formed from soil 2 to 3 inches below the surface.
    3. Clods would be less than 2 inches in diameter.

4. A 170-pound person would leave footprints no deeper than half an inch.

6. Establish a desired, self-perpetuating, native plant community.

a. Establish species composition, richness, structure, and total ground cover appropriate for the desired plant community as soon as possible following disturbance. The site would be compared to a reference site or a National Resources Conservation Services (NRCS) Ecological Site Description (http://www.mt.nrcs.usda.gov/technical/ecs/range/ecolsites/), whichever is appropriate. Multiple treatments may be required before success is achieved. See the *Monitoring Appendix* for specific guidelines on vegetation assessments. Vegetation objectives include:

    1. Within 2 years of reclamation, the site would contain 50 percent of the reference area's vegetative basal cover.
    2. Within 5 years of reclamation, the site would contain 80 percent of the reference area's vegetative basal and canopy cover.
    3. Within 2 years of reclamation, 50 percent of the vegetative cover would consist of desirable species.
    4. Within 5 years of the reclamation, 90 percent of the vegetative cover would consist of desirable species.
    5. Composition would meet reference site conditions within 5 years of the reclamation. For example, structure would be made up of 70 to 75 percent grasses and grass-like species, 5 to 10 percent forbs, and 5 to 10 percent shrubs. A minimum of 25 percent of the shrub component would be the reference site's dominant species.
    6. Monocultures would not be allowed beyond 2 years of reclamation.
    7. The site would not have state- or county-listed noxious weeds within 5 years of reclamation.

b. Using NRCS ecological sites and soil surveys, select genetically appropriate and locally adapted native plant materials based on the site characteristics and ecological setting whenever possible. Streambanks would be replanted with riparian vegetation following current ecological restoration practices.
c. Native species are preferred; select nonnative plants only as an approved short-term, non-persistent, alternative to native plant materials (BLM Handbook 1740-2 and Executive Order 13112 of February 3, 1999). Ensure the nonnative species are designed to aid in the reestablishment of native plant communities and will not hybridize, displace, or offer long-term competition to the endemic plants.
d. Seed sites when environmental conditions are appropriate and as soon as possible following re-contouring and seedbed preparation. Dormant fall seeding is recommended, typically after October 1st, when soil temperatures are less than 40 degrees Fahrenheit (F) at a 2-inch depth (for 10 days or more) and before the ground freezes (Holzworth and Wiesner 2007). Warm season species are more successful when seeded in the spring when soil temperatures are a minimum of 55 degrees F (2007). Spring seeding should take place as early as possible, prior to May 15, on thawed, friable surface soil (2007). If seeding after May 15, complete seeding prior to August 15, and when soil is moist down to 2 feet deep (2007).
e. Approved seed rates would be specified in pounds of pure live seed (PLS) per acre and be designed to adequately cover the soil upon germination. Seed would be tested to ensure viability and purity (germination or tetrazolium chloride tested by a registered seed analyst within 1 year of receipt). Seed would be certified weed free (BLM 2006a, 2007c, and BLM Manual H-1740-2). Seed would have easily accessible documentation (not seed bag tags), including sources.
f. Drill or broadcast seed along contours. Broadcast seeding followed by packing with a roller or drag (e.g., chain, harrow) with two passes perpendicular to each other is the preferred method of seeding. Drill seed with a 6-inch row spacing. Bury seed at depths

2.5 to 3 times the diameter of the seed; for small seeds use length rather than diameter (Monsen et al. 2004). Hydroseeding is not recommended, but if approved, the seed should be spread in an initial pass and then covered by a mulch mixture (if needed) in a second pass; the mulch and seed should never be combined in a single pass.

g. The recommended drill seeding rate for large-seeded species is 20 pure live seed per square foot (or PLS/ft^2), and the recommended drill seeding rate for small-seeded species (most seed mixes) is 30 to 40 PLS/ft^2. Double the drill-seeding rate for broadcast or aerial seeding to a maximum of 80 PLS/ft^2.
h. Seed additives are allowed (e.g., rhizobium, mycorrhizae, fungicide, pilling).
i. If the site does not meet desired roughness following seeding and packing, the site would be scarified or imprinted (e.g., rip, roll, imprint, harrow). Scarify and imprint no greater than several inches deep, along contours (Steinfeld et al. 2007). However, this step in the process would be followed only if necessary, because running equipment over the site would further pulverize and compact the soil.
j. Rock and woody debris would be replaced along contours and equivalent to pre-disturbance conditions and positioned to blend with adjacent areas. Felled trees would be low-stumped (uphill side no greater than 6-inches above the ground) and removed from drainages. Any excess woody debris would be removed or burned in upland areas.
k. Protect seed and seedling establishment with appropriate measures. Erosion-control matting and mulch would be biodegradable and certified weed and insect free. Matting would contain holes greater than 2 inches in diameter and a 2-year photodegradation life. Tackifier would be biodegradable. Straw or native hay mulch would be mold- and fungi-free and would be crimped in vertically at a rate of 1 to 2 tons per acre, so that 80 to 90 percent of the ground is covered (Wright 2000). Wood mulch is not recommended. All twine associated with straw or hay mulch would be biodegradable, but if it is not, then it would be collected and properly disposed.
l. The Burned Area Emergency Stabilization and Rehabilitation Handbook, the Integrated Vegetation Management Handbook, and the Native Seed Network website (http://www.nativeseednetwork.org/) contain further guidance on revegetation BMPs.

7. Reestablish complementary visual composition.

a. Ensure the reclaimed landscape features blend into the adjacent area and conform to RMP decisions (BLM Manual H-8431).
b. Ensure the reclaimed landscape does not result in long-term changes to the scenic quality of the area or change the scenic quality rating (BLM Manual H-8410).

8. Manage invasive species (the same as appears in the *Best Management Practices Appendix*).

a. The project area would be inventoried for invasive species on and adjacent to the site before initial activities.
b. An invasive species management plan would be developed if appropriate.
c. Invasive species would be controlled using an integrated pest management approach.

9. Develop and implement a project-appropriate reclamation monitoring and reporting strategy.

a. Contain a compliance and effectiveness monitoring protocol in accordance with BLM-approved monitoring methods. Observations would include accelerated erosion and sedimentation, subsidence, revegetation, and invasive species. Observations would be preferably taken in the spring, before livestock are turned onto the reclaimed sites. Subsequent annual inspections would occur at the same vegetative phenological stage as the first inspection.
b. Evaluate monitoring data for compliance with the reclamation plan.

c. Document and report monitoring data detailing vegetation reestablishment, utilization, and site stability to the BLM within 2 months of the on-site inspection. Include in the document:

    1. digital tabulated data and photographs,
    2. shapefiles of global positioning system locations that include all associated data,
    3. a discussion of the existing environment as compared to the objectives,
    4. vegetation data summarized by morphological group (e.g., grass, grass-like, forb, shrub, or tree),
    5. livestock utilization over the past year including species, timing, and duration, and
    6 if any of the objectives have not been met, include in the report an explanation for failing to meet the objective and recommendations for remedial measures where appropriate.

d. The BLM would evaluate the report and reply back to within 2 months of receiving the report. Site-specific evaluations may be recommended following BLM evaluation of data. The BLM may suggest remedial measures, alter proposed remedial measures, or alter the method or interval for monitoring and reporting.
e. Implement revised reclamation strategies where appropriate.
f. Continue the process of monitoring, evaluating, documenting, reporting, and implementing until reclamation goals and objectives are achieved.
g. In locations where the reclamation goals and objectives have been achieved, and with the written concurrence of the BLM, the monitoring requirement would be removed, and no additional monitoring or reporting would be required.

APPENDIX O
RECREATION

APPENDIX O
RECREATION

INTRODUCTION

This appendix contains in-depth information for recreation resources and management in the planning area. Information includes guidance used for recreation management in the planning area.

RECREATION SETTING CHARACTERISTICS – EXPERIENCE AND BENEFITS CHECKLIST

The websites below were used to determine the Recreation Setting Characteristics Matrix and the Experience and Benefit Checklist for the designated Special Recreation Management Areas (SRMAs) of the Miles City Field Office.

- A Unified Strategy to Implement "BLM Priorities for Recreation and Visitor Services" Workplan: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/recreation_images/national_recreation/planning.Par.76166.File.dat/im2007-043_a1.pdf and

- IM 2011-004, Transmittal of Revised Recreation and Visitor Services Land Use Planning Guidance: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2011/IM_2011-004.html.

SRMAs and ERMAs

CALYPSO SRMA

Management Goals

- Ensure the continued availability of a variety of outdoor recreational opportunities and visitor experiences.
- Manage to emphasize interpretive and educational opportunities.

Management Objectives

- Identify experiences available and differences of the great diversity of topographic, geologic, vegetation, and scenic phenomenon in proximity to the Calypso Trail and Terry Badlands (in relationship to the Calypso SRMA due to the close proximity of the two).
- Provide users with opportunities to view, experience, and appreciate examples of cultural and historic use of nearby Calypso Trail, and examples of the ways the resources on public lands are being managed in harmony with the environment, as an asset to the existing scenic character of the Terry Badlands.
- Ensure the SRMA will have a minimum adverse effect on adjacent natural scenic, historical and cultural environments and harmonize with the management objectives of land and resource uses which are now or may be occurring on the lands.
- Maintain and enhance recreation opportunities for residents and visitors to the area to accommodate camping, sightseeing, wildlife viewing, hunting, picnicking, hiking, Yellowstone River access and other
compatible uses in prescribed settings so visitors are able to realize experiences and benefits.
- Pursue opportunities for partnerships.
- Pursue future opportunities for recreation development as demand arises.

Experiences

- Experiences that visitors enjoy include: enjoying the artistic expression of nature, solitude, family recreation, fishing, scenery, escaping everyday responsibilities for a while, exploring, togetherness, learning outdoor skills, enjoying teaching others about the outdoors, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, a restored mind from unwanted stress, and a greater sense of overall wellness, improved outdoor recreation skills, greater respect for cultural heritage, greater environmental sensitivity, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, greater family bonding, and an enhanced lifestyle.
- Economic and environmental benefits include positive contributions to local-regional economic stability, increased desirability as a place to live or retire, enhanced ability for visitors to find areas providing wanted
  recreation experiences and benefits, increased local tax revenue from visitors, greater retention of distinctive natural landscape features, and an increased stewardship and protection by users.

LEWIS AND CLARK TRAIL SRMA

Management Goals

- Continue to manage the Lewis and Clark Trail SRMA in accordance with the act that established the trail in 1978.
- Manage to ensure the continued availability of a variety of outdoor recreational opportunities and visitor experiences associated with the Lewis and Clark Trail.

Management Objectives

- Update and comply with the Lewis and Clark Trail Plan as well as Manual 6280, Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation.
- Inventory and monitor National Trail resources, qualities, values, and associated settings and the primary use or uses of the trail as well as stewardship responsibilities.
- Manage for public use and enjoyment, while preserving the historic and cultural resources related to the events that occurred during the Lewis and Clark Expedition.
- Provide adjacent communities with convenient opportunities to exercise and improve their physical fitness at the multiple-use recreational Lewis and Clark National Trail SRMA.
- Maintain and enhance recreation opportunities for residents and visitors along the trail to accommodate camping, scenery and wildlife viewing, hunting, picnicking, boating, fishing, hiking, and other compatible and dispersed recreational uses in prescribed settings so visitors are able to realize experiences and benefits.
- Pursue opportunities for partnership and cooperative management with adjacent property owners and other interested parties.
- Pursue access opportunities such as land exchanges and easement acquisitions to improve public access along the Lewis and Clark Trail SRMA where opportunity arise.
- Acquire lands or interests in lands from willing sellers, as appropriate and consistent with policy direction, to further purposes for which the trail was designated, consistent with other BLM resource programs.
  Complete, sign and maintain the BLM-managed portions of the Lewis and Clark Trail to allow the public to enjoy the trail while maintaining the surrounding natural beauty of the corridor and the opportunity for a relatively primitive recreation opportunity.

- Manage the portions of the Lewis and Clark Trail SRMA, including the National Trail Management Corridor, crossing lands administered by the MCFO to protect and enhance their respective historic values. Consider interpretive opportunities on a case-by-case basis.
- Manage Lewis and Clark Trail SRMA under the VRM Class II.
- Conduct periodic monitoring of activities along those segments of the Lewis and Clark Trail SRMA managed by the MCFO to ensure that management actions are not adversely impacting the historical values for which the trails were designated.
- Maintain and enhance local social and economic values.
- Pursue future opportunities for recreation development as demand arises.

Experiences

- Experiences that visitors enjoy include: developing their own skills and abilities, testing their endurance, gaining self-confidence, enjoying going exploring on their own, enjoying risk taking adventures, enjoying nature, savoring the total sensory-sigh, sound and smell-experience of a natural landscape, nostalgia, feeling good about solitude and being isolated.

Benefits

- Personal benefits include greater self-reliance, improved skills for outdoor enjoyment, greater respect for my cultural heritage, closer relationship with the outdoor world, enhanced sense of personal freedom, greater sense of adventure, and increased appreciation of area's cultural history.
- Household and community benefits include increased compassion for others and increased community involvement reducing erosion of our community's small-town, rural character.
- Economic and environmental benefits include increased desirability as a place to live or retire, maintenance of community's distinctive recreation-tourism market niche or character, and conservation of entire
sustainable ecosystems.

SHORT PINE OFF-HIGHWAY VEHICLE (OHV) SRMA

Management Goals

- Provide a variety of opportunities for a safe OHV riding experience and OHV use education for local/regional residents and visitors to the area.

Management Objectives

- Update the Short Pine OHV Recreation Area site Recreation Area Management Plan (RAMP).
- Communicate riding ethics and regulations, promoting designated areas for OHV practice and skill development.
- Maintain, restore, and enhance areas within the OHV SRMA to manage the area for a front and middle country setting.
- Maintain or enhance a diversity of recreational and OHV experiences and benefits.
- Provide OHV trail riding opportunities for all levels of experience in a safe manner that co-exists with other resource uses as well as other dispersed recreational activities.

Experiences

- Experiences that visitors enjoy include: developing skills and abilities, testing endurance, enjoying risk- taking adventure, enjoying the closeness of friends and family, escaping everyday responsibilities for a while, and reducing some built up mental tensions.

Benefits

- Personal benefits include improved physical fitness, restored mind from unwanted stress, improved outdoor knowledge, skills and self-confidence, diminished mental anxiety and improved mental well-being.
- Household and community benefits include involvement in recreation and other land use decisions and more informed citizenry about where to go for different kinds of recreation experiences and benefits,
  greater family bonding.
- Economic and environmental benefits include positive contributions to local-regional economic stability, increased desirability as a place to live or retire, enhanced ability for visitors to find areas providing wanted recreation experiences and benefits, and maintenance of a distinctive recreation setting character.

HOWREY ISLAND SRMA

Management Goals

- Ensure the continued availability of a variety of outdoor recreation opportunities and experiences and benefits to local/regional residents and visitors to the Howrey Island SRMA.

Management Objectives

- Update the Howrey Island SRMA RAMP.
- Maintain, restore or enhance the area for river-related recreation activities, fisheries, wildlife viewing, hiking, camping, hunting and existing dispersed recreational activities for local residents and visitors to the area.
- Manage conflicts with other resource values and uses in coordination and cooperation with affected interests.
- Maintain, restore and enhance the Americans with Disabilities Act accessible trail and other amenities.
- Pursue future opportunities for recreation development as demand arises.

Experiences

- Experiences that visitors enjoy include: solitude, family recreation, fishing, exercise, scenery, escaping everyday responsibilities for a while, exploring, togetherness, participating in group events, learning outdoor skills, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, a restored mind from unwanted stress, a greater sense of overall wellness, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation, community involvement and an enhanced lifestyle.
- Economic and environmental benefits include increased work productivity; decreased job turnover; greater community ownership and stewardship of park, recreation, and natural resources; reduced wildlife harassment by recreation users; reduced spread of invasive species such as plants, insects, and aquatics organisms, and increased awareness and protection of natural landscapes.

MATTHEWS RECREATION SRMA

Management Goals

- Ensure the continued availability of outdoor recreation opportunities and benefits to local residents and visitors to the Matthews SRMA.

Management Objectives

- Update the Matthews SRMA RAMP.
- Maintain, restore or enhance the area for water-related recreation activities, fisheries, scenery and wildlife viewing, hiking, camping, hunting, running, bird watching, picnicking, exercising pets, Yellowstone River access, and existing dispersed recreational activities for local residents and visitors to the area.
- Manage conflicts with other resource values and uses in coordination and cooperation with affected interests without risking health and safety.
- Pursue future opportunities for recreation development as demand arises.

Experiences

- Experiences that visitors enjoy include: solitude, family recreation, fishing, exercise, scenery, escaping everyday responsibilities for a while, having access to close-to-home outdoor amenities, exploring, togetherness, participating in group events, learning outdoor skills, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, a restored mind from unwanted stress, a greater sense of overall wellness, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation, community involvement and increased community involvement reducing erosion.
- Economic and environmental benefits include increased work productivity; decreased job turnover; greater community ownership and stewardship of park, recreation, and natural resources; reduced wildlife
  harassment by recreation users; improved respect for privately-owned lands and increased awareness and protection of natural landscapes.

DEAN S. RESERVOIR SRMA

Management Goals

- Manage to ensure the continued availability of a variety of outdoor recreation opportunities and visitor experiences associated with Dean S. Reservoir SRMA for residents of the local area.

Management Objectives

- Maintain, restore or enhance the area for recreational activities that include fishing, wildlife viewing, camping, hiking, hunting, camping, sledding, running, exercising pets, picnicking and other dispersed uses.
- Manage conflicts with other resource values and uses in coordination and cooperation with affected interests while in a healthy and safe manner.
- Improve accessibility and aesthetics and improve soil/shore stability.
- Dredge and deepen the reservoir basin as opportunities arise to maintain the fishery.
- Reclaim unnecessary or undesirable vehicle routes.

- Pursue future opportunities for recreation development as demand arises.

Experiences

- Experiences that visitors enjoy include: frequent exercise, enjoying easy access to diverse recreation, solitude, family recreation, fishing, exercise, scenery, escaping everyday responsibilities for a while, having access to close-to-home outdoor amenities, exploring, togetherness, learning outdoor skills, achievement, escaping pressures, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, better health maintenance, a restored mind from unwanted stress, a greater sense of overall wellness, family togetherness, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation, community involvement and increased community involvement reducing erosion.
- Economic and environmental benefits include increased work productivity; decreased job turnover; greater community ownership and stewardship of park, recreation, and natural resources; reduced wildlife harassment by recreation users; improved respect for privately-owned lands and increased awareness and protection of natural landscapes.

MOORHEAD SRMA

Management Goals

- Ensure the continued availability and diversity of a variety of outdoor recreational opportunities and visitor experiences.

Management Objectives

- Update the Moorhead SRMA RAMP.
- Maintain or enhance the current campground and facilities as needed or demand arises and funding allows.
- Pursue future opportunities for recreation development as demand arises.
- Mitigate conflict with other resource values and uses as appropriate, in coordination and cooperation with affected interests in a healthy and safe manner.

Experiences

- Experiences that visitors enjoy include: family togetherness, enjoying the closeness of friends and family, meeting new people with similar interests, enjoying nature, nostalgia, enjoying an escape from crowds of people, and enjoying teaching others about the outdoors.

Benefits

- Personal benefits include stronger ties with family and friends, a more outdoor-oriented lifestyle, greater freedom from urban living, and better mental health.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation and greater family bonding.
- Economic and environmental benefits include increased work productivity; more positive contributions to local-regional economy; greater protection of area historic structures and archeological sites, and reduced negative human impacts such as litter, vegetative trampling, and unplanned trails.

STRAWBERRY HILL SRMA

Management Goals

- Ensure the continued availability of a variety of outdoor recreation opportunities and experiences and benefits.

Management Objectives

- Using an interdisciplinary team prepare a Strawberry Hill SRMA RAMP.
- Maintain, restore, or enhance recreation opportunities to accommodate existing and future uses, including hiking, mountain biking, running, geo-caching, equestrian use, hunting, camping, wildlife viewing, OHV use on existing roads and trails, cross-country skiing, snowmobiling, sledding, and other dispersed use at a primitive site.
- Maintain or enhance a diversity of recreational opportunities and benefits.
- Manage conflicts with other resource values and uses in coordination and cooperation with affected interests in a healthy and safe manner.
- Reclaim unnecessary or undesirable vehicle/OHV routes.
- Pursue future opportunities for recreation development as demand arises.
- Plan, construct and maintain non-motorized recreational trails as funding and staffing allow.

Experiences

- Experiences that visitors enjoy include: developing skills and abilities, solitude, family recreation, exercise, scenery, escaping everyday responsibilities for a while, having access to close-to-home outdoor amenities, exploring, togetherness, learning outdoor skills, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, a restored mind from unwanted stress, a greater sense of overall wellness, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation, community involvement and increased community involvement reducing erosion.
- Economic and environmental benefits include increased work productivity; decreased job turnover; greater community ownership and stewardship of park, recreation, and natural resources; reduced wildlife
harassment by recreation users; and increased awareness and protection of natural landscapes.

PUMPKIN CREEK ERMA

Management Goals

- Ensure management of these lands for a variety of sustainable visitor experiences concurrent with other cultural and natural resources and resource uses by various publics and agencies.

Management Objectives

- Using an interdisciplinary team prepare a Pumpkin Creek Management Plan that emphasizes a multiple use approach in management and adaptability.
- Maintain or enhance a diversity of recreational opportunities, experiences, and benefits.
- Manage conflicts with other resource values and uses in coordination and cooperation with affected interests in a healthy and safe manner.
- Reclaim unnecessary or undesirable vehicle routes.

- Conduct transportation planning to address all resource use aspects, including but not limited to: recreational, access concerns, agriculture, commercial, traditional, wildlife and casual use.
- Maintain, restore, and enhance areas within the Pumpkin Creek Area to meet Standards and Guidelines for Rangeland Health.
- Provide compliance with the Montana/Dakota's Recreation Strategy.
- Maintain recreation setting characteristics.
- Maintain, restore, and enhance fish and wildlife habitat including BLM Special Status species. Pro-active habitat restoration projects will take place as time and funding allow that will also enhance recreational pursuits and experiences.

Experiences

- Experiences that visitors enjoy include: developing skills and abilities, solitude, family recreation, exercise, scenery, escaping everyday responsibilities for a while, having access to close-to-home outdoor amenities, exploring, togetherness, learning outdoor skills, and enjoying nature.

Benefits

- Personal benefits include improved physical fitness, a restored mind from unwanted stress, a greater sense of overall wellness, and improved outdoor knowledge.
- Household and community benefits include an improved quality of life, a greater appreciation for the area and outdoor-oriented lifestyle, involvement in recreation, community involvement and increased community involvement reducing erosion.
- Economic and environmental benefits include increased work productivity; decreased job turnover; greater community ownership and stewardship of park, recreation, and natural resources.

TRAVEL MANAGEMENT PLANNING

Travel management planning will be conducted for the planning area within 5 years of the date of the ROD (BLM 2015). Map 16 from the Draft RMP/EIS includes major and minor roads, which are the only known linear features at this time.

APPENDIX P
SPECIAL DESIGNATION AREAS

APPENDIX P
SPECIAL DESIGNATION AREAS

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

INTRODUCTION

The ACEC designation is an administrative designation used by the Bureau of Land Management (BLM) through the land use planning process. ACEC designation is authorized under Sec. 102(a)(11) of the Federal Land Policy and Management Act (FLPMA).

BLM regulations (43 Code of Federal Regulations [CFR] part 1610.0-5(a)) define an ACEC as:

> "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards."

Because ACEC designations can only be made on BLM-administered surface estate, private lands and lands administered by other agencies cannot be designated ACECs. In order to be designated, special management beyond standard provisions established by the plan must be required to protect the relevant and important values.

In order to be designated an ACEC, the nominated area must meet both the relevance and importance criteria as defined in 43 CFR 1610.7-2 and BLM Manual 1613. If the relevance and importance criteria are met, an area must be identified as a potential ACEC and considered for designation and management in the resource planning process. See the PRMP FEIS for more information (BLM 2015).

An interdisciplinary team evaluates each area to determine if it meets both the relevance and importance criteria. Evidence of relevance and importance may be gathered from BLM or other sources. If an area does not meet the criteria for ACEC designation, or special management attention is not prescribed, analysis supporting the conclusion is incorporated into this resource management plan (RMP).

The relevance and importance evaluations for each nominated and existing ACEC are described below.

DESIGNATED

CEDAR CREEK BATTLEFIELD ACEC

Designated for important cultural values (1,022 BLM-administered acres; Map 13).

Relevance: The Cedar Creek Battlefield ACEC met relevance criterion 1 for containing significant historic and cultural values. The battlefield is one of the major battlefields of the great Sioux War. This war and associated sites are of major interest to both national historians and history enthusiasts, as well as the American Indian cultures of the Sioux, Crow, and Cheyenne Tribes.

Importance: The Cedar Creek Battlefield ACEC met importance criteria 1, 2, and 3. The site possesses more than locally significant qualities; values that are fragile, sensitive, rare, irreplaceable, exemplary, unique, or threatened; the site is vulnerable to adverse change; and the site possesses values that warrant protection as mandated by FLPMA. The site is part of a nationally significant cultural war and represents one of the significant battles of the Sioux War.

Summary: The Cedar Creek Battlefield ACEC is approximately 1,021 public surface and mineral acres in size and located about 20 miles northwest of Terry, Montana, in Prairie County.

This area is a good example of a battlefield from the great Sioux War of 1876 to 1877, which was America's most prolonged and costly Indian war. The eighth of only twelve Sioux War battlefields, it remains interesting and one of the most enigmatic battlefields in American history more than 100 years later. The war was initially waged over the rights to gold in the Black Hills of South Dakota although the rights and privileges granted to the Sioux in the Fort Laramie Treaty of 1868 were also in dispute. The result transformed the entire northern plains from Indian and buffalo country into an open area for western settlement, which was dominated by miners, cattlemen, and homesteaders. This conflict produced a military-cultural epic with few comparisons in United States history.

While the eastern United States contains many numerous Revolutionary and Civil War battlefields, the great Sioux War of 1876 was probably the next largest war (based on geographic area) fought on American soil, spanning five states. This was the only war fought in the west. Public interest in this war is increasing, as evidenced by the numbers of visitors to the Little Bighorn Battlefield each year (and other developed sites). However, other major sites from the war lack the focused attention given to the Battle of the Little Bighorn.

The BLM is fortunate to have the unique opportunity to administer public lands containing six of the twelve major battle sites, five of which are within the Miles City Field Office (MCFO) planning area. The actual battlefield site area encompasses about 3,780 acres (all ownerships), with approximately 940 BLM-administered acres constituting the heart of the battlefield.

The Cedar Creek Battle was fought on October 21, 1876, the eighth of twelve major engagements of the Sioux War fought in a little over a year's time. When a supply train did not arrive as scheduled at the Tongue River Cantonment, General Nelson A. Miles led the entire 5th Infantry out in relief. Miles met the wagon train on October 18, and the wagons were able to reach the cantonment on October 20. Miles did not return to his Tongue River post but pursued the wagon train attackers into the highlands north of the Yellowstone River between what is now Miles City and Glendive, Montana. On October 20, Miles spotted a large group of Sioux. Two Indians came forward under a white flag of truce announcing that Sitting Bull wished to confer with Miles about surrendering his people. The meeting, the first between a government agent and a leader of the non-agency Sioux, was ultimately fruitless. Sitting Bull declared his desire to remain in buffalo country and his insistence that the troops must leave. Miles broke off the meeting, and Sitting Bull and his followers returned to their camp some five miles away.

On the morning of October 21, Miles advanced against Sitting Bull's village in the bottom of Cedar Creek. At mid-morning, the two agreed to talk again, but they could not reach mutually agreeable terms. The meeting broke up at noon, and Miles deployed for an attack. At first, the confrontation resembled a giant chess game, with each side trying to seize minor tactical advantages but neither side wishing to fire the first shot. However, when the Sioux were seen igniting the grass, Miles' scouts fired, and an afternoon-long battle ensued. The Sioux were quickly outmaneuvered and overwhelmed, and they abandoned their village, fleeing northeast. Casualties from the Cedar Creek engagement included two soldiers wounded and five American Indians killed.

FLAT CREEK ACEC

Designated for important paleontological values (547 BLM-administered acres; Map 13).

Relevance: This microfossil site met relevance criterion 3 for a "natural process or system." The Hell Creek geologic formation and the associated fossils preserve a high-quality record of the end of the dinosaur age at the close of the Cretaceous Period., which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities that are rare for this geologic period.

Importance: The Flat Creek ACEC met importance criteria 1 and 2. The area has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of

fossils and other data collected in this area has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which ensures access by the scientific community.

Summary: The Flat Creek ACEC is approximately 547 public surface and mineral acres located in Garfield County. The area met both relevance and importance criteria and is designated an ACEC.

LONG MEDICINE WHEEL ACEC

Designated for important cultural resource values (179 BLM-administered acres; Map 13).

Relevance: The Long Medicine Wheel ACEC met relevance criterion 1 for containing significant historic and cultural values. The cultural manifestations displayed at the Long Medicine Wheel ACEC are rare.

Importance: The Long Medicine Wheel ACEC met importance criterion 1 for possessing more than locally significant qualities. This site is regionally renowned, rare, and a sensitive site type of interest and concern to American Indians. The site possesses significant qualities that make it important and of interest to the region's archeological community. The site is considered eligible for nomination to the National Register of Historic Places (NRHP) and eligible for consideration as a traditional cultural property (TCP).

The Long Medicine Wheel ACEC also meets importance criterion 2 for possessing values that are fragile, sensitive, fairly rare, irreplaceable, exemplary, unique, endangered, threatened, and vulnerable to adverse change. Although the site is not “one of a kind,” all medicine wheel type sites are considered rare and each has its own unique properties. The site and the information it contains are unique and irreplaceable. The fact that this site is a ceremonial site type makes it of particular interest to American Indians and eligible for designation as a traditional cultural property. The site is also threatened, endangered, and vulnerable to both erosion and the loss of the site's valuable information to artifact collectors.

Summary: The Long Medicine Wheel ACEC is approximately 179 acres of BLM-administered surface located in northeastern Montana in north-central McCone County, about 6 miles south of the Missouri River and 12 miles southwest of Wolf Point, Montana.

The Long Medicine Wheel ACEC (site 24MC148) is a large stone circle over 25 meters in diameter with a central small stone cairn or rock pile. This site functioned as a prehistoric American Indian ceremonial circle and is located on top of a high prominent butte in northern McCone County. This site is significant because it is one of only five medicine wheels recorded in the Northern Plains, and it is the only one known sit to be recorded on BLM-administered lands within the MCFO planning area.

Ethnographic overview studies completed for the MCFO have identified this site type to be of interest and concern to American Indians. This historic property is also protected under the National Historic Preservation Act of 1966, American Indian Religious Freedom Act (42 U.S.C. 1996), Native American Graves Protection and Repatriation Act, Executive Order 13007 (May 24, 1996), and other statutes and executive orders.

WALSTEIN ACEC

Designated for important cultural and paleontological values (2,054 BLM-administered acres; Map 13).

Relevance: This area met relevance criterion 1 as part of “a natural process or system,” having produced a number of significant paleontological and cultural properties, including the Mill Iron Site. Fossils in this area preserve a high-quality record of the end of the dinosaur age at the close of the Cretaceous Period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities that are rare for this geologic time period.

The area has a number of cultural sites that are considered significant and eligible for nomination to the NRHP. In addition, the area is eligible for allocation to conservation use through the development of a cultural resource management plan (CRMP). This significance is derived from the number of Paleo-Indian age sites and these site's unique properties and potential to contribute to important scientific information regarding cultural traditions from the Paleo-Indian period.

Importance: The area met importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the area warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. It is important that buried deposits be preserved to be of maximum value to the scientific community.

The Walstein ACEC has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of fossils and other data collected in this area has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which ensures access by the scientific community.

Summary: The Walstein ACEC is 2,053 BLM-administered acres located in Carter County. The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of dinosaurs and other life forms). As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Walstein ACEC provides an example of this fossil record. A number of scientific papers have been written based on research done in this area, and several major finds have also been recovered from the area. Most notably, this area has produced new dinosaur fossil localities, such as a new Tyrannosaurus Rex for the Los Angeles County Museum. This area containing exposures of the Hell Creek and Fort Union formations have also produced other dinosaur vertebrate fossils as well as other vertebrate fossils, including turtle and crocodile remains. The area continues to provide information as new material weathers out of the rock.

The ACEC contains the Mill Iron site (24CT30-Mill Iron site), which is a Goshen period Paleo-Indian site dating between the Folsom and Clovis periods, the oldest known, well-documented aged human occupations in the Americas. The Mill Iron site and others are determined eligible or are considered eligible for nomination to the NRHP. The area is significant for its prehistoric Paleo-Indian period sites. These sites represent the oldest known occupations in the western hemisphere and contain important information on early prehistory of American Indians in the plains environment.

POWDERVILLE ACEC

Designated for unique paleontological values (9,518 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criteria 1, for "a natural process or system." The Hell Creek Geologic formation and the associated fossils preserve a unique record of the end of the dinosaur age at the close of the Cretaceous Period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Powderville ACEC has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of fossils and other data collected here has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous

Period. This fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, thereby assuring access by the scientific community.

Summary: The Powderville ACEC is located in Powder River and Carter counties. The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of dinosaurs and other life forms. As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Powderville ACEC provides an example of this fossil record. A number of scientific papers have been written based on research done in this area and several major finds have been recovered from this area. Most notably, this area has recently produced new dinosaur fossil localities, including the Jane site, a rare juvenile *Tyrannosaurus Rex*, also known as *Nanotyranus*, which was excavated by the Burpee Museum of Rockford, Illinois. The area has also produced many other numerous dinosaur vertebrate fossils, including *Tyrannosaurus rex*, hadrosaur, *Triceratops*, and other vertebrate fossils that include fish, turtle, crocodile, champsosaur and mammal remains. The area continues to provide new and exciting information as new material weathers out of the exposed rock formations.

BATTLE BUTTE BATTLEFIELD ACEC

Designated for unique historic values (320 BLM-administered acres; Map 13).

Relevance: Battle Butte Battlefield ACEC met relevance criterion 1. This significant site is 1 of 12 battlefields of the Sioux War. This site is of major interest to both national historians and history enthusiasts as well as the American Indian cultures of the Sioux, Crow, and Cheyenne Tribes.

Importance: Battle Butte Battlefield ACEC met relevance criteria 1, 2, and 3. The site is part of a battle directly associated with Crazy Horse, one of the Sioux's main leaders. Battle Butte Battlefield ACEC contains irreplaceable information and is vulnerable to adverse change. The site is an exemplary example of Sioux War battle sites and possesses values that warrant protection as mandated by FLPMA.

Summary: The Battle Butte Battlefield ACEC is located in Rosebud County. Battle Butte, or the Wolf Mountains Battle, was fought in January 8, 1877, in a blinding blizzard. Led by army scout Yellowstone Kelly, Colonel Nelson Miles commanded a force of 436 men composing seven companies of the 5th and 22nd infantries. They marched from the Tongue River Cantonment south along the Tongue River in search of American Indian winter villages. After 10 days march up the river, Miles' command encountered warriors from Crazy Horse's winter camp, which consisted of 1,200 inhabitants located south of Birney, Montana. The Sioux attacked west of the Tongue River and then occupied the high ground, firing down into the U.S. soldiers' positions. Miles ordered his men to attack uphill to take command of the high ground. Once Miles' men were able to hold the high ground, the Sioux's advantage was lost. Low on ammunition, the Sioux retreated upstream. In the ensuing blizzard, the Sioux were able to escape up the Tongue River. Both sides suffered casualties.

REYNOLDS BATTLEFIELD ACEC

Designated for significant historic values (922 BLM-administered acres; Map 13).

Relevance: Reynolds Battlefield ACEC met relevance criterion 1. This significant site from the Sioux War and associated sites are of major interest to both national historians and history buffs as well as the American Indian cultures of the Sioux, Crow, and Cheyenne.

Importance: Reynolds Battlefield ACEC met importance criteria 1, 2, and 3. The area is an exemplary example of Sioux War battle sites. The battlefield is rare, 1 of only 12, with this the first of the major battles. The Reynolds Battlefield ACEC possesses values that warrant protection as mandated by the FLPMA.

Summary: The Reynolds Battlefield ACEC is located in Custer County. It is the first engagement of 12 major battles of the Sioux War of 1876 to 1877. The Big Horn Expedition left Fort Fetterman, Wyoming, in mid-

February and endured almost continual harsh winter weather with sub-zero temperatures. Marching north up the Powder River drainage, they crossed into Montana near Decker and proceeded down the Tongue River to Hanging Woman Creek. There, Crook ordered Colonel Joseph J. Reynolds, 3rd Cavalry, with six companies of the 2nd and 3rd Cavalry to attack the only village they had found thus far, a village to the east on the Powder River. Reynolds attacked the village at dawn on March 17, 1876. In the early morning battle, the troops captured the village, burning all of the camp tepees. Most of the camp inhabitants were able to escape. Some 800 ponies were also captured. The village retaliated by firing down into the army positions from a high bluff to the west. The troops withdrew under heavy fire. Their hasty withdrawal, ordered by Reynolds, resulted in four army dead left in the field. Later that night, the village recaptured their horse herd. Crook was enraged by these events and ordered Reynolds court-martialed. One damaging aspect of this battle was the fact that the village was not Sitting Bull's Sioux camp, as originally thought, but a Cheyenne camp on their way back to the reservation. This unprovoked attack on a peaceable village turned the Cheyenne against the United States government. The Cheyenne sided with the Sioux and participated in most of the subsequent phases of the war.

BIG SHEEP MOUNTAIN ACEC

Designated for unique cultural values (363 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and potential to contribute important scientific information on nearly the full range of cultural traditions from the Paleo-Indian period to the Late Plains Archaic period.

Importance: The ACEC met importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to preserve the buried deposits for maximum value to the scientific community.

Summary: The ACEC is located in Prairie County and measures 360 acres in size. It is considered eligible for nomination to the NRHP. The site is considered significant for its span of cultural periods over some 10,000 years. The site contains important information on prehistory and history of the American Indian in the plains environment. The CRMP will allocate the ACEC to conservation use. BLM management objectives should involve the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the ACEC.

HOE ACEC

Designated for unique cultural values (147 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and its potential to contribute important scientific information regarding possible agricultural traditions from the Late Prehistoric period that relate to the Middle Missouri tradition.

Importance: The ACEC met importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. It is important that buried deposits be preserved to be of maximum value to the scientific community. The need for preservation necessitates special management attention.

Summary: Located in Prairie County, the ACEC measures 144 acres in size and has been determined eligible for nomination to the NRHP. It is significant for late prehistoric agricultural subsistence strategies and an

associated habitation site. The site represents the westernmost findings of possible agricultural practices of the middle Missouri tradition. It contains important information on prehistory of the American Indian in the plains environment. A cultural resource plan will allocate the site to conservation use. BLM management objectives include the long-term conservation of the site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the ACEC, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

JORDAN BISON KILL ACEC

Designated for unique cultural values (160 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and potential to contribute important scientific information on bison procurement and subsistence strategies from the Late Prehistoric period.

Importance: The ACEC met importance criteria 1, 2, and 3. The site possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of the site's significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to preserve the site's buried deposits, for maximum value to the scientific community.

Summary: Located in Garfield County, the 160-acre ACEC is considered eligible for nomination to the NRHP. It is significant for Late Prehistoric period bison kill procurement and subsistence strategies and associated habitation and processing site. The site contains important information on prehistory of the American Indian in the plains environment. The site is reallocated to conservation use. BLM management objectives include the long-term conservation of the site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

POWDER RIVER DEPOT ACEC

Designated for unique cultural values (1,401 BLM-administered acres; Map 19).

Relevance: The ACEC has important scientific information on the historic use of the area by the late 19th century military. The archeological findings can be compared with written records.

Importance: The ACEC met importance criteria 1, 2, and 3. The site possesses information that is both regionally and nationally significant. The site is fragile, sensitive, irreplaceable, unique, and vulnerable to adverse change, vandalism, and unauthorized metal-detector use. Natural or human-caused changes could result in the loss of the significant scientific data. In addition, the site warrants allocation to conservation use, which would carry out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to study the historic information at the site, which necessitates preservation of buried deposits for maximum benefits to the scientific community.

Summary: The ACEC (site 24PE231) is 1,386 acres in size and has been determined eligible for nomination to the NRHP. The area includes Sheridan Butte located along the Yellowstone River, where historic graffiti dating to the Indian War period is on the butte's rock outcrops. The Powder River Depot was the location of General Terry's supply depot that supplied General Custer's troops before they headed to the Little Big Horn River. It was the main supply depot for the armies that pursued the fleeing Sioux and Cheyenne Tribes throughout the summer of 1876. The site contains a wealth of archeological information on the encampment and the everyday life of the soldiers of that period. The numerous buried metallic artifacts are subject to looting and vandalism through unauthorized use of metal detectors. The CRMP will allocate the site to conservation use. BLM management objectives include the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

SELINE ACEC

Designated for unique cultural values (80 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 1 because it is a significant cultural resource property. The significance is derived from the site's unique properties and information potential that can contribute important scientific information on cultural traditions from the middle prehistoric period.

Importance: The ACEC met importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA, and the cultural resource management planning system. Special management attention is needed to preserve the site's buried deposits to provide information to the scientific community.

Summary: Located in Dawson County, the ACEC (site 24DW250) measures some 80 acres in size and is considered eligible for nomination to the NRHP. The site possesses important information on prehistory of the American Indian in the plains environment. The CRMP will allocate the site to conservation use. BLM management objectives include the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

SMOKY BUTTE ACEC

Designated for unique geological values (80 BLM-administered acres; Map 13).

Relevance: Smoky Butte ACEC is a 250-foot high prominence located about eight miles west of Jordan in Garfield County. The Smoky Butte ACEC met relevance criteria 1 and 3. The area has regionally significant scenic values. It is a landmark feature that can be seen for miles; a striking contrast to the surrounding rolling plains. It was used by early day travelers as a guide when traveling through the area. Pioneers traveling the "Green Trail" west to Lewistown, Montana, could see Smoky Butte for a considerable distance (BLM 1995). It is considered to possess significant local and regional scenic and historic values. The rocks that are present at Smoky Butte ACEC consist of a rare mineral assemblage.

The ACEC is an excellent example of the geologic process of igneous intrusion. Smoky Butte ACEC is located in the middle of a 2-mile long line of narrow igneous intrusive dikes and plug-like features. These igneous intrusives form a narrow, linear group of low buttes and knobs, oriented northeast to southwest, that rise out of the otherwise rolling prairie. The igneous rocks were intruded into the flat-lying sedimentary rocks of the Paleocene Fort Union formation and Late Cretaceous Hell Creek sandstones and were emplaced along the axis (obliquely) of the Blood Creek Syncline (Mitchell, Platt, and Downey 1987). The intrusive igneous rocks at Smoky Butte ACEC are hard and resist erosion, as do the adjacent sedimentary rocks, which were slightly baked and hardened by the hot igneous intrusive. This hardness "holds up" the buttes by providing more resistance to erosion than the surrounding sedimentary rocks. Although Smoky Butte is an interesting example of igneous intrusion and many geologic features associated with such an event are present there, the primary importance of the butte lies in the unique mineral assemblage of the igneous rocks.

The igneous rocks at Smoky Butte ACEC have been categorized as a lamproite, which is a type of volcanic or hypabyssal igneous rock. Matson (1960) noted that one of the most striking features of the intrusive rock complex was rocks that were high in potassium and titanium and similar to rocks found at West Kimberly, Australia, and the Leucite Hills of Wyoming. Matson (1960) and Velde (1975) observed that the igneous rock is a mixture of minerals. Velde (1975) further classified it as an armalcolite-ti-phlogopite-iopside-analcite-bearing lamproite. Velde's analysis revealed that the Smoky Butte lamproite contains a rare mineral called armalcolite, a mineral found in samples of rock from the moon (1975). Velde (1975) reported that the armalcolite at Smoky Butte has the closest composition to the lunar armalcolite of any known terrestrial rocks. In addition, Wagner and Velde (1986) discovered that the mineral davanite, an alkali titanosilicate mineral found in Siberia, is also

present in the Smoky Butte lamproite. Smoky Butte contains a rare mineralogic assemblage and is an excellent example of the geologic process of igneous intrusion.

Importance: Smoky Butte ACEC met importance criteria 1 and 2. Smoky Butte ACEC has more than locally significant qualities that give it special worth, consequence, and meaning. Scientists from the United States, Canada, and France have studied the special geologic features present in this area. The Smoky Butte area has been the subject of an M.S. thesis study, and a study published by the USGS. It has been reported in scientific trade journals, such as American Mineralogist, Journal of Petrology, and Earth and Planetary Science Letters. Smoky Butte is discussed in Mitchell and Bergman's *Petrology of Lamproites* (1991), published by Plenum Press, and Alt and Hyndmans' *Roadside Geology of Montana* (1986), published by Mountain Press Publishing Company. The area was also the subject of a special July 1989 field trip of the 28th International Geological Congress, which was studying the Montana High Potassium Igneous Province.

Information gleaned from these rocks has been used to draw conclusions and advance theories about the origin of the rocks and the composition and geotectonics of the mantle of the earth. Scientists believe that the source material for the lamproite at Smoky Butte is derived from the earth's mantle; because the crust has been estimated to be about 45 kilometers thick in this area (Velde 1975), this conclusion would mean the material originated deep in the earth's crust.

The Smoky Butte ACEC lamproite is also unique because it is the easternmost known intrusive feature in Montana. The nearest intrusive rocks to Smoky Butte occur 55 to 60 miles to the southwest, on Porcupine Dome and near Ingomar Dome (Matson 1960). Smoky Butte is also the youngest, dated at 27 million years (Oligocene), and taken together with the Missouri Breaks diatremes, may represent the last phases of igneous activity in the north-central Montana alkalic province (Marvin, Hearn, Mehnert, Naeser, Zartman, and Lindsey 1980). Smoky Butte would be vulnerable to damage from exploration and mining activities carried out under a locatable mineral entry (mining claim). Smoky Butte was quarried many years ago for riprap to face a nearby dam. The present quarry site is small and actually provides an excellent exposure of the rocks that compose Smoky ButteACEC. However, further mining activity would not improve viewing or enhance research and would only serve to destroy the surface exposure of this rare geologic feature.

Summary: Smoky Butte ACEC is 80 acres in size and is located in Garfield County. It contains public land with a variety of unique values and needs protection and special management attention.

FINGER BUTTES ACEC

Designated for scenery (1,520 BLM-administered acres; Map 19).

Relevance: Finger Buttes ACEC met relevance criteria 1 and 2. The area represents more than badlands topography, a rather typical topographic type for southeastern Montana. Finger Buttes ACEC has scenic qualities of color, line, and form consisting of bare sandstone pinnacle topography that is outlined on the horizon, creating an interesting view. These scenic values are unique and do not exist elsewhere in the local or regional area.

Importance: Finger Buttes ACEC met importance criteria 1 and 2. The area consists of a series of pipestem and tower sandstone outcrops not found elsewhere in the area. The Finger Buttes ACEC is fragile, irreplaceable, and vulnerable to adverse change.

Summary: Finger Buttes ACEC is approximately 1,520 public surface acres located in Carter County. There is no legal access into the area, which consists of tall, slim, smokestack-like tan and gray sandstone monuments, towers, and prominences. These buttes are formed in the Arikaree formation, a formation that appears in southeastern Montana. The area possesses outstanding scenery.

ASH CREEK DIVIDE ACEC

Designated for paleontological values (7,921 BLM-administered acres; Map a9).

Relevance: The ACEC met relevance criterion 3, "a natural process or system." The Hell Creek geologic formation and associated fossils preserve a record of the end of the dinosaur age at the close of the Cretaceous Period. The area preserves a high-quality record of this period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Ash Creek Divide ACEC met importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be significant to the scientific community within the United States as well as worldwide. Comparison of fossils and other data collected here has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of the dinosaurs and other life forms. The Ash Creek Divide ACEC is an example of this record, owing to the good exposures of the bedrock and the preservation of the fossils. As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Ash Creek Divide ACEC provides an example of this fossil record. Several scientific papers have been written based on research done in this area. The area will continue to provide information as new material weathers out of the rock.

BUG CREEK ACEC

Designated for paleontological values (3,837 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age (Cretaceous Period) and the beginning of the age of the mammals during the Tertiary Period. The area preserves one of the best records of this period. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposures of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Bug Creek ACEC met importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, thereby assuring access to the scientific community.

Summary: The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for paleontological resources spanning the time from the late Cretaceous Period to the early Tertiary Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other life forms. As a result of the extensive exposures of the bedrock and the preservation of the fossils, the Bug Creek ACEC is one of the best and most studied examples of this record. Many scientific papers have been written based on research from this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the paleontological values in this significant area.

HELL CREEK ACEC

Designated for paleontological values and the Hell Creek National Natural Landmark (19,373 BLM-administered acres; Map 13).

Relevance: The ACEC met relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age at the close of the Cretaceous Period and the subsequent beginning of the age of the mammals during the start of the Tertiary Period. The area preserves one of the best records of this period. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Hell Creek ACEC met importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for their paleontological resources spanning the time from the late Cretaceous Period to the early Tertiary Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other life forms. As a result of the extensive exposures of the bedrock and the preservation of the fossils, the Hell Creek ACEC is probably the best and most studied example of this record. The area has provided museums with displays of dinosaurs and scientific papers based on research from this area. Approximately one-half of the Hell Creek National Natural Landmark is included within the boundaries of this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the paleontological values in this significant area.

SAND ARROYO ACEC

Designated for paleontological values (9,052 BLM-administered acres; Map 13).

*Relevance***:** The ACEC met relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age at the close of the Cretaceous Period and the subsequent beginning of the age of the mammals during the start of the Tertiary Period. The area preserves a good record of this period and is relatively rare worldwide. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and good preservation of fossils provides research and collecting opportunities rare for this geological period.

Importance: The Sand Arroyo ACEC met importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. This fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for their paleontological resources spanning the late Cretaceous Period to the early Tertiary Period.

The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other forms of life. The Sand Arroyo ACEC is a good example of this record, owing to the extensive exposures of the bedrock and the preservation of the fossils. A number of scientific papers have been written based on research done in this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the significant paleontological values.

WILD AND SCENIC RIVERS

There are no designated wild and scenic rivers in the planning area. See the PRMP/FEIS (BLM 2015) for more information.

APPENDIX Q
BIOLOGICAL OPINION

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, MT 59301
www.blm.gov/mt

In Reply Refer To:

6860 (MT020.JP)

July 10, 2015

Memorandum

To: Field Supervisor, U.S. Fish and Wildlife Service, Montana Field Office

From: Todd Yeager, Field Manager

Subject: Biological Assessment for Miles City Field Office Resource Management Plan

We are requesting your written concurrence of our determination of effects regarding federally listed species as contained in the attached Biological Assessment (BA) for the proposed Miles City Field Office Resource Management Plan (RMP).

Informal consultation was initiated on March 15,2011 through an information request for Threatened and Endangered Species within the field office planning area. An updated list was provided by the USFWS to BLM in 2015.According to the memo dated March 30, 2015 from your Field Office Supervisor, Jodi L. Bush, to State Director, Jamie Connell, the following species were considered for this BA:

Black-footed ferret (*Mustela nigripes*) - Listed Endangered, Northern Myotis *(Myotis septentrionalis)*- Listed Threatened, Least Tern (*Sterna antillarum*) - Listed Endangered, Piping Plover (*Charadrius melodus*) and critical habitat - Listed Threatened, Red knot (*Calidris canutus rufa*) - Listed Threatened. Whooping crane (*Grus americana*) - Listed Endangered, and Pallid Sturgeon *(Scaphirynchus albus)*) - Listed Endangered.

Please refer any questions, comments, or revisions to Kent Undlin, Wildlife Biologist, at 406-233-2845 or BLM, Miles City Field Office, 111 Garryowen Road, Miles City, Montana 59301.

1 Attachment
1-Biological Assessment

BIOLOGICAL ASSESSMENT FOR THREATENED AND ENDANGERED SPECIES FOR THE BLM MILES CITY FIELD OFFICE PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

U.S. Bureau of Land Management
Eastern Montana/Dakotas District
Miles City Field Office
Miles City, Montana

July 10, 2015

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ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
APD	Application for Permit to Drill
APLIC	Avian Power Line Interaction Committee
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practice
CBNG	Coal Bed Natural Gas
CFR	Code of Federal Regulations
COA	Condition of Approval
CSU	Controlled Surface Use
CWS	Canadian Wildlife Service
EIS	Environmental Impact Statement
ESA	Endangered Species Act
GRSG	Greater Sage-grouse
ha	Hectare
IM	Instruction Memorandum
km	Kilometer
MCFO	Miles City Field Office, Bureau of Land Management
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish, Wildlife, and Parks
MNHP	Montana Natural Heritage Program
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NLEB	Northern long-eared bat
NOI	Notice of Intent
NREL	National Renewable Energy Laboratory
NSO	No Surface Occupancy
OHV	Off-Highway Vehicle
PFC	Proper Functioning Condition
PHMA	Greater Sage-grouse Priority Habitat Management Area
PFYC	Potential Fossil Yield Classification
PILT	Payment in Lieu of Taxes
PNVG	Potential Natural Vegetation Groups
POD	Plan of Development
PRMP/FEIS	Miles City Field Office Proposed Resource Management Plan and Final Environmental Impact Statement
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-Way
TMA	Travel Management Area
TPA	Travel Planning Area
U.S.C.	United States Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WO	Washington Office, Bureau of Land Management

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INTRODUCTION

Overview of the Proposed Resource Management Plan

This biological assessment provides an overview of, and perspective on, the Proposed Alternative of the environmental impact statement (EIS) that is being prepared for revision of two resource management plans (RMPs) that apply to the Bureau of Land Management (BLM) Miles City Field Office (MCFO) in eastern Montana.

The primary objective of the *Miles City Field Office Proposed Resource Management Plan and Final Environmental Impact Statement* (PRMP/FEIS) is to provide management direction to prevent or address potential conflicts between resource uses and resource conservation. Decisions made as a result of the record of decision (ROD) on the PRMP/FEIS will result in a revision of the Powder River RMP (1985) and Big Dry RMP (1995). These plans are being consolidated into a single new RMP.

Two areas of analyses are discussed. They include the planning area, defined as all the land within the boundary of the MCFO administrative unit regardless of ownership, and the decision area, which includes only the BLM-administered land (surface and mineral) within the MCFO administrative area boundary. Effects determinations will be made only on the BLM-administered lands (surface and mineral). Map 1 shows the planning area boundary within the State of Montana.

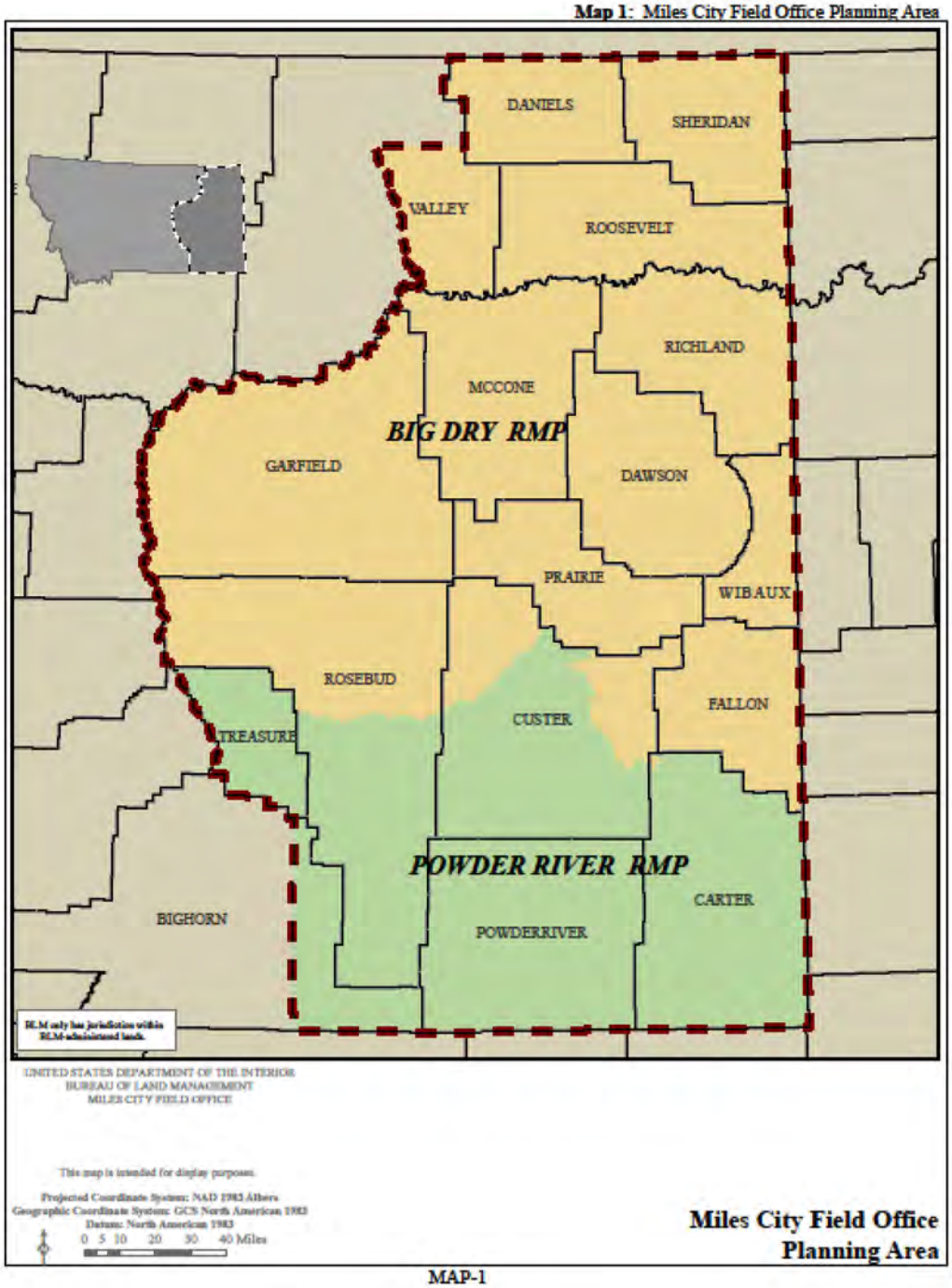
Purpose of the Biological Assessment

Under provisions of the Endangered Species Act of 1973 (ESA) (16 U.S.C. Section 1531 et seq.), as amended, federal agencies are directed to conserve threatened and endangered species and the habitats where these species are found. Federal agencies are also required to ensure that actions they authorize, fund, or implement are not likely to jeopardize the continued existence of endangered and threatened species or adversely modify designated critical habitat. The ESA requires agencies, such as the BLM, to consult or confer with the United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service when there is discretionary federal involvement or control over the action. Formal consultation becomes necessary when the agency requests consultation after determining the proposed action is likely to adversely affect listed species or critical habitat or the USFWS does not concur with BLM's finding (USFWS 1998).

Under the 1994 Memorandum of Understanding (MOU) and the 2000 Memorandum of Agreement amongst the BLM, USFWS, United States Forest Service (USFS), and National Marine Fisheries Service, all four agencies agreed to promote the conservation of candidate and proposed species and streamline the Section 7 consultation and coordination process.

This biological assessment provides documentation that the proposed alternative meets federal requirements and agreements. It has been prepared under the 1973 ESA Section 7 regulations, the 1998 procedures set forth by USFWS and National Marine Fisheries Service, and in accordance with the 1994 and 2000 MOU and Memorandum of Agreement. It addresses federally listed threatened and endangered species with potential to occur in the planning area. Site-specific evaluations will be conducted for activities authorized under the MCFO RMP at the time that they are proposed, and consultation or conference with the USFWS would occur for activities that may affect threatened, endangered, candidate, or proposed species. Table 1 provides a list threatened and endangered species, and critical habitat (USFWS, 3/30/2015) that may occur in the vicinity of the MCFO planning area. Candidate species are not included in the biological assessment.

Map 1: Miles City Field Office Planning Area



MAP-1

TABLE 1.
FEDERALLY LISTED THREATENED OR ENDANGERED SPECIES IN THE MILES CITY FIELD OFFICE RMP PLANNING AREA

Common Name	Scientific Name	Status[1]	Expected Occurrence
Black-footed Ferret	*Mustela frenata*	Endangered	None known/Low probability of occurrence/prairie dog towns
Whooping Crane	*Grus americana*	Endangered	Migrants in the northeast corner of planning area/marshy areas and agricultural fields
Red knot	*Calidris canutus*	Threatened	Low probability of occurrence/Migrants in spring/summer periods/lakes and reservoirs
Northern Myotis	*Myotis septentrionalis*	Threatened	Low probability of occurrence (1 historic record)/potential summer roost habitat
Least Tern	*Sterna antillarum*	Endangered	Migrants in the spring and fall/nesting on gravel islands on the Yellowstone/Missouri rivers
Piping Plover and Critical Habitat	*Charadrius melodus*	Threatened	Northeast portion of planning area/one documented nesting and brood rearing area/Critical habitat identified
Pallid Sturgeon	*Scaphirynchus albus*	Endangered	No recent evidence of reproduction/Yellowstone and Missouri rivers

[1]Status refers to federal status in accordance with the Endangered Species Act

DESCRIPTION OF THE RMP PROPOSED PLAN (ALTERNATIVE E)

The BLM's Proposed Alternative E is the alternative BLM is requesting consultation pursuant to Section 7 of the ESA. There are numerous sections to Alternative E; they are presented by subject-matter program, including protective measures applicable to some or all listed species found in the MCFO planning area, followed by additional protective measures that apply across-the-board to multiple programs or all programs. The listed species that would benefit from the additional protective measures are indicated in parentheses under subheadings for most programs.

SOIL, WATER, AND VEGETATION COMMUNITIES AND RIPARIAN AND WETLAND AREA HABITAT

Soils

The goals and objectives for soils management are to maintain or improve the chemical, physical, and biotic properties of soil; prevent or limit accelerated soil loss, minimize degradation of soils, and control sedimentation; and maintain or improve adequate vegetation and ground cover (including biological soil crusts and litter) to promote soil health, productivity, and stability. No specific protective measures for listed species are identified for the soils program as it is discussed as a component of other programs.

Water

Goals and objectives for water management are to maintain or enhance the beneficial uses of surface water and groundwater; comply with applicable laws, regulations, and standards; support natural surface water flow regimes; and protect water resources from point source and nonpoint source pollution. No specific protective measures for listed species are identified for the water program as it is discussed as a component of other programs.

Vegetation

Goals and objectives for vegetation community management are to restore, maintain, or enhance vegetation community health, connectivity, and diversity. Native plant communities would be managed to:

- provide a diversity of plant associations, including multi-aged stands of trees and shrubs and healthy understory vegetation and sufficient diversity in structure, age class, and species composition to support nutrient cycling and energy flows;
- demonstrate health, vigor, and reproductive success;
- contain a shrub overstory present in a variety of spatial arrangements and sizes across landscapes that include large contiguous blocks, islands, and corridors;
- contain plant communities that reflect the potential natural community or the desired plant community appropriate for the site in the context of climate change;
- provide adequate organic matter (ground litter and standing dead material) in sufficient quantities to control erosion, replenish nutrients, maintain soil health, and meet the needs of wildlife;
- maintain healthy vegetation (primarily forest, grassland, sagebrush and riparian communities) while providing for plant resiliency; and
- ensure that shrub or grassland communities that do not meet desired future condition because of habitat fragmentation or encroachment by conifers, decadent woody species, invasive species, or undesirable species, would be rehabilitated or restored.

No specific protective measures for listed species are identified for the vegetation community program as it is discussed as a component of other programs.

Riparian and Wetland Areas

Goals and objectives of the riparian and wetlands management are to manage these systems to be healthy, diverse, and functional. Functional-at risk and nonfunctional riparian and wetland areas would be improved by managing them to ensure that these areas progress toward proper functioning condition (PFC) or a higher ecological status. Riparian and wetland vegetation types and functioning condition would be mapped and inventoried within the planning area. PFC would be maintained or exceeded in riparian and wetland areas, and some riparian and wetland areas would be managed for conservation at a higher ecological status than PFC.

The following riparian and wetland area protective measures would also benefit habitat for the interior least tern, piping plover, pallid sturgeon, and whooping crane.

- Achieve healthy sustainable rangelands that support air quality, water quality, properly functioning uplands and riparian areas, diverse vegetation, and wildlife habitat for all resource uses by meeting or making significant progress toward meeting the Standards for Rangeland Health;
- avoid surface-disturbing activities on floodplains;
- offer oil and gas leasing with a no surface occupancy (NSO) stipulation on floodplains;
- avoid surface-disturbing activities that impact or do not benefit the functionality of perennial or intermittent streams ,lakes, ponds, or reservoirs;
- offer oil and gas leasing with an NSO stipulation on perennial or intermittent streams, lakes, ponds, or reservoirs;
- establish or maintain vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas;
- ensure that standards for water quality, properly functioning riparian areas, and habitat requirements for special status species, wildlife, and fisheries are met or exceeded;
- use temporary or permanent enclosures (e.g., in woody draw or riparian areas) on a case-by-case basis to promote species diversity, recruitment, and ecosystem functionality;
- require surface-disturbing activities avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas;

- offer oil and gas leasing with an NSO stipulation in riparian and wetland areas;
- offer oil and gas leasing with a controlled surface use (CSU) stipulation within 300 feet of riparian and wetland areas; and
- design new spring developments to maintain or exceed the integrity, functionality, and resiliency (including water quality and habitat for fisheries and wildlife) of the associated wetland, riparian area, stream, or creek.

FISH, WILDLIFE AND SPECIAL STATUS SPECIES

Fish and Wildlife

The goals and objectives for fish and wildlife management are to provide functional wildlife habitat. Habitat would be maintained and enhanced to support well-distributed, healthy, and diverse populations of wildlife and fish species. The BLM would identify decommissioned power lines for potential removal and existing power lines that do not meet the most recent guidance from the Avian Power Line Interaction Committee (as amended in 1996, 2006 and 2012).. Habitat objectives would be incorporated into coordinated resource management, habitat management, surface-disturbance-related plans, or allotment management plans for the improvement or maintenance of wildlife habitat.

Installment of fish screens would be prioritized on all diversions within 10 years. Making all culverts, oil skimmers, and road and trail crossings fish passable within 10 years would be prioritized. Prairie streams and rivers would be managed according to federal and state laws, scientific principles, and proactive management to protect, maintain, and enhance healthy populations of aquatic wildlife including fish, amphibians, reptiles, bivalves, and aquatic arthropods (invertebrates and crustaceans). Healthy native aquatic, stream, and riparian communities would be managed by reducing or preventing the expansion of or eliminating the occurrence of nonnative invasive species.

The following terrestrial protective measures would benefit all species, or those noted at the end of the sentence.

- For migratory bird conservation; and to restore, enhance, and maintain habitat for all birds; BLM would adhere to the March 2010 MOU between the USFWS and BLM, *To Promote the Conservation of Migratory Birds*, and the January 2001 Executive Order 13186;
- achieve healthy sustainable rangelands that support air quality, water quality, properly functioning uplands and riparian areas, diverse vegetation, and wildlife habitat for all resource uses by meeting or making significant progress toward meeting the Standards for Rangeland Health;
- allow electrical power lines only with specialized design features to maintain the capability of habitat to support diverse and viable populations of all wildlife species associated with the specific habitat type (Whooping Crane);
- surface-disturbing and disruptive activities within 0.5 miles of colonial nesting waterbird habitat would be allowed with design features to maintain the functionality of those habitats; offer oil and gas leasing only with a No Surface Occupancy (NSO) stipulation within 0.25 miles of waterbird nesting colonies;
- offer oil and gas leasing with a CSU stipulation from April 1 through July 15. Surface-disturbing and disruptive activities would be allowed within 0.5 miles of raptor nest sites active within the past 7 years with design features which maintain the functionality for the raptor nest site and nesting habitat;
- offer oil and gas leasing with an NSO stipulation within 0.25 miles of raptor nest sites active within the preceding 7 years;
- offer oil and gas leasing with a timing limitation (March 1 to July 31) within 0.5 miles of active raptor nest sites;
- surface disturbing and disruptive activities would be allowed within 0.5 miles of bald eagle nest sites active within the past 5 years with design features which would minimize disturbance to the nest site and maintain functionality of the bald eagle habitat; and
- offer oil and gas leasing with an NSO stipulation within 0.5 miles of bald eagle nest sites active within the preceding 5 years.

The following aquatic protective measures would benefit all species.

- Manage prairie streams to meet or exceed PFC and provide functional and resilient habitat for aquatic species. See the PRMP/FEIS, Chapter 3, *Riparian and Wetland Areas* section for a more complete description of PFC;
- achieve healthy sustainable rangelands that support air quality, water quality, properly functioning uplands and riparian areas, diverse vegetation, and wildlife habitat for all resource uses by meeting or making significant progress toward meeting the Standards for Rangeland Health;
- avoid surface-disturbing and disruptive activities in and within 0.25 miles of designated sport-fish reservoirs. When approved, activities must include design features to mitigate impacts to fishery resources and the user experience;
- offer oil and gas leasing with an NSO stipulation within 0.25 miles of designated sport-fish reservoirs; and
- build new or replacement stream-crossing structures (culverts, oil skimmers, and road and trail crossings) to enable fish passage and protect habitat from erosion and damming streams.

Special Status Species

The goals and objectives for special status fish and wildlife species management would be to maintain, enhance, or restore their habitat. Habitat for listed species would be conserved and enhanced so BLM actions contribute to their delisting (Special Status Species Policy, 6840 Manual). The habitat of special status species would be conserved and any actions that would contribute to the need to list special status species would not be authorized (Special Status Species Policy; 6840 Manual).

Special status species protective measures include the following and would benefit the interior least tern, piping plover, black-footed ferret, and pallid sturgeon, as well as other species indirectly. Measures relative to surface-disturbing and disruptive activities apply to all such activities that may be associated with any program.

- Allow surface-disturbing and disruptive activities within 0.25 miles of piping plover habitat with design features to maintain the functionality of piping plover habitat;
- offer oil and gas leasing with an NSO stipulation within 0.25 miles of piping plover habitat;
- allow surface-disturbing and disruptive activities within 0.25 miles of interior least tern habitat with design features to maintain the functionality of the habitat.
- offer oil and gas leasing with an NSO stipulation within 0.25 miles of interior least tern habitat;
- offer oil and gas leasing with an NSO stipulation in and within 0.25 miles of black-footed ferret habitat (complex of prairie dog towns within 1.5 km of each other comprising a total of at least 1500 acres). Examine, prior to surface disturbance, potential black-footed ferret habitat (prairie dog colonies [towns]) and complexes 80 acres or more in size and undesignated black-footed ferret reintroduction sites to determine the absence or presence of black-footed ferrets;
- manage black-tailed prairie dog colonies on public lands subject to the *Conservation Plan for Black-tailed and White-tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002);*
- allow, in the absence of black-footed ferrets, surface-disturbing activities in black-tailed prairie dog colonies active within the past 10 years, with specialized design features that maintain the functionality of the black-tailed prairie dog habitat;
- offer oil and gas leasing with a CSU stipulation in black-tailed prairie dog colonies active within the past 10 years;
- allow surface disturbing and disruptive activities in and within 0.25 miles of the water's edge of the Yellowstone and Missouri rivers with design features which maintain the functionality of pallid sturgeon habitat; and
- offer oil and gas leasing with an NSO stipulation within 0.25 miles of the water's edge of the Yellowstone and Missouri rivers.

In addition, offer oil and gas leasing in black-footed ferret habitat (prairie dog colonies and complexes 80 acres or more in size not designated as black-footed ferret reintroduction areas) with a CSU stipulation as follows:

To ensure compliance with the ESA by locating and protecting black-footed ferrets and their habitat, surface occupancy or use is subject to the following special operating constraints. Prior to surface disturbance, prairie dog colonies and complexes 80 acres or more in size would be examined to determine the presence or absence of black-footed ferrets. The findings of this examination may result in some restrictions to the operator's plans or may even preclude use and occupancy. The lessee or operator may, at their own option, conduct an examination to determine the presence or absence of black-footed ferrets. This examination must be done by or under the supervision of a qualified resource specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency documenting the presence or absence of black footed ferrets and identifying the anticipated effects of the proposed action on the black-footed ferret and its habitat.

For prairie dog towns within potential black-footed ferret reintroduction areas determined to be essential for black-footed ferret recovery, develop site-specific conditions of approval (COAs) to protect black-footed ferret reintroduction and recovery areas. Specific COAs will depend on type and duration of the proposed activity and its proximity to occupied black-footed ferret habitat and other site-specific conditions.

GREATER SAGE-GROUSE (GRSG) HABITAT

Goal 1 – Provide for the conservation, enhancement, restoration, and connectivity of the Great Plains mixed grass prairie and shrubland, capable of supporting sustainable populations of GRSG and other wildlife species.

Objective 1 – Maintain, improve and increase sagebrush habitat to sustain sagebrush obligates and other sagebrush dependent species.

Objective 2 - Conserve GRSG habitat while promoting movement and genetic diversity.

Objective 3 – Priority will be given to leasing and development of fluid minerals outside of PHMA and GHMAs. When analyzing leasing and authorizing development of fluid mineral resources in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 CFR 3162.3-1(h).

Objective 4 – Where a proposed fluid mineral development project on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessees, operators, or other project proponents in developing an Application for Permit to Drill (APD) for the lease to avoid and minimize impacts to GRSG or its habitat and will ensure that the best information about the GRSG and its habitat informs and helps to guide development of such Federal leases.

Action 1 - In all GRSG habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM would require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This would be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.

GRSG Habitat – General Habitat Management Areas (GHMAs)

Goal 1 - Maintain or increase habitat needed for GRSG through the management of surface disturbing and disruptive activities, including the loss and distribution of sagebrush habitat.

Objective 1 – Conserve GRSG habitat while promoting movement and genetic diversity.

Action 1 – Major rights-of-ways (ROWs) and renewable energy ROWs would avoid general habitat areas. The remaining surface-disturbing and disruptive activities (including minor ROWs) would be allowed within 2 miles of a lek with required design features to protect breeding, nesting, and brood-rearing GRSG habitat.

Oil and gas leasing would be open and surface occupancy and use would be prohibited within 0.6 miles of the perimeter of leks (NSO).

In addition surface occupancy and use within 2 miles of leks would be restricted or prohibited. Prior to such activities, a plan to mitigate impacts to nesting GRSG or their habitat would be prepared by the proponent and implemented upon approval, by the Authorized Officer (CSU).

In undertaking BLM management actions and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM would apply the lek buffer-distances identified in the United States Geologic Survey (USGS) Report (see the PRMP/FEIS Fish, Aquatic and Wildlife Habitat, Including Special Status Species Appendix).

GRSG Habitat – Priority Habitat Management Areas (PHMAs)

Objective 1 - Maintain or increase GRSG habitat over the long-term, recognizing valid existing rights.

Objective 2 - Restore degraded GRSG habitat.

Objective 3 - Manage permitted uses while providing GRSG habitat for the long-term.

Action 1 - Where deemed effective, water developments would be managed to reduce the spread of West Nile virus (see The PRMP/FEIS *Mitigation Measures and Conservation Actions Appendix*).

Action 2 – At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM would determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. PHMA is essential habitat for maintaining GRSG for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1).

Action 3 - An Area of Critical Environmental Concern (ACEC) would not be designated for GRSG.

Renewable Energy ROWs would be excluded within GRSG PHMAs.

PHMAs would be closed to new mineral material sales. However, these areas would remain "open" to free use permits and the expansion of existing active pits, only if the following criteria are met:

- the activity is within the Biologically Significant Unit and project area disturbance cap;
- the activity is subject to the provisions set forth in the mitigation framework (RMP Mitigation Measures and Conservation Actions Appendix);
- all required design features are applied; and (if applicable) the activity is permissible under the specific sub-regional screening criteria;
- oil and gas leasing would be open and surface occupancy and use would be prohibited (NSO) within PHMAs with no waivers, exceptions or modifications; and
- the remaining surface disturbing and disruptive activities would avoid GRSG PHMAs (817,000 acres).

If mining claims were staked for locatable minerals and a notice of intent (NOI) and plan of development (POD) submitted, the BLM would conduct an examination on the subject claims to determine the validity of the claims (CFR 3809, 100) or consider buyout.

In undertaking BLM management actions and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer distances identified in the USGS Report (see the RMP Fish, Aquatic and Wildlife Habitat, Including Special Status Species Appendix.)

GRSG Habitat – Restoration Areas (RHMAs)

Objective 1 – Strive for proponents to develop area-wide Habitat Recovery Plans.

Objective 2 – Strive for no net loss of GRSG habitat.

Objective 3 – Strive for the restoration of previously disturbed landscapes in a manner which increases or improves the quality and quantity of GRSG habitat.

Action 1 - Surface-disturbing and disruptive activities would be allowed with required design features to minimize disturbance to GRSG habitat.

Oil and gas leasing would be open (CSU) and surface occupancy and use subject to design features, to minimize disturbance to GRSG habitat in the Cedar Creek RHMA.

In the West Decker and South Carter RHMAs, oil and gas leasing would be open and surface occupancy and use would be prohibited (NSO).

Renewable Energy ROWs will be excluded within all RHMAs.

GRSG Disturbance Cap

If the 3% anthropogenic disturbance cap is exceeded on lands (regardless of land ownership) within GRSG PHMAs in any given Biologically Significant Unit, then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the 1872 hard rock mining law, valid existing rights, etc.) would be permitted by BLM within GRSG PHMAs in any given Biologically Significant Unit until the disturbance has been reduced to less than the cap.

If the 3% anthropogenic disturbance cap is exceeded on lands (regardless of land ownership) or if anthropogenic disturbance and habitat loss associated with conversion to agricultural tillage or fire exceed 5% within a project analysis area in PHMAs, then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the 1872 Mining Law, valid existing rights, etc.) will be permitted by BLM within PHMA in a project analysis area until the disturbance has been reduced to less than the cap. If the BLM determines that the State of Montana has adopted a GRSG Habitat Conservation Program that contains comparable components to those found in the State of Wyoming's Core Area Strategy including an all lands approach for calculating anthropogenic disturbances, a clear methodology for measuring the density of operations, and a fully operational Density Disturbance Calculation Tool, the 3% disturbance cap will be converted to a 5% cap for all sources of habitat alteration within a project analysis area.

VEGETATION

Objective 5 – In all PHMAs, the desired condition is to maintain a minimum of 70% of lands capable of producing sagebrush with 10-30% sagebrush canopy cover. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).

Action 2 - Remove conifers encroaching into sagebrush habitats. Prioritize treatments closest to occupied GRSG habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the FIAT report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.

WILDLAND FIRE MANAGEMENT AND ECOLOGY

Current fire management within the planning area ranges from a full wildland fire suppression response to minimal impact tactics and utilization of wildfire to achieve ecological benefits, depending on goals and objectives for the particular fire management unit. Prescribed fire is also utilized throughout the planning area, as well as other mechanical, chemical, and biological treatments to meet management goals and objectives.

Fuels Management/Prescribed Fire

Goals and objectives would be to *provide for firefighter and public safety by reducing hazardous fuel loads (risk) within the wildland urban interface and to protect or sustain the ecological health and function of fire-adapted ecosystems; reduce the risk of high severity wildfires to watersheds and ecosystems; and benefit, protect, maintain, sustain, and enhance natural and cultural resources.* No specific protective measures for listed species are identified for prescribed fire or fuels management.

Fuels management or prescribed fire protective measures that may benefit listed species include the following:

Action 1 –Mechanical thinning of vegetation, biomass removal, and chemical and biological treatments would be allowed to reduce hazardous fuels or improve land health.

Action 2 – Fuel treatment projects would be allowed in areas with high social or natural resource values as well as areas adjacent to wildland urban interface areas considered a priority area for treatment.

Action 3 - If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:

- why alternative techniques were not selected as a viable options;
- how Greater Sage-Grouse goals and objectives would be met by its use;
- how the COT Report objectives would be addressed and met;
- a risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized.

Prescribed fire as vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that would protect Greater Sage-Grouse habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).

Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat would need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality.

Wildland Fire Management

Goals and objectives would be to place public and firefighter safety first in any wildfire management action. Wildfire (unplanned ignitions) would be managed for the protection of public health, safety, property, and resource values while implementing cost-containment strategies that resulted in minimum suppression costs. Naturally occurring events such as wildfire would be used to enhance vigor, vegetation production, reduce hazardous fuels, and maintain a desired mix of seral stages within the following communities: sagebrush (silver and Wyoming species), forest and woodlands, grasslands, riparian and wetland areas, and native species communities. Landscape-level fuel breaks would be created or maintained using fire management, grazing, range improvements, transportation corridors, terrain features, and vegetation communities to provide

suppression opportunities. No specific protective measures for listed species are identified for wildland fire management.

Wildland fire management protective measures that may benefit listed species include the following.

- Follow the most recent policy for delivery of wildfire fire chemicals (retardant and foam) near waterways: *Policy for Aerial Delivery of Wildland Fire Chemicals near Waterways* and the *Guidelines for Aerial Delivery of Retardant or Foam near Waterways* (USFS et al. 2009 and 2000) make fire management units and fire workload areas consistent with current wildfire management guidance and delineate and develop these units and areas based on vegetation types and condition; predominate historical fire regime groups; and management constraints, objectives, and strategies.

LIVESTOCK GRAZING

Goals and objectives are to provide forage for livestock grazing consistent with other resources and uses as part of an ecologically healthy system consistent with multiple use and sustained yield. Grazing activities would be utilized to manage the biological integrity of terrestrial and aquatic ecosystems to sustain vegetation, fish, and special status species while providing for multiple uses of BLM-administered lands. Livestock grazing opportunities would be provided to support and sustain local communities while providing habitat for native plants, fish, and animals (including special status species) and meeting or exceeding PFC for uplands and riparian areas and Montana's air and water quality standards. Sustainable forage levels would be maintained for livestock and wildlife. Existing desirable rangeland conditions would be maintained or rangeland health would be improved. Other aspects of the livestock grazing program include:

- design management actions that include grazing use, grazing activity plans and systems, range improvements, and vegetation treatment to maintain or improve vegetation conditions or achieve desired habitat;
- implement increases or decreases in grazing preference Animal Unit Months (AUMs) based on resource conditions within an allotment;
- adjust livestock grazing use in response to drought, fire, flood, and insect infestations on a case-by-case basis;
- follow the BLM's 1997 *Record of Decision for Standards for Rangeland Health and Guidelines for Livestock Grazing Management Final Environmental Impact Statement for Montana and North and South Dakota* (Standards for Rangeland Health);
- open 2.7 million acres and an estimated 546,496 AUMs to livestock grazing;
- exclude livestock grazing on 140 acres (12 AUMs);
- eliminate and close allotments in which the Standards for Rangeland Health were not met, livestock grazing was a causal factor in the failure to meet these standards, and there was no progress towards meeting Standards for Rangeland Health in the allotments within 5 years of the initial determination;
- continue to allow livestock grazing within oil and gas development areas if Standards for Rangeland Health were being met;
- defer or suspend livestock grazing in identified fuels treatment areas until vegetative conditions allowed for adequate fuel for a prescribed fire;
- close BLM-administered lands to livestock grazing after wildfire, prescribed fire, or non-fire vegetative treatments until the area attained treatment or rehabilitation plan resource objectives;
- designate and manage Reserve Common Allotments according to the criteria listed in the RMP *Livestock Grazing Appendix*;
- prioritize allotments that do not meet Standards for Rangeland Health for monitoring and land health evaluations; and
- transfer or renew grazing permits or leases for grazing allotments documented to meet Rangeland Health Standards when no additional impacts were present on adjacent allotments and when there were no proposed changes to permitted kind or number of livestock, authorized active use (AUMs), or season of use (as described in the screening criteria in the RMP *Livestock Grazing Appendix*).

No specific protective measures for listed species are identified for livestock grazing management.

MINERALS

Goals and objectives are to provide opportunities for mineral use in an environmentally responsible manner. Resource uses include coal, oil, gas, locatable minerals and mineral materials. Specific actions for each resource use are listed in the PRMP/FEIS, Chapter 2, Table 2-5. Protective measures for listed species include lease notices and stipulations that provide protections for endangered species.

Coal mining

Coal mines would continue to pursue coal leases sufficient to maintain current production rates. The coal leasing decisions made in the Big Dry and Powder River RMPs (BLM 1996 and 1985c) would be carried forward and include areas identified as acceptable for further consideration for coal leasing. The coal screening process would be applied on a case-by-case basis in response to individual coal lease applications. The explanation of the coal leasing process is located in the PRMP/FEIS Coal section of the *Minerals Appendix*. The unsuitability criteria for mining (43 CFR Part 3460, Subpart 3461) would be applied with possibility for exception after consultation with the USFWS for federally threatened or endangered species.

It is assumed that production at operating mines in the planning area (Cloud Peak's Spring Creek Coal Mine, Decker Coal Company's Decker Coal Mine, Western Energy's Rosebud Coal Mine, and Westmorland Resources' Savage Mine) will need additional coal as current reserves are used up (*Miles City Field Office Resource Management Plan and Environmental Impact Statement, Minerals Appendix*). The BLM believes that most mines will either continue current production rates or adjust accordingly to meet changes in market demand.

Oil and gas exploration, development, and production

Under the Proposed Plan (Alternative E) of the PRMP/FEIS, there would be approximately 1,217 wells drilled. Of these, approximately 460 would be coal bed natural gas (CBNG) wells, approximately 431 would be oil wells, and 326 would be gas wells (federal wells only).

Oil and gas protective measures that may benefit listed species include the following:

- lease lands closed to leasing with an NSO stipulation to resolve drainage situations;
- offer leasing and development with an NSO stipulation on approximately 1.4 million BLM-administered mineral acres;
- offer leasing and development with a CSU stipulation on approximately 3.1 million BLM-administered mineral acres;
- offer leasing and development with lease terms on approximately 905,000 BLM-administered mineral acres; and
- conduct CBNG development in the Decker area in accordance with the BLM's 2008 R*ecord of Decision for the Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings RMPs* (FSEIS).

The FSEIS includes the Wildlife Management and Protection Plan, which includes survey requirements in coordination with the USFWS for black-footed ferrets to determine occupancy on prairie dog towns larger than 80 acres located within 0.5 miles of proposed activity. It also includes remedial action triggers, which include habitat decline or prairie dog fatalities caused by oil and gas activities, as addressed in a management plan and no incidental take and re-initiation of consultation if new information shows black-footed ferrets may be affected.

The mountain plover requirements described below would also benefit black-footed ferret habitat. These measures would be applied only to proposed CBNG development in the Decker area. Development in the

Decker area would be managed under the FSEIS. All oil and gas leasing decisions for this area fall under the PRMP/FEIS.

- Roads will be located outside of nesting plover habitat where possible. Apply mitigation measures to reduce mountain plover mortality caused by increased vehicle traffic. Construct speed bumps, use signing, or post speed limits as necessary to reduce vehicle speeds near mountain plover habitat.
- Creation of hunting perches will be minimized within 0.5 miles of occupied nesting areas. Utilize perch inhibitors.
- Perch guards to deter predator use.
- There would be no surface occupancy of ancillary facilities (e.g., compressor stations, processing plants) within 0.5 miles of known nesting areas. Variance may be granted after coordination with the USFWS.
- In habitat known to be occupied by mountain plover, no dogs will be permitted at work sites to reduce the potential for harassment of plovers.

Burrowing owls, mountain plovers, and black-tailed prairie dogs have a similar 0.5 mile buffer. For burrowing owls, the buffer includes the specific project area plus the 0.5-mile buffer within active prairie dog towns. For mountain plovers, the buffer includes an NSO of 0.25 miles, the specific project area plus the 0.5 mile buffer within areas of less than four inch average vegetation height, and prairie dog towns. For prairie dogs, the buffer includes the specific project area plus the 0.5 mile buffer. Inventory and monitoring of mountain plovers and prairie dogs is required before approval of APDs.

Oil and gas lease notice

ESA, Section 7 Consultation (all species):

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activities that will contribute to a need to list such 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 any such species or critical habitat until it completes its obligations under applicable requirements of the ESA, as amended, 16 U.S.C. 1531 et seq., including completion of any required procedure for conference or consultation.

The following represents areas where the raptor protection measures would be applied when designing new distribution line construction. These measures would also benefit black-footed ferret habitat.

- Bury distribution lines where feasible; and
- electrical distribution lines should avoid high avian use areas such as wetlands, prairie dog towns, and grouse leks. If not avoidable, use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns, and wetlands to decrease predation and decrease loss of avian predators to electrocution.

The following modification of existing facilitate would be made and would also benefit black-footed ferret habitat: use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns, and wetlands to decrease predation, and decrease loss of avian predators to electrocution.
The following general POD guidance and conservation measures are considered "features" or project "design criteria" to be used during project plan preparation. The design of projects can incorporate conservation needs for wildlife species, or measures can be added as COAs. These types of conservation actions offer flexibility for local situations and help minimize or eliminate impacts to the species of interest, such as the black-footed ferret:

- concentrate energy-related facilities when practicable;
- to reduce additional surface disturbance, existing roads and two-tracks on and adjacent to the CBNG project area would be used to the extent possible and would be upgraded as necessary;
- use corridors to the maximum extent possible; roads, power, gas, and water lines should use the same corridor whenever possible;
- avoid locating roads in crucial GRSG breeding, nesting, and wintering areas and mountain plover habitat, and develop roads utilizing topography, vegetative cover, site distance, and other methods or characteristics to effectively protect identified wildlife habitat;
- site new power lines and pipelines in disturbed areas, and remove overhead power lines when use is complete;
- minimize the number of new overhead power lines in GRSG or mountain plover habitat, and use the best available information for siting power lines in important GRSG breeding, brood-rearing, and winter habitat;
- bury lines in RSG and mountain plover habitat;
- restrict timing for power line installation to prevent disturbance during critical GRSG periods (breeding, March 1 to June 30; winter, December 1 to March 31);
- if aboveground power line siting is required within 2 miles of important GRSG breeding, brood-rearing, and winter habitat, emphasize options for preventing raptor perch sites utilizing the most recent guidance from the Avian Power Line Interaction Committee (APLIC; and design and manage produced water storage impoundments to prevent degradation or inundation of GRSG leks, nesting sites and wintering sites, prairie dog towns, or other special status species habitats.

Locatable Minerals

There is very low potential for locatable minerals such as gold, chromium, titanium, zeolite, and associated minerals such as copper, lead, and zinc in the planning area and high potential for the occurrence of bentonite and uranium. Locatable mineral entry would continue on lands open to mineral location. Any exploration or mining on BLM-administered surface estate must comply with the existing surface and mineral management regulations (43 CFR 3800 and 3809).

Mining activities require the submittal of a plan of operations that includes a mining and reclamation plan as well as a description of all essential measures to prevent the unnecessary and undue degradation of the land. The BLM also requires a financial guaranty of 100 percent of the estimated cost to reclaim the disturbed area. The completion of a NEPA analysis that includes an opportunity for public comment on the mining proposal, is also required as part of the evaluation process.

According to the regulations found at 43 CFR 3809, anyone intending to develop locatable mineral resources on the public lands must prevent unnecessary or undue degradation of the land and reclaim disturbed areas. Unnecessary or undue degradation means conditions, activities or practices that fail to comply with the performance standards (43 CFR 3809.420), the terms and conditions of an approved Plan of Operations, operations described in a complete notice and other federal and state laws related to environmental protection and protection of cultural resources. The performance standards (43 CFR 3809.420 (b)(7) direct that the operator shall take such action as needed to prevent adverse impacts to threatened or endangered species and their habitat that may be affected by operations. If the proposed actions would cause impacts to threatened or endangered species that could not be mitigated, the action would be denied, which would prevent habitat loss and other impacts that could result in take of those species.

Mineral Materials

The demand for mineral materials, such as clinker, sand, and gravel (primarily used for road construction) with lesser amounts of petrified wood, agate, and building stone, would increase at a moderate but steady rate over the short and long term.

It is assumed mineral materials permits, most likely for sand or gravel, would operate for approximately 5 years, disturb about 5 acres, and yield about 10,000 cubic yards of material. Mineral material authorizations would be required to comply with federal and state laws and BLM policies. For the protection of threatened and endangered species habitat, mineral material authorizations would either be denied or modified to eliminate or reduce harmful impacts to habitat. Impacts would be reduced through special mitigation measures and project design features.

RENEWABLE ENERGY

Goals and objectives would be to provide opportunities for the development of renewable energy resources (from sources such as wind and solar) while minimizing adverse impacts to other resource values. Opportunities for renewable energy development would be provided to the extent consistent with other goals, objectives, and requirements of the resource management plan. Alternative E would:

- prohibit issuance of ROWs for wind energy or solar development on lands on which wind energy or solar development would be incompatible with specific resource values;
- adopt BMPs and policies related to renewable energy development, including, but not limited to, programmatic policies and BMPs in the Wind Energy Development Program (BLM 2005b and 2005e);
- avoid renewable energy ROWs on approximately 1.3 million BLM-administered surface acres (45 percent);
- exclude renewable energy ROWs on approximately 15,000 surface acres (less than 1 percent);
- allow renewable energy ROWs on the remaining 1.5 million open surface acres (55 percent) in the planning area;
- avoid renewable energy ROWs on approximately 290,000 Wind Power Class 4 and above BLM-administered surface acres (54 percent);
- exclude renewable energy ROWs on approximately 150 Wind Power Class 4 and above surface acres (less than 1 percent); and
- allow renewable energy ROWs on the remaining 250,000 open Wind Class 4 and above acres (46 percent) in the planning area.

TRAVEL MANAGEMENT AND OFF-HIGHWAY VEHICLE USE

Goals and objectives of the travel management and off-highway vehicle (OHV) program are to provide a balanced approach to travel management that offered a sustained flow of local economic benefits and minimized or mitigated user conflict, safety concerns, and resource impacts while taking into consideration the unique attributes and values of the various travel management planning areas. Motorized travel would be managed to provide recreational experiences while maintaining or protecting resource values in coordination with other federal agencies, state and local governments, and private landowners. Areas would be designated as Open, Closed, or limited for motorized travel to minimize resource impacts and conflicts of use. The travel management and OHV program would:

- allow Limited OHV use on 2.8 million BLM-administered acres;
- close OHV use on 2,800 BLM-administered acres;
- follow the *BLM's 2003 Record of Decision, Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota, and South Dakota* except for site-specific travel management areas (TMAs);
- emphasize management of the transportation system to reduce impacts to natural resources from authorized roads and trails;
- close ecologically sensitive areas within 300 feet of roads and trails to dispersed camping if resource damage were found to be occurring in these areas;
- evaluate Pumpkin Creek Ranch and Recreation Area TMA, Strawberry Hill TMA, Glendive Short Pine OHV TMA, Fort Peck-Jordan TMA, Powder River-Carter County TMA, Prairie County-North

Custer TMA, and any remaining lands in the planning area in which resource damage or user conflicts needed to be addressed for travel management planning; and
- initiate an implementation plan for six travel planning areas (TPAs).

Travel Management

A specific set of goals and objectives for travel management include delineation of TMAs to completion of travel management planning designed to address comprehensive motorized travel and associated impacts and motorized and non-motorized recreational opportunities. TMA protective measures that may benefit listed species are:

- conduct travel management in a manner that would meet, or move toward meeting, Rangeland Health Standards;
- except for site-specific TMAs, follow the BLM's 2003 *Record of Decision, Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota, and South Dakota* in the interim and for all lands not under proposed future travel management plans;
- use a systematic process that considered the unique resource issues and social environments of each TPA for route-specific travel planning within individual TPAs;
- emphasize management of the transportation system to reduce impacts to natural resources from authorized roads and trails;
- stress closing and restoring unauthorized user-created roads and trails to prevent resource damage;
- close ecologically sensitive areas within 300 feet of roads and trails to dispersed camping if resource damage was occurring in these areas;
- evaluate the following areas for travel management planning: Pumpkin Creek Ranch and Recreation Area TMA, Strawberry Hill TMA, Glendive Short Pine OHV TMA, Fort Peck-Jordan TMA, Powder River-Carter County TMA, Prairie County-North Custer TMA, and remaining lands in the planning area in which resource damage or user conflicts needed to be addressed;
- initiate an implementation plan for six TPAs; and
- strive to complete travel management planning within 5 years of the ROD.

LANDS AND REALTY

Goals and objectives of the Lands and Realty program are to provide public lands, interests in land, and authorizations for public and private uses while maintaining and improving resource values. The impacts of potential climate change would be reduced by sequestering carbon dioxide. Public land and mineral ownership would be adjusted to acquire significant resources and consolidate surface or mineral estates to improve management efficiency and accessibility, obtain special designation area inholdings, and enhance significant recreational values. Withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes of the withdrawal would be used. The BLM would strive to increase and diversify the nation's sources of both traditional and alternative energy resources, improve the energy transportation network, and ensure sound environmental management in accordance with the national energy policy directives.

Land Use Authorizations

Land use authorization would be guided by the following:

- avoid environmentally sensitive areas identified during the grant application examination;
- use stipulations from the BLM Handbook 2801-1 to protect resource values in areas in which ROWs were allowed;
- consider requests for solar and wind energy projects, including testing and monitoring sites, in suitable and acceptable areas under a Title V FLPMA ROW;

- construct major ROWs within or next to compatible existing ROWs, such as highways and railroads whenever possible;

No specific protective measures for listed species are identified for lands and realty actions.

SPECIAL DESIGNATIONS INCLUDING AREAS OF CRITICAL ENVIRONMENTAL CONCERN, BACK COUNTRY BYWAYS, NATIONAL TRAILS, WILD AND SCENIC RIVERS, AND WILDERNESS

Goals and objectives are to identify and manage ACECs to protect life and safety from natural hazards or to protect and prevent irreparable damage to important fish and wildlife resources; and other natural systems or processes.

MITIGATION MEASURES AND CONSERVATION ACTIONS AND GREATER SAGE-GROUSE REQUIRED DESIGN FEATURES APPENDICES

The following includes a portion of the RMP Mitigation Measures and Conservation Actions Appendix and RMP GRSG Required Design Features Appendix which are a compilation of Best Management Practices (BMPs) or operating procedures used by the BLM to meet statutory requirements for environmental protection and comply with resource specific goals and objectives. The BLM will apply mitigation measures and conservation actions to modify the operations of authorized lands uses or activities to meet these obligations. Additional direction regarding mitigation can be found in the Interim Policy, Regional Mitigation Manual Section - 1794 (IM 2013-142) or subsequent decision documents. The subject mitigation measures and required design features will provide protections for all of the threatened and endangered species depending on location and type of activity proposed in the future.

REQUIRED DESIGN FEATURES FOR FLUID MINERAL DEVELOPMENT

Priority Habitat Management Areas (PHMAs)

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among right-of-way (ROW) holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
- Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and rehabilitate duplicate roads.

Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.) and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.

- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of PHMAs. Have no tanks at well locations within PHMAs (minimizes perching and nesting opportunities for ravens and raptors and truck traffic). Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Corridor power, flow, and small pipelines under or immediately adjacent to roads.
- Design or site permanent structures which create movement (e.g. a pump jack) to minimize impacts to GRSG.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (e.g. by washing vehicles and equipment).
- Use only closed-loop systems for drilling operations and no reserve pits.
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

    - Overbuild size of ponds for muddy and non-vegetated shorelines.
    - Build steep shorelines to decrease vegetation and increase wave actions.
    - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
    - Construct dams or impoundments that restrict down slope seepage or overflow.
    - Line the channel where discharge water flows into the pond with crushed rock.
    - Construct spillway with steep sides and line it with crushed rock.
    - Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

- The BLM would work with proponents to limit project-related noise where it would be expected to reduce functionality of habitats that support GRSG populations. The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis.
- As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated, and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on GRSG population behavioral cycles.
- As new research is completed, new specific limitations would be coordinated with the MFWP and partners. Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient noise.
- Require noise shields when drilling during the lek, nesting, brood rearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Require GRSG-safe fences.
- Locate new compressor stations outside PHMAs and design them to reduce noise that may be directed towards PHMAs.
- Clean up refuse.
- Locate man camps outside of PHMAs.

Reclamation

- Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, top-soiling and re-vegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

General Sage-Grouse Habitat Management Areas (GHMAs)

Make applicable BMPs mandatory as Conditions of Approval (COA) within GHMAs. BMPs are continuously improving as new science and technology become available and therefore are subject to change. At a minimum include the following BMPs.

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances associated with operations and facilities as close as possible.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

Reclamation

- Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites. Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

OTHER DESIGN FEATURES

The following would be applied, if warranted, to any BLM authorized activity:

- The total disturbance area would be minimized and to the extent possible.
- Surface disturbances would be co-located in areas of previous or existing disturbance to the extent technically feasible.
- Linear facilities would be located in the same trenches (or immediately parallel to) and when possible, installed during the same period of time.
- Plans of development would be required for major ROWs, renewable energy and minerals development. Such plans would identify measures for reducing impacts.
- Where the federal government administers the surface and the mineral estate is in nonfederal ownership, the BLM would apply appropriate fluid mineral BMPs to surface development.
- Remove facilities and infrastructure when use is completed.
- Vegetation would be removed only when necessary. Mowing would be preferred. If mowed when possible work would be performed when vegetation is dormant.
- Two-track (primitive) roads would be used when possible.
- Utilization of the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (i.e., The Gold Book) shall be utilized for the design of roads, utilities, and oil and gas operations.
- Directional drilling, drilling multiple wells from the same pad, co-mingling, recompletion, or the use of existing well pads would be employed to the extent technically feasible to minimize surface impacts from oil and gas development.
- Utilities would be ripped or wheel-trenched whenever practical.
- Remote telemetry would be used to reduce vehicle traffic to the extent technically feasible (e.g., monitoring oil and gas operations).
- Perennial streams would be crossed using bore crossing (directional drill) or other environmentally sound method.
- For activities resulting in major surface-disturbance as determined by the AO, a mitigation monitoring and reporting strategy would be developed and implemented (see the RMP Reclamation Appendix for further guidance).
- Operations would avoid sensitive resources including riparian areas, wetlands, floodplains, water bodies and areas subject to erosion and soil degradation.
- The BLM would, on a case-by-case basis, use temporary or permanent enclosures (e.g., in woody draw or riparian areas) to promote species diversity, recruitment, and structure.
- Accelerated erosion, soil loss, and impacts to water quality would be reduced by diverting storm-water and trapping sediment during activity.
- Pitless or aboveground closed-loop drilling technology would be used to the extent technically feasible. Recycle drilling mud and completion fluids for use in future drilling activities.
- Where needed, pits would be lined with an impermeable liner. Pits would not be placed in fill material or natural watercourses, and pits may not be cut or trenched.
- Fertilizer would not be applied within 500 feet of wetlands and water-bodies.
- Vehicle and equipment servicing and refueling activities would take place 500 feet from the outer edge of riparian areas, wet areas, and drainages.
- Activity may be restricted during wet or frozen conditions. Mechanized equipment use would be avoided if the equipment causes rutting to a depth of 4 inches or greater.
- Vehicle wash stations would be used prior to entering or leaving disturbance to reduce the transport and establishment of invasive species.
- Invasive species plant parts would not be transported off site without appropriate disposal measures.
- Use alternative energy (solar or wind power) to power new water source developments.
- Overhead power lines, where authorized would follow the recommendations in the most recent guidance from the Avian Power Line Interaction Committee (1994, as amended 2006, 2012).
- Weed management prescriptions would be included in all new treatment projects and incorporated into existing contracts, agreements, task forces, designated weed-free management areas, and land use authorizations that resulted in ground-disturbing activities.
- Whenever possible, ROWs would be constructed within or next to compatible ROW's, such as roads, pipelines, communications sites, and railroads.
- The operator shall be responsible for locating and protecting existing pipelines, power lines, communication lines, and other related infrastructure.

- Modify or adapt livestock water pipelines and natural springs, where practical, to create small wet meadows to provide wildlife habitat.
- Authorize new water development resulting from diversion from spring or seep source only when wildlife habitat would benefit from the development. This includes new water sources for livestock as part of an AMP/conservation plan to improve wildlife habitat.
- Analyze spring, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within wildlife habitats. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to wildlife.
- If portions of existing fences or other structures are found to pose a significant threat to wildlife as strike sites, raptor perches, connectivity barriers, etc. mitigate effects through removal, moving or modification; increase visibility of the fences by marking, or through the use of "take-down" fences.
- Evaluate ecological consequences of using pesticides to control grasshoppers or other insects, unless NEPA analysis documents benefits to avian species and their habitat.
- Design new structural range improvement and locate supplements (salt or protein blocks) to conserve or enhance wildlife habitat. Structural range improvements in this context include, but not limited to: cattle guards, fences, exclosures, corrals, or other livestock handling structures; pipelines; troughs; storage tanks (including moveable tanks used in livestock water hauling); windmills; ponds or reservoirs; and spring developments.
- During drought periods, prioritize evaluating effects of the drought in priority wildlife habitat areas relative to their needs for food and cover.

The following protection measures for the various listed activities apply to some of the listed species as indicated in parenthesis by species:

Locatable Minerals (Least tern, whooping crane, piping plover, red knot, northern long-eared bat and black-footed ferret)

Locatable mineral entry and mining would continue to be allowed on lands open to mineral location and would be administered through existing surface and mineral management regulations (43 CFR 3800 and 3809). Should development of a mining claim be proposed within the Yellowstone or Missouri floodplains, a validity determination would be conducted by the BLM and the BLM could deny the mining claim if interior least tern , whooping crane, piping plover, red knot and potentially other species' habitat would be impacted. The potential for locatable mineral development along the Yellowstone and Missouri rivers is considered low.

Locatable minerals development is regulated by federal law (43 CFR 3809). These regulations require mining claimants or operators to submit a NOI for BLM review. If the operation will disturb threatened and endangered species or their habitat, or result in disturbance greater than 5 acres, the claimant or operator must prepare a Plan of Operation for BLM's review and approval. Regulations require that "Unnecessary or Undue" degradation does not occur to the federal lands. Impacts to threatened and endangered species or their habitat is considered "Unnecessary or Undue" degradation, thus requiring the operator to prepare a Plan of Operations, which would necessarily illustrate that no adverse impact to the listed species or their habitat would result before it can be approved by BLM.

Coal (least tern, piping plover, whooping crane, red knot and black-footed ferret)

The potential for coal development in or adjacent to the listed species habitat is low.
The 43 CFR 3400 Ch. II (10-1-95 Edition) provides regulations that offer protections for the listed species and habitat as "unsuitable" for coal development. One or more of the following criterion from the CFRs may apply as protective measures for piping plovers:

- *Criterion Number 9:* Federally designated critical habitat for listed threatened or endangered plant and animal species… and habitat for Federal threatened or endangered species which is determined by the Fish and USFWS and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

- *Criterion Number 14:* Federal lands which are a high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the USFWS, shall be considered unsuitable.
- *Criterion Number 16:* Federal lands in riverine, coastal, and special floodplains (100 year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.
- *Criterion Number 18:* Federal lands with Natural Resource Waters, as identified by states in their water quality management plans, and a buffer zone of federal lands ¼ mile from the outer edge of the far banks of the water, shall be unsuitable for development.

In addition, coal leasing and development is not authorized within alluvial valley floors, which are determined by the Office of Surface Mining. The alluvial valley floor delineations would protect piping plover habitat where they overlap. Coordination with the MDEQ and USFWS may also result in additional protective measures that would prevent impacts to piping plovers from coal development to ensure that surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations.

Mineral Materials (least tern, piping plover, least tern, whooping crane, red knot, northern long-eared bat)

Approximately 2.5 million acres would be available to mineral material sales and permits with restrictions applied. Approximately 36,000 acres would be closed to mineral material sales and permits. A portion of these acres closed to mineral material sales include BLM-administered surface within the Lewis and Clark National Historic Trail, which includes the entire Yellowstone and Missouri corridors within the planning area. Protective measures that would be applied relative to threatened and endangered species and critical habitat include those listed on page BA-10. Surface-disturbing and disruptive activities in and within 0.25 miles of interior least tern and piping plover habitat will be avoided. Surface-disturbing activities that would impact or would not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs will be avoided. The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. The requirement will be implemented so that surface-disturbing activities avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas which are habitats that all species listed above utilize, including potential whooping crane stop-over sites. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations

Oil and Gas Exploration, Production, and Development (least tern, piping plover, whooping crane, red knot, northern long-eared bat and black-footed ferret)

Under this alternative there would be a range of 525 to 752 drilled oil wells; 430 to 616 drilled conventional gas wells; and 179 to 256 drilled CBNG wells on BLM-administered mineral estate (1,134 to 1,624 total drilled BLM-administered wells) in the planning area.

The BLM would require a number of protective measures as lease stipulations or COAs to avoid or minimize impacts by applying several NSO stipulations, CSU stipulations, and other protective measures as listed in the Special Status Species protection measures list on PageBA-10. Oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. In addition, a CSU stipulation would apply within piping plover habitat that only allows surface-disturbing and disruptive activities in piping plover habitat if the habitat were maintained at a level capable of supporting long-term piping plover populations. Surface occupancy (NSO stipulation) would be prohibited within 0.25 miles of wetlands identified as interior least tern habitat and piping plover habitat. These protections would be further bolstered by the lease stipulation that require the BLM to offer oil and gas leasing with an NSO stipulation on floodplains. Several measures provided in the RMP Mitigation Measures and Conservation Actions Appendix are proposed to minimize or eliminate contaminant hazards. Per this appendix references, sources of groundwater and surface water contamination

would have to be eliminated. Methods for accomplishing this would be a requirement that pitless or aboveground closed-loop drilling technology would be used, drilling mud and completion fluids would have to be recycled, and fluids, drilling mud, and cuttings would have to be disposed of in approved disposal areas (e.g., landfills). Where reserve pits would be used, the pits would have to be lined with an impermeable liner to prevent releases, plastic liners would be required to have a minimum 140 pounds per square inch burst strength, 30 pound tear strength, permeability less than 10–7 centimeters per second, and thickness greater than or equal to 12 mils (1/1000th of an inch), and be ultraviolet and chemical resistant. Reserve pits would not be allowed to be placed in fill material or natural watercourses and cannot be cut or trenched. Pipelines would be tested for leaks prior to backfilling the trench and would be pre-cleaned prior to hydrostatic testing.

Renewable Energy (piping plover, least tern, whooping crane, red knot, northern long-eared bat and black-footed ferret)

Surface-disturbing and disruptive activities in and within 0.25 miles of interior least tern habitat and piping plover will be avoided. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams (as indicated by obligate wetland species or hydric soils); lakes, ponds, or reservoirs will be avoided. The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. The requirement will be implemented that surface-disturbing activities avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. Surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations which also provides protections for other listed species.

In addition, several protective measures that would be required during installation and operation of wind turbines, although intended as protections for raptors, would eliminate these hazards to piping plovers and other listed species as well. Operators would have to determine the presence of active raptor nests (i.e., raptor nests used during the breeding season) and design the project to provide for spatial buffers and timing restrictions for surface-disturbing activities. Operators would also have to reduce raptor use at a project site (e.g., minimize road cuts and maintain either no vegetation or plant species that are unattractive to raptors around the turbines); and facilities would have to be designed to discourage their use as perching or nesting substrates by birds. For example, power lines and poles would have to be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching. As part of the Plan of Development (POD) or construction phase, all electrical collector lines would be buried in a manner that minimized additional surface disturbance. Requiring compliance with APLIC guidelines will reduce avian species strikes as APLIC guidelines provide guiding principles and examples to aid utilities in their development of infrastructure in an effort to reduce avian mortality. Finally, project access by motorized vehicles would be restricted to the roads developed for the project.

In addition to mitigation measures listed in the RMP Mitigation Measures and Conservation Actions Appendix, other guidelines and recommendations such as the USFWS Land-Based Wind Energy Guidelines (9/2012) could be utilized to reduce direct and indirect effects to piping plovers and other migratory bird species.

BLACK-FOOTED FERRET

Status of the Species

The black-footed ferret (*Mustela nigripes*) was federally listed endangered on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 (80 Stat. 926; 16 United States Code [U.S.C.] 668aa(c)). Historically, the range of the black-footed ferret coincided closely with that of the prairie dog (*Cynomys* spp.) throughout the Great Plains and Rocky Mountain States of the US and two Canadian Provinces (Fitzgerald, et al. 1994). The black-footed ferret was considered extinct by the middle of the last century until it was documented in South Dakota in August 1964 (Fortenbery 1972; Hillman 1968; Henderson, et al. 1969; Linder, et al. 1972) and again in 1981 near Meeteetse, Wyoming (Fitzgerald, et al. 1994; USFWS 1988). However, the South Dakota population subsequently disappeared and the Wyoming population declined

to only a few remaining individuals. Consequently, these animals were captured and provided the basis for the ongoing captive breeding program (USFWS 1988).

The black-footed ferret was thought to be extirpated from its entire range by the 1970s. The main causes of the species decline included habitat conversion for farming, intentional efforts to eliminate prairie dogs, and disease (Biggins 2000).

Black-footed ferret decline and virtual extirpation in the last century stemmed from impacts to prairie dog complexes included habitat conversion for farming, prairie dog eradication efforts, sylvatic plague, recreational shooting, and distemper. These same threats, in addition to urbanization, remain today (Biggins 2000).

Agricultural land use expansion included funding allocated by the U.S. Government to eliminate prairie dogs, seen as rodent pests during the twentieth century. These massive prairie dog eradication efforts succeeded in eliminating prairie dogs from the vast majority of their historic range and therefore, reducing colony size and the potential to support black-footed ferrets (Miller, et al. 1990).

The sylvatic plague kills black-footed ferrets and reduces prey abundance, reducing large numbers of prairie dogs (Forrest, et al. 1988). Black-footed ferrets also are susceptible to canine distemper, which can be fatal to infected individuals (Williams, et al. 1988).

Affected Environment

Black-footed ferrets are no longer expected to occupy habitat on BLM-administered lands within the planning area, as the probability that a wild population exists anywhere throughout its range is low (USFWS 1990), and the most recent confirmed sighting of a ferret within the planning area occurred in 1977 (Clark et al. 1986).

With regards to re-introductions, the connectivity currently required to provide for functional black-footed reintroduction habitat is defined as a series prairie dog complexes (i.e. sub-complexes) no further than 1.5 km of each other and comprise at least 1,500 acres of total habitat (Biggens 1993, Biggens et al. 2006). Internal BLM GIS analysis of all available data (all years combined regardless of colony activity) determined the planning area may have seven potential complexes of 1500 acre or greater; although none exist across one contiguous block of public lands. Percent BLM ownership within the complexes identified include approximately 49%, 20%, and the remainder 3% or lower.

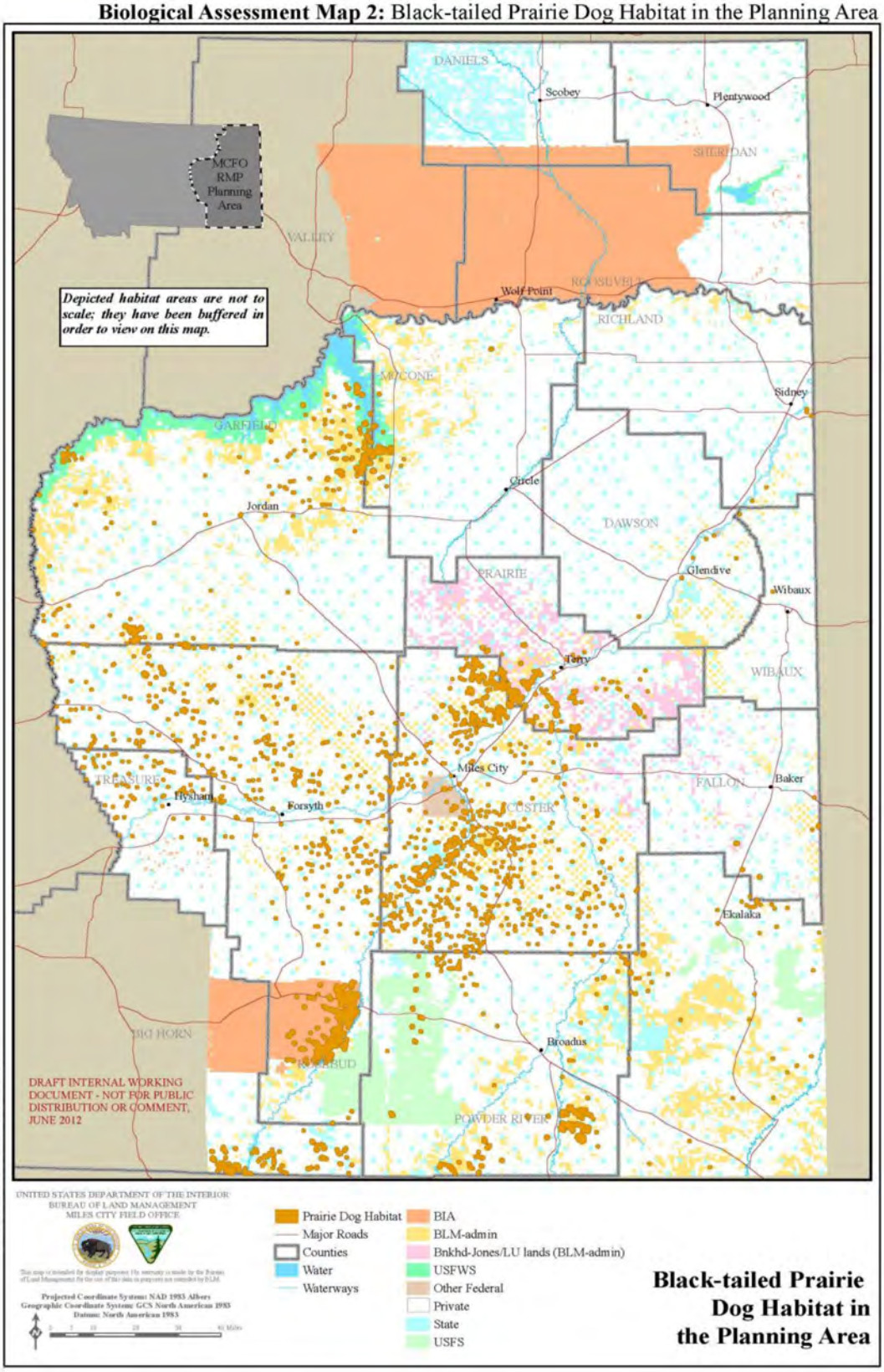
Internal BLM GIS analysis of all available data (all years combined regardless of colony activity) determined the planning area may have seven potential complexes of 1500 acre or greater; although none exist across one contiguous block of public lands. Percent BLM ownership within the complexes identified include approximately 49%, 20%, and the remainder 3% or lower. See Map 2 for black-tailed prairie dog habitat within the planning area which includes all available data (active and inactive black-tailed prairie dog colonies). Although populations of black-footed ferrets are not expected to occur, potential suitable habitat for black-footed ferrets still exists within the planning area.

Effects of the Action

General

The PRMP/FEIS provides overall guidance for management of BLM-administered lands in the MCFO area. It is not site-specific in nature and many activities will be able to proceed only after the development of specific plans, which will include additional NEPA documentation and further Section 7 consultation if needed.

Biological Assessment Map 2: Black-tailed Prairie Dog Habitat in the Planning Area



BIOLOGICAL ASSESSMENT MAP-2

Although no black-footed ferret populations exist in the planning area, suitable black-footed ferret habitat within or adjacent to black-tailed prairie dog towns or complexes is present. Black-footed ferrets, if found, would benefit from protective measures designed specifically to prevent or minimize take of the species. However, black-footed ferrets would also benefit from protective measures designed to protect other species, such as GRSG or mountain plover.

All Surface-disturbing Activities

The BLM would require USFWS-approved survey protocols for black-footed ferrets on any black-tailed prairie dog towns or complexes greater than 80 acres prior to proposed project activity. These survey techniques should prevent any accidental loss of black-footed ferrets in suitable habitat until further planning could be conducted by the BLM. Locating black-footed ferrets would initiate consultation pursuant to section 7(a) (2) of ESA.

Allowing surface-disturbing or disruptive activities and oil and gas leasing with protective measures in active or inactive black-tailed prairie dog colonies would minimize impacts to black-tailed prairie dogs and prairie dog town obligate species. Although some impacts, such as noise and habitat fragmentation would still occur, they would be mitigated under the Proposed Alternative (E). Protective mitigation measures would include avoidance of prairie dog colonies for siting of the proposed projects, placing power lines or other infrastructure underground to deny raptors perching sites, timing restrictions on projects to maximize prairie dog recruitment, and off-site mitigation such as removal of existing power lines near prairie dog colonies.

Wildland Fire Management and Ecology

The majority of fuels management proposed would be expected in habitat types not considered suitable for black-footed ferret occupation, specifically black-tailed prairie dog towns. The likelihood of fuel treatment projects within black-footed ferret habitat is low.

Wildland Fire Management

Wildland fire would not be expected to occur within black-footed ferret habitat, as black-tailed prairie dog habitat does not normally support potential fuels. If wildfire does affect vegetation on prairie dog towns, there will be no direct impacts to the black-footed ferret.

Invasive Species

The BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species list. As identified in this RMP, special status species habitat is a priority for treatment. Invasive species management would be expected to result in improved habitat conditions for black-footed ferrets. Potential impacts to black-footed ferrets from invasive species is insignificant in black-footed ferret habitat

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to black-footed ferret habitat.

Coal

Areas identified in the Big Dry and Powder River RMPs (BLM 1996 and 1985c) as acceptable for further consideration for coal leasing would be carried forward in the new RMP. The 43 CFR 3400 Ch. II (10-1-95 Edition) provides regulations that offer protections for black-footed ferrets and their habitat as designating the habitat "unsuitable" for coal development. The following criterion from the CFRs would apply as protective measures for black-footed ferrets:

> *Criterion Number 9:* Federally designated critical habitat for listed threatened or endangered plant and animal species… and habitat for Federal threatened or endangered species which is determined by the USFWS and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable (43 CFR section 3461.5).

The unsuitable designation makes the area unavailable for coal development, thus creating an avoidance strategy that protects suitable habitat from coal mining.

In addition, coordination with the MDEQ and USFWS may result in additional protective measures that would prevent impacts to black-footed ferrets from coal development such that surface-disturbing and disruptive activities in black-footed ferret habitat would only be allowed if the habitat were maintained at a level capable of supporting black-footed ferrets. Project specific consultation with USFWS would include identification of suitable habitats required to support black-foot ferret populations.

Locatable Minerals

Locatable mineral entry and mining would continue to be allowed on lands open to mineral location and would be administered through existing surface and mineral management regulations (43 CFR 3800 and 3809). Locatable mineral development could disturb or destroy black-footed ferret habitat, or by cause direct mortality of prairie dogs. Suitable habitat could be rendered unusable, or may be avoided by black-footed ferrets because of the presence of humans, adjacent vehicle traffic, mining equipment, and noise associated with development activities.

Proposed activities, conditions, or practices that fail to comply with the performance standards found in 43 CFR 3809.420, which include failure to prevent adverse impacts to threatened or endangered species and their habitats, not meeting terms and conditions of an approved Plan of Operations, non-compliance with operations described in a complete NOI, or other state and federal laws related to environmental protection and the protection of cultural resources that would constitute unnecessary and undue degradation. Regulations require that "Unnecessary or Undue" degradation does not occur to the federal lands. Protective measures or terms and conditions are attached to the permit such that surface-disturbing and disruptive activities in black-footed ferret habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term black-footed ferret populations. If black-footed ferrets or habitats were present, and the proposed actions caused impacts to species that could not be mitigated, the action would be denied, thus preventing habitat loss and other impacts that could result in take of black-footed ferrets.

Mineral Materials

Approximately 2.5 million acres of the planning area would be available to mineral material sales and permits with restrictions applied. Approximately 100,000 acres would be closed to mineral material sales and permits. These closures would prevent mineral material sales, which would ensure that black-footed ferret habitat remains intact.

Because mineral material authorizations would be required to comply with federal and state laws and BLM policies for the protection of environmental and cultural resources including threatened and endangered species, such as the black-footed ferret, mineral material authorizations would either be denied or modified to

eliminate or reduce harmful impacts to the resource. Impacts would be reduced through special mitigation measures and project design features.

Oil and Gas Exploration, Production, and Development

The BLM will require a number of protective measures as lease stipulations or Conditions of Approval (COAs) that would prevent or minimize impacts, such as habitat loss or fragmentation from occurring. An NSO stipulation will be placed within ¼ mile of occupied black-footed ferret and black-tailed prairie dog habitat. These requirements would remove potential oil and gas development activity from black-footed ferret habitat, which would provide protections and prevent direct and indirect loss of habitats, specifically black-tailed prairie dog towns.

Renewable Energy

Wind energy projects can cause habitat fragmentation in a variety of ways, including direct and indirect losses of black-tailed prairie dog habitat. Direct loss of habitat could occur from installation of facilities, power lines and poles, additional new roads, and other associated infrastructure. New power lines and facilities could also cause increased raptor nesting and perching sites, which could be detrimental to existing black-tailed prairie dog colonies by providing perching sites. Operators would have to determine the presence of active raptor nests (i.e., raptor nests used during the breeding season) and design the project to provide for spatial buffers and timing restrictions for surface-disturbing activities, which would provide additional protection for black-footed ferrets. Operators would also have to reduce raptor use at a project site (e.g., minimize road cuts, and maintain either no vegetation or plant species that are unattractive to raptors around the turbines), and facilities would have to be designed to discourage their use as perching or nesting substrates by birds. For example, power lines and poles would have to be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching. Finally, project access by motorized vehicles would be restricted to the roads developed for the project. Mitigation measures such as burial of lines, linear facility corridors, avoidance of important habitats, including black-tailed prairie dog colonies, and timing restrictions are measures, which would prevent loss of black-tailed prairie dog colonies and ultimately reduce displacement and direct mortality and provide habitats for black-footed ferrets.

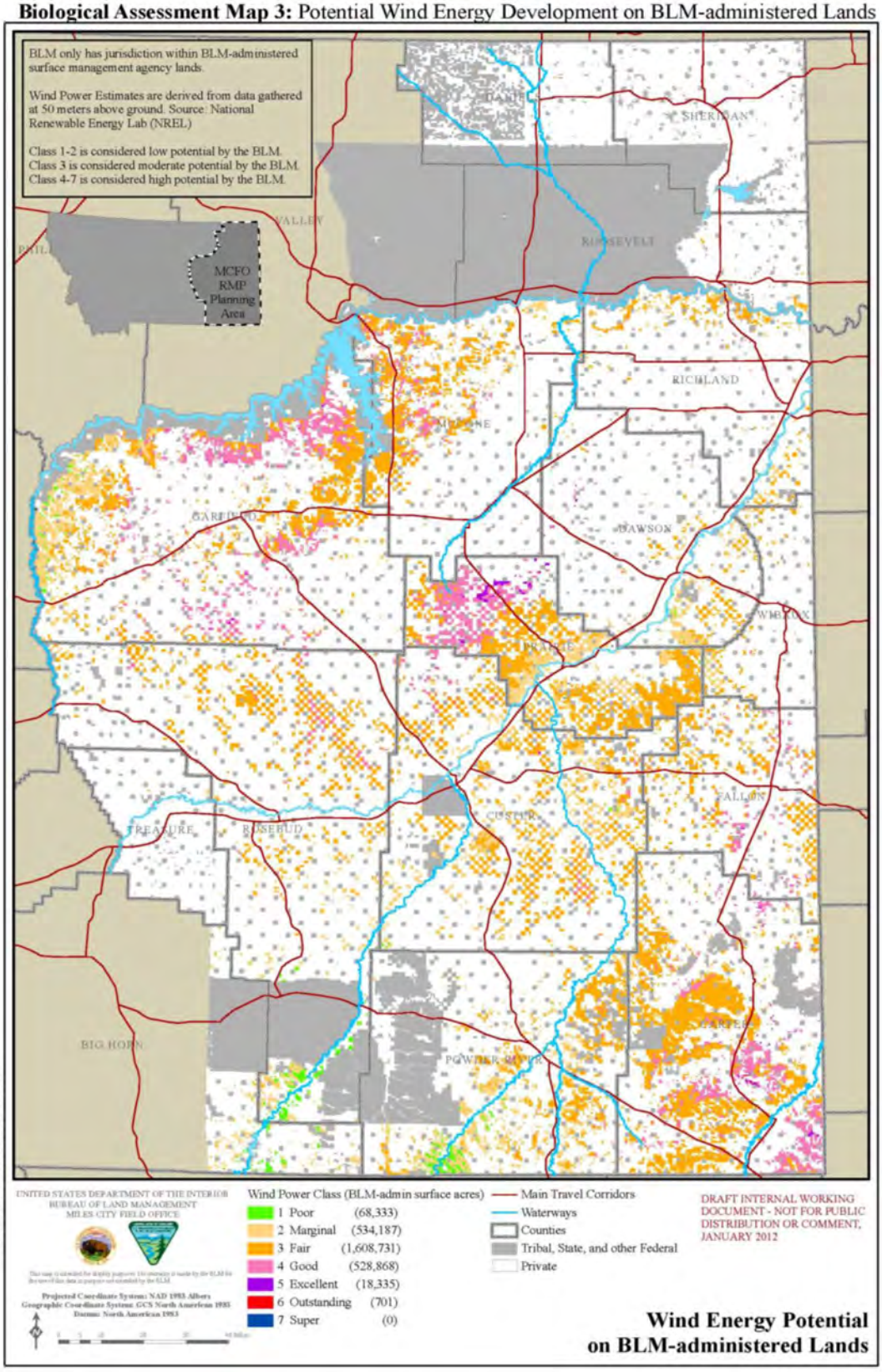
The potential for renewable energy in the planning area is based on environmental, physical, and economic criteria in conjunction with policy directives. The BLM would analyze proposals for renewable energy development on a case-by-case basis and authorize those that were consistent with resource management goals. Although black-tailed prairie dog habitat continually changes in size and location, currently identified black-tailed prairie dog habitat which black-footed ferrets depend upon for survival does exist outside of the potential wind development areas (Map 3).

Lands and Realty

ROWs (including pipelines, power lines, communications lines and towers, road creation, and vehicle access) and other activities all have the potential to result in impacts to black-footed ferrets by physically disturbing or destroying black-tailed prairie dog habitat, ultimately causing displacement, or resulting in direct mortality of the species. Suitable habitat could be rendered unusable as well, or may be avoided by black-footed ferrets because of the presence of humans, vehicle traffic, and noise associated with these activities.

Protective measures would be applied that would prevent impacts to black-footed ferrets from ROW actions. As addressed above, potential habitat including prairie dog complexes 80 acres or more in size would be examined to determine absence or presence of black-footed ferrets which could, if occupancy is found, result in restrictions to the operators' plans, ultimately providing protections for black-footed ferrets. In addition, any activity within active or inactive black-tailed prairie dog colony would be allowed with protective measures that maintained the habitat so that it will be capable of supporting black-footed ferrets. Measures would include burial or optimal siting of power lines, communications lines and towers, roads, or other actions.

Biological Assessment Map 3: Potential Wind Energy Development on BLM-administered Lands



BIOLOGICAL ASSESSMENT MAP-3

Numerous other protective measures, such as those for GRSG and mountain plovers, provide protections for black-tailed prairie dogs. A few of these include locating roads outside of mountain plover nesting habitat where possible, burial of power lines, removal of power lines, and timing restrictions, which would reduce effects to black-footed ferrets and ultimately reduce direct and indirect loss of habitat and direct mortality.

Recreation

Recreation includes casual use activities such as hunting and fishing, which are discussed in the *Affected Environment* section. Special recreation permits issued as addressed in the Preferred Alternative, which include recreational shooting of black-tailed prairie dogs, would likely have no effect on black-footed ferrets as none are known to exist in the planning area.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. Energy development, vegetation management (including timber harvest, livestock grazing, weed treatment, and fire control and mitigation), and travel management in the planning area have the most potential to affect black-tailed prairie dogs and black-footed ferrets. Many other activities that can also affect black-tailed prairie dogs and black-footed ferrets will continue to occur within the planning area, including road construction and use, mining, and recreational activities.

Other federal and state agencies are generally following a trend of reducing areas where motorized access is allowed in the planning area. Timber harvest has also declined across the planning area in the last 30 years, which reduces human disturbance of wildlife (including black-footed ferrets), including roads and road use The past and future control of prairie dogs on nonfederal lands may eliminate opportunities to re-establish the black-footed ferret and limit the expansion of obligate species. In addition, sylvatic plague, which is prevalent throughout the range of the black-tailed prairie dog, would potentially reduce the population of prairie dogs and reduce the likelihood of future occupancy by black-footed ferrets.

Activities on nonfederal lands such as livestock grazing, residential development, mining, agriculture, and road construction will negatively impact many special status species, including black-footed ferrets.

Determination

No black-footed ferrets are known to exist in the MCFO planning area. However, as ongoing development continues, required dedicated black-footed ferret surveys are conducted and survey and monitoring efforts designed to determine the status of other species are conducted within the planning area, the BLM cannot rule out the possibility that black-footed ferrets will be found to still exist in isolated areas or that the species has reoccupied habitat previously thought to be unoccupied. The BLM is confident that if this does occur, protective measures in the RMP designed specifically to protect the black-footed ferret and it's habitat alongside other protective measures meant to protect other species, are sufficient to prevent major impacts to black-footed ferrets or its habitat from occurring until further planning is conducted. In addition, consultation with the USFWS pursuant to Section 7 (a) (2) of ESA at the project level is needed. The BLM has therefore determined that implementation of the PRMP/FEIS, as depicted in Alternative E, **may affect, but is not likely to adversely affect the black-footed ferret.**

PALLID STURGEON

Status of the Species

The pallid sturgeon (*Scaphirhyncus albus*) is one of the rarest fishes, if not animals, in North America. It is a large slow-growing fish over 200 million years old. They have a flattened snout, long, tail, and are armored with

lengthwise rows of bony plates instead of scales. Pallid sturgeon can live to be older than 50 years and can reach lengths of over 6 feet and weigh over 75 pounds. Female pallid sturgeon do not become sexually mature until they are approximately 15 years old (MFWP and MNHP 2012).

Historically, the pallid sturgeon geographic range was similar to the present range except there was greater connectivity between all populations and the habitat was not fragmented as it is today. Changes in big river habitat caused by dams and channelization are assumed responsible for the population decline. Nationwide, it is estimated that 36 percent of historical pallid sturgeon habitat has been eliminated, 40 percent has been channelized, and the rest has an altered flow regime. Dams have blocked spawning migrations, isolated populations, destroyed rearing and spawning habitats, and altered food supply as well as changing flow, turbidity, and temperature regimes (Dryer and Sandvol 1993).

The pallid sturgeon was federally listed as endangered by the USFWS in 1990. Threats to the pallid sturgeon are habitat modification, small population size, limited natural reproduction, hybridization, pollution and contaminants, and commercial harvest. The pallid sturgeon inhabits the Yellowstone River, from the Montana/North Dakota border upstream to near Forsyth, Montana, and Missouri River, from the Montana/North Dakota border upstream to near Fort Benton, Montana. The USFWS recently took listed the shovelnose sturgeon (*Scaphirhynchus platorynchus*), which closely resembles the pallid sturgeon, as a threatened species where its range overlaps with the pallid sturgeon (USFWS 2010).

Affected Environment

The pallid sturgeon range in Montana and western North Dakota has declined to 60 percent of their historical range. Most pallid sturgeon have been found near the Missouri/Yellowstone river confluence, the lower 110 kilometers of the Yellowstone River, the tail-waters of Fort Peck dam, and the lower 130 kilometers of Missouri River above Fort Peck Reservoir. Fort Peck dam and reservoir have eliminated 18 percent of the Montana habitat and fragmented pallid sturgeon into two populations, the Upper Missouri population, located upstream of Fort Peck reservoir, and the Yellowstone/lower Missouri River population, downstream of Fort Peck reservoir.

Some pallid sturgeon spawning has been documented with the discovery of a few pallid sturgeon fry but no recruitment has been documented for at least 30 years. After hatching, pallid sturgeon fry drift in the river for several days before settling out of the water column. It is believed that pallid sturgeon fry are drifting into the unsuitable habitats in the upper reaches of Fort Peck Reservoir, where they die. Without recruitment, the two pallid sturgeon populations in Montana (in the Missouri River above Fort Peck Reservoir and in the lower Yellowstone River and Missouri River below Fort Peck Dam) comprise old fish and are estimated to contain fewer than 30 and 200 adults, respectively (MFWP 2012).

Effects of the Action

Invasive Species

Invasive species such as tamarisk (salt cedar), leafy spurge, and Russian olive can be found along waterways that support pallid sturgeon populations. The BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species lists. Treatment of woodies, such as Russian olive, could introduce portions of these structures to the waterway. Adding these structures to the river habitat would be insignificant to pallid sturgeon.

Locatable Minerals

Locatable mineral entry and mining could impact those species by physically disturbing flood-plain or in-river attributes. The low probability of locatable development occurring in pallid sturgeon habitat and any protective

measures developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of pallid sturgeon as a result of this action.

Coal

Coal exploration, development, and reclamation could impact those species by physically disturbing floodplain or in-river attributes. The combination of the protective measures available would separate coal development activities from pallid sturgeon habitat and would eliminate the potential for take of pallid sturgeon.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to the listed species by physically disturbing floodplain or in-river attributes. The areas closed to mineral material sales, in combination with the protective measures outside of those closed areas and would eliminate the potential of take of pallid sturgeon.

Renewable Energy

Renewable energy such as solar, wind and geothermal will have no effect to pallid sturgeon as these actions would not occur within or physically disturb the habitats for these species.

Lands and Realty

ROWs granted for pipelines, power lines, communications lines and towers, road creation and vehicle access, and other activities, all have the potential to result in impacts to pallid sturgeon by physically disturbing habitat that may initiate erosion into waterways that provide habitat to pallid sturgeon.

Protective measures would be applied that would prevent impacts to pallid sturgeon from ROW actions. Surface-disturbing activities would be required to avoid riparian and wetland areas and a 300-foot buffer would be required, which would segregate impacts created by ROWs. Impacts to pallid sturgeon from ROW actions will be insignificant.

Recreation

Recreational activities such as fishing, hunting, and boating are all considered casual use, which the BLM does not regulate. Permitted activities include special recreation permits and are issued for commercially guided fishing purposes that involve utilizing BLM lands for commercial use. Camping is also common along pallid sturgeon habitat.

Larger boats, such as tugboats, have affected some sturgeon species on larger waters. The pallid sturgeon habitat on the upper Missouri River does not support these larger boat activities and boat use will have discountable impacts to pallid sturgeon. Camping along pallid sturgeon habitat will be insignificant to the pallid sturgeon.

Oil and Gas Exploration, Production, and Development

Oil and gas leasing itself is not harmful to the species, as it is an administrative exercise. However, leasing gives rights to explore, and if feasible, develop oil and gas on leased lands. Oil and gas exploration, development, production, and even the act of closing and abandoning nonproducing wells could be harmful to pallid sturgeon by physically disturbing floodplain or in-river attributes.

The BLM would require a number of protective measures as lease stipulations or COAs that would prevent these types of impacts from occurring by applying several NSOs, CSUs, and other BMP's. Additionally, oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. Surface occupancy (CSU stipulation) would require a plan to maintain pallid sturgeon habitat within 0.5 miles of

floodplains identified as pallid sturgeon habitat, which would include the entire Yellowstone and Missouri rivers. These protections would be further bolstered by the lease stipulation that require BLM to offer oil and gas leasing as an NSO on floodplains. These requirements would therefore remove oil and gas activity from floodplain/riverine habitat that may be used by pallid sturgeon and effectively buffer the major rivers used by pallid sturgeon for their entire life cycle.

Allowed oil and gas activities outside of floodplain and riverine habitats may still pose a hazard if pallid sturgeon were to be exposed to contaminants associated with oil and gas development and production. Exposure could result from releases of harmful contaminants that spread into drainages that flow into the Yellowstone or Missouri river drainages where pallid sturgeon would complete their entire life cycle. Several measures provided by guidance in the RMP Mitigation Measures and Conservation Actions Appendix would minimize or eliminate these hazards to pallid sturgeon. Methods for accomplishing this would be a requirement that pitless or aboveground closed-loop drilling technology is used, drilling mud and completion fluids would have to be recycled, and fluids, drilling mud, and cuttings would have to be disposed of in approved disposal areas (e.g., landfills). Where reserve pits would be used, the pits would have to be lined with an impermeable liner to prevent releases, plastic liners would be required to have a minimum 140 pounds per square inch burst strength, 30 pound tear strength, permeability less than 10–7 centimeters per second, and thickness greater than or equal to 12 mils (1/1000th of an inch), and be ultraviolet and chemical resistant. Reserve pits would not be allowed to be placed in fill material or natural watercourses and could not be cut or trenched. Pipelines would be tested for leaks prior to backfilling the trench and would be pre-cleaned prior to hydrostatic testing. These measures would either preclude the accumulation of contaminants at wells or well infrastructure or prevent movement of contaminants toward riverine habitats used by pallid sturgeon, thus eliminating or greatly reducing to possibility of exposure of the species to contaminants.

Wildland Fire and Fuels Management

Wildland fire management would pose a direct acute hazard to pallid sturgeon habitat if wildfire suppression chemicals were delivered, via aerial delivery, in pallid sturgeon spawning habitat or in specific locations in which pallid sturgeon adults or larvae were present. In the unlikely event that suppression efforts were required in close proximity to the rivers, wildland firefighting crews would be required to follow the most recent policy for delivery of wildland fire chemicals (retardant and foam) near waterways (*Policy for Aerial Delivery of Wildland Fire Chemicals near Waterways* and the *Guidelines for Aerial Delivery of Retardant or Foam near Waterways*) (USFS et al. 2009 and 2000) (see the *Fire Appendix* in the PRMP/FEIS). This policy requires a 300-foot buffer zone on all waterways .Following this policy and buffer would eliminate the potential of direct lethal effects to pallid sturgeon through direct application to waterways. These actions would also decrease potential indirect effects in which suppression chemicals, without a buffer, would flow into pallid sturgeon habitat through overland flow. In addition to this policy, no dipping would occur on pallid sturgeon habitat on the Missouri and the Yellowstone Rivers which would also include consultation with a BLM Resource Advisor and potentially USFWS if needed to minimize or prevent adverse effects to pallid sturgeon.

Livestock Grazing

Livestock grazing and management would potentially have indirect effects, albeit small relative to other threats, to pallid sturgeon habitat. Recruitment of large woody debris (e.g. snags) into Yellowstone and Missouri rivers is a habitat component that increases habitat complexity. Managing riparian and floodplain areas for recruitment of cottonwood trees and to allow snags to fall into the rivers would increase habitat complexity. Finally, managing livestock grazing along the Yellowstone and Missouri rivers to meet Rangeland Health Standards (BLM 1997) and PFC would result in no negative effects and managing for cottonwood growth would potentially have a net positive effect.

Cumulative Effects

There are approximately 230 adult pallid sturgeon remaining in the wild (MFWP 2012). With the continuing decline and fragmentation of suitable spawning and rearing habitat, pallid sturgeon continue to decline in the planning area.

The BLM administers few and scattered parcels on the Yellowstone and Missouri rivers. Development on these parcels and in drainages adjacent to these rivers has the potential to further imperil pallid sturgeon and their habitat. However, threats to pallid sturgeon largely occur outside BLM jurisdiction. Dams (both impoundments and irrigation) and reservoirs have dramatically altered the pallid sturgeon landscape. Their life history requirements have been severed; they can no longer travel up to hundreds of miles for spawning runs as there is a high probability of larvae floating into reservoirs and getting trapped in sediments.

Agencies that have the ability to alter the future of the pallid sturgeon are improving habitat, although it will take long-term commitment and region-wide dedication to make a difference. For instance, the Intake Diversion Dam on the Yellowstone River is being modified in an effort to allow pallid sturgeon and many other native fish to move upstream for the first time in 50 years. Agencies would need to mimic natural flow regimes and install devices, e.g. temperature control structure, that pump water from the various levels of the reservoir (warmer water) instead of water coming strictly from the bottom of the reservoirs (cold water) and would also need to mimic natural seasonal flows. This paradigm shift requires the management of flows for ecosystem alongside economic benefit.

Determination

As ongoing development continues, Montana Fish, Wildlife, and Parks (MFWP) and other agencies conduct required dedicated pallid sturgeon surveys, and survey and monitoring efforts designed to determine the status of other species are conducted within the planning area, the BLM cannot rule out the possibility that pallid sturgeon will be found to have reoccupied habitat previously thought to be unoccupied. The BLM is confident that if this does occur, protective measures in the RMP designed specifically to protect the pallid sturgeon and its habitat and other protective measures meant to protect other species are sufficient to prevent major impacts to pallid sturgeon or its habitat from occurring. The BLM has therefore determined that implementation of the PRMP/FEIS, as depicted in Alternative E**, may affect, but is not likely to adversely affect, the pallid sturgeon.**

INTERIOR LEAST TERN

Status of the Species

The interior least tern (interior least tern) (*Sterna antillarum)* is the smallest of member of the gull and tern family. They are approximately 9 inches in length. Unlike gulls, interior least terns will dive into the water for small fish. The body of the interior least terns is predominately gray and white, with black streaking on the head. Interior least terns have a forked tail and narrow pointed wings. Interior least terns less than a year old have less distinctive black streaking on the head and less of a forked tail. Interior least terns nest in small colonies in shallow holes scraped in an open sandy area, graveled patch, or exposed flat. The chicks leave the nest only a few days after hatching but the adults continue to care for them, leading them to shelter in nearby vegetation and bringing them food.

Interior least terns migrate through the planning area and nest in isolated areas along the Missouri (which includes the lower Yellowstone River), Mississippi, Ohio, Red, and Rio Grande river systems. In Montana, interior least terns nest along sparsely vegetated islands and occasionally shorelines along the eastern portion of Fort Peck Reservoir, and the Yellowstone and Missouri rivers. Their winter home is unknown, but probably includes coastal areas of Central and South America.

Reservoirs and other changes to river systems have eliminated most historic interior least tern habitat. The wide channels dotted with sandbars preferred by the interior least terns have been replaced by narrow forested river corridors. In addition, recreational activities on rivers and sandbars disturb the nesting interior least terns, causing them to abandon their nests.

On June 27, 1985, interior least terns were federally listed as endangered throughout its range under the ESA (50 Federal Register 21,784-21, 792). In the listing, five distinct breeding populations were identified; including one population associated with the Missouri River System.

Trends in the abundance of interior least terns in eastern Montana are sketchy at best. The Recovery Plan identified a population goal of 7,000 individuals nationally; 2,100 for the Missouri River system, including 50 birds in Montana. From 1998 through 2003, the goal of 50 birds was not met. Since 2003, population data in Montana is limited.

As a state, Montana supports one of the smallest populations of interior least terns and results from monitoring efforts over the past 19 years show that the state has met and/or exceeded its specific recovery goal of 50 adult birds. Although the Missouri River has yet to meet its goal of 2,100 birds, the current range-wide census, carried out during the 2005 breeding season, recorded an interior least tern population of 17,587. The peripheral nature of Montana relative to the overall breeding range of interior least terns, coupled with the small population of birds the state supports, make it difficult to ascertain how critical Montana's subpopulation is to overall population recovery (MFWP 2006).

Affected Environment

In Montana, interior least terns are known to nest along the graveled shorelines and islands associated with the Yellowstone River (generally below the mouth of the Tongue River), Missouri River below Fort Peck Reservoir, and Fort Peck Reservoir (MFWP and MNHP 2006). Of the 129,500 acres of interior least tern habitat mapped within the planning area, 1,373 acres (1 percent) are located on BLM-administered land. In addition to BLM surface, 7,420 minerals acres, including 5,778 oil and gas acres, are under BLM jurisdiction. Surveys have documented interior least tern nesting and brood-rearing areas on BLM-administered lands in the planning area.

Effects of the Action

The potential adverse effects of human activities on interior least terns from the implementation of the RMP for the MCFO include direct or indirect disturbance, injury, or mortality; disturbance, alteration of or loss of habitat; and actions that attract predators. In addition, some actions may result in benefits to interior least tern habitat (i.e., invasive species management).

General

Protective measures applied to all BLM authorizations would require that standards for water quality; properly functioning riparian areas; and habitat requirements for special status species (which includes the Interior Least Tern), wildlife, and fisheries were met or exceeded. With this overarching stipulation applied to all BLM-authorized activities, habitat for interior least terns in most instances will be maintained and in some instances could be improved.

The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. Surface-disturbing activities would avoid riparian and wetland areas. In addition, the operator shall design the project to avoid, minimize or mitigate impacts to interior least terns or their habitat.

In general a 0.25-mile buffer from interior least tern habitat would be applied to surface disturbance and disruptive activities which include avoidance within those habitats. Some surface-disturbing and disruptive activities are to be "avoided" which in itself does not preclude their authorization. BLM-authorized actions within 0.25 miles of interior least tern occupied habitat would be subjected to an NSO.

Wildland and Fire Management and Ecology

The majority of fuels management proposed would be expected in habitat types not considered suitable for interior least tern occupation. The likelihood of fuel treatment projects within interior least tern habitat is low. Fuels management practices may be utilized to benefit interior least tern by reducing woody and non-woody vegetation in or adjacent to suitable nesting habitat to improve habitat functionality.

Wildland Fire Management

Wildland fire would not be expected to occur within interior least tern nesting habitat, as nesting habitat includes graveled substrates not normally considered as potential fuels.

Invasive Species

Invasive species such as tamarisk (salt cedar), leafy spurge, and Russian olive could encroach upon otherwise suitable nesting habitat for interior least terns. The BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species lists. As identified in this RMP, special status species habitat is a priority for treatment. Timing restrictions would be imposed on any treatments as to not disturb nesting interior least terns.

Lands and Realty

ROWs granted for pipelines, power lines, communications lines and towers, road creation and vehicle access, and other activities, all have the potential to result in impacts to interior least tern by physically disturbing or destroying nests, causing nest abandonment, or resulting in mortality from collisions. Suitable nesting sites could be rendered unusable as well or may be avoided by interior least tern because of the presence of humans, vehicle traffic, and noise associated with these activities.

Electrical distribution lines and other surface-disturbing activities would avoid high avian use areas, such as wetlands. If unavoidable, anti-perching devices would be required to discourage perching in sensitive habitats to decrease predation on least terns and their nests, thus preventing mortalities.

Protective measures would be applied that would prevent impacts such as nest abandonment, egg loss, and death to the species from ROW actions. Surface-disturbing activities would be required to avoid riparian and wetland areas and a 300-foot buffer would be required, which would segregate impacts created by installation, operation, maintenance, and decommissioning and removal of facilities and infrastructure from interior least terns and their habitat.

Locatable Minerals

Locatable mineral development could be harmful to interior least tern by physically disturbing or destroying nests or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well or may be avoided by interior least terns because of the presence of humans, adjacent vehicle traffic, mining equipment, and noise associated with development activities.

Locatable mineral entry and mining would continue to be allowed on lands open to mineral location and would be administered through existing surface and mineral management regulations (43 CFR 3800 and 3809). These regulations require mining claimants or operators to submit a Notice of Intent for BLM review. If the operation will disturb threatened and endangered species or their habitat, or result in disturbance greater than 5 acres, the claimant or operator must prepare a Plan of Operation for BLM's review and approval. Terms and conditions will be applied to mining activities (within the constraints of the mining law) to meet land health standards for uplands, riparian areas and wetlands, water quality, air quality, and native plant and animal species (Appendix M.1).The low probability of locatable development occurring in least tern habitat and any protective measures

developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of this species as a result of this action.

Coal

Coal exploration, development, and reclamation could impact those species by physically disturbing or destroying nests, or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by piping plover because of the presence of humans, vehicle traffic, mining equipment, and noise associated with coal development activities. The combination of the protective measures available would separate coal development activities from least tern habitat and would eliminate the potential for take of least terns.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to the listed bird species through disturbance or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by least terns because of the presence of humans, vehicle traffic, mining equipment, and noise associated with development activities.
The areas closed to mineral material sales, in combination with the protective measures in place for least terns outside of closed areas, would segregate development activities from habitat, which would eliminate the potential of take of the listed species.

Oil and Gas Exploration, Production, and Development

Oil and gas leasing itself is not harmful to least tern habitat, as it is an administrative exercise. However, leasing gives use rights to oil and gas developers to explore for, and if feasible, to develop oil and gas on leased lands. Oil and gas exploration, development, production, and reclamation of nonproducing wells could be harmful to least terns by physically disturbing or destroying nests or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by least terns because of the presence of humans, vehicle traffic, and noise associated with oil and gas activity.

The BLM would require a number of protective measures as lease stipulations or COAs that would prevent these types of impacts from occurring by applying NSO stipulations, CSU stipulations, and other protective measures. Oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. An NSO stipulation would be applied within 0.25 miles of interior least tern occupied habitat. These protections would be further bolstered by an NSO stipulation on floodplains. These requirements would therefore remove oil and gas activity from floodplain or riverine habitat used by interior least terns and effectively buffer areas used for nesting by the species thus eliminating potential take of the listed species.

Renewable Energy

Wind energy projects could result in loss of least tern or habitat during the development phase, when construction equipment could destroy nests, or in the operational phase when wind turbines could strike least terns in flight or during migration. Protections to least tern habitats and others which overlap those habitats include NSO, CSU and other stipulations for riparian and wetland areas. These protective measures prevent take of least terns at wind energy projects and facilities by avoiding surface-disturbing activities in least tern habitat, and minimizing potential impacts in migratory habitats.

Recreation

Recreational activities such as fishing, hunting, rock collecting, wildlife photography, and boating are all considered casual use, which the BLM does not regulate. Some impacts from fishermen and rock collectors could result if islands were accessed and occupied during the time interior least terns are nesting. Permitted activities include special recreation permits, generally issued for hunting purposes, occurring outside of the time

period least terns occupy the planning area habitats. The entire Yellowstone and Missouri floodplains within the planning area are a part of the Lewis and Clark National Historic trail. As such, surface-disturbing and disruptive activities as described previously are limited, resulting in an additional level of protection for interior least terns and their habitat.

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to interior least tern habitat

Cumulative Effects

Cumulative effects include those of future state, tribal, local, or private actions that are reasonably certain to occur in the area. Most of the habitat adjacent to interior least tern nesting habitat are outside of BLM control. Effects from weather variability and fluctuating water levels may result in impacts to interior least tern occupation of historic nesting locations. Recreational use of the graveled islands and nesting habitat by the general public would also be expected and may also result in impacts to interior least terns that are beyond BLM's control.

Determination

The status of the interior least tern is expected to be maintained as a result of implementation of the RMP. Protective measures, BMPs, NSOs, and CSUs identified for those programs that are related to interior least terns and their habitat, prohibit surface-disturbing and disruptive activities within interior least tern habitat would minimize impacts to those species. In addition, consultation with the USFWS would occur pursuant to section 7(a) (2) of ESA at the project level as needed. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect, the interior least tern**.

PIPING PLOVER

Status of the species

The piping plover (*Charadrius melodus*) is a small, sand-colored, relatively stocky migratory shorebird. Piping plovers are one of six species of belted plovers, characterized by the presence of at least one breast band. Piping plovers have large dark eyes isolated on a pale face and bright orange legs. During breeding season, a black bar develops across the forehead, from eye to eye, and the breast marking forms a single black band, which is often incomplete.

Breeding adults most commonly nest on expansive sandy beaches from Newfoundland to South Carolina and along prairie rivers or alkali wetlands from central Canada to southern Nebraska (USFWS 1988, Haig 1992). Wintering grounds include the Atlantic and Gulf coasts of the southern United States, northeastern Mexico, and several islands in the Caribbean (Haig and Elliot-Smith 2004).

Today, the species is imperiled throughout much of its range (USFWS 1988, Haig 1992, Ferland and Haig 2002, Haig and Elliot-Smith 2004) due primarily to increased predation, habitat alteration, and human disturbance. In the interior United States, housing and recreational development of beach habitat in the Great Lakes region as well as alteration of natural river flow dynamics in the Northern Great Plains has had a major impact on the reproductive success of piping plovers. Channelization and impoundment of prairie rivers to meet navigation and flood control objectives has altered natural flood water regimes, leading to flooding of nests, concentration of predators, and a significant decline in habitat availability. In addition, wetland drainage, habitat alteration, and increased predation pressures, all a result of human disturbance, have reduced productivity at alkaline wetland sites.

In 1985, piping plovers were federally listed as threatened or endangered throughout its range under the ESA (USFWS 1985). In the listing, three distinct breeding populations were identified, and the Atlantic coast and Northern Great Plains populations were listed as threatened while the Great Lakes birds were considered endangered (Plissner and Haig 2000). In fact, this species is the only extant shorebird with all breeding populations listed under the ESA (USFWS 1985, Ferland and Haig 2002).

Affected Environment

In Montana, piping plovers *(Charadrius melodus)* are known to nest in the northern and northeastern portion of the state, specifically in Fort Peck Reservoir, Nelson Reservoir, occasionally in the Bowdoin National Wildlife Refuge, Alkali Lake, the Medicine Lake National Wildlife Refuge in Sheridan County, and the Missouri River below Fort Peck Dam (MFWP and MNHP 2006). Of the approximately 135,00 acres of piping plover habitat mapped within the planning area, approximately 730 acres are located on BLM-administered land. Surveys have documented one piping plover nesting and brood-rearing area within BLM-administered lands in the planning area. This area is 16 acres in Sheridan County in the extreme northeastern portion of the planning area.

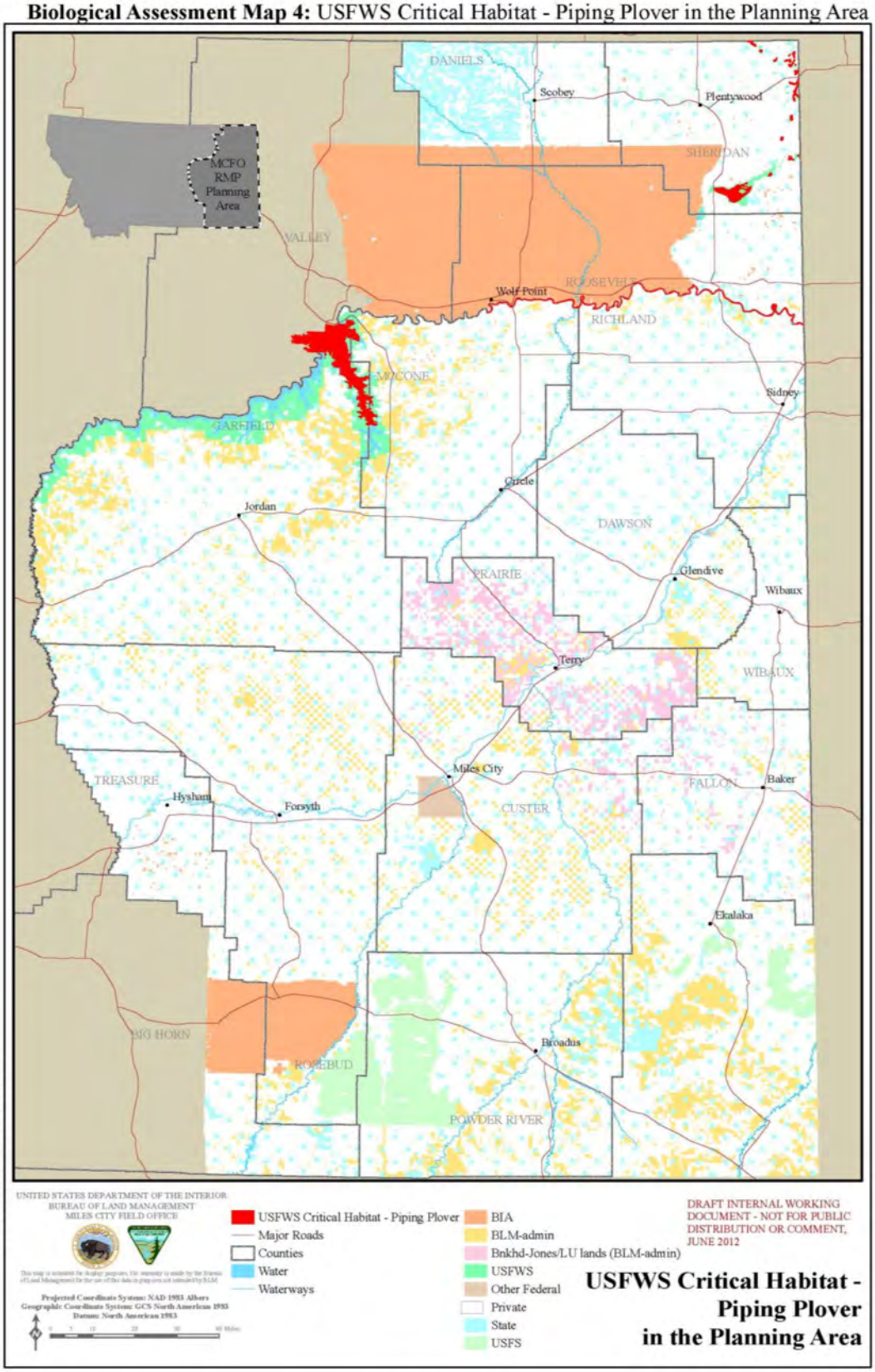
Trends in the abundance of piping plovers in eastern Montana are not available. However, plover numbers clearly fluctuate widely at the local scale, most likely as a result of changing water levels within the state, adjoining states, and Canada. Available habitat may increase or decline and, consequently, birds may not return to exactly the same locations between breeding seasons (Haig and Oring 1988b). Montana also represents the westernmost edge of the breeding range in the United States, which may affect the numbers of birds that ultimately reach the Missouri River, Fort Peck Reservoir, or alkali lakes region in any given year (Atkinson and Dood 2006).

In 2002, the USFWS designated critical habitat (92,532 acres in the planning area in four separate units) for the Northern Great Plains breeding population of piping plover (USFWS 2002a); approximately 0.5 percent (507 acres of BLM-administered surface) and 9 percent (8,042 BLM-administered mineral acres) of the total acreage of designated critical habitat occurs on BLM-administered lands. Within the planning area, there are three units of designated critical habitat (Map 4; see special management requirements for critical habitats on page 51):

Section 7 of ESA requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to destroy or adversely modify critical habitat. Three units of designated critical habitat exist within the planning area.

> Unit MT–1, Sheridan County
> This unit includes approximately 19,222.9 acres (7,779.4 ha) of 20 alkali lakes and wetlands in Sheridan County, located in the extreme northeast corner of Montana. These alkali lakes and wetlands are characterized as follows— shallow, seasonally to permanently flooded; mixosaline to hypersaline chemistry; sandy to gravelly, sparsely vegetated beaches, salt-encrusted mud flats, and/or gravelly salt flats; 200 feet (61 m) of uplands above the wetlands' high water mark including springs and fens, which provide foraging and protective habitat for piping plovers. Sites included in this unit are occupied by piping plovers. This unit requires special management including increasing reproductive success through predator exclusion devices, such as nest cages and electric fences, and reducing vegetation encroachment on nesting beaches through prescribed burning or grazing. Essential breeding habitat is dispersed throughout this unit which represents the largest portion (approximately 66

Biological Assessment Map 4: USFWS Critical Habitat - Piping Plover in the Planning Area



BIOLOGICAL ASSESSMENT MAP-4

percent) of the plovers surveyed in Montana. This unit also links similar habitat in Canada and North Dakota. Approximately 5,571 ac (2,254.5 ha) are in private ownership and 13,651.9 ac (5,524.8 ha) are in public ownership. Of the lands in public ownership, 13,356.8 ac (5,405.4 ha) are in Federal ownership and 295.1 ac (119.4 ha) are in State ownership. Federal lands designated include piping plover populations on Medicine Lake National Wildlife Refuge and several Waterfowl Production Areas, both owned and managed by the Service. State lands designated include land owned and managed by the Montana Department of Natural Resources and Conservation.

Unit MT–2, Missouri River
This unit encompasses approximately 125.4 mi (201.8 km) from just west of Wolf Point, McCone County, Montana, at RM 1712.0 downstream to the Montana/North Dakota border, Richland County, Montana, and McKenzie County, North Dakota, at RM 1586.6. The Missouri River in this unit flows through reservation land of the Assiniboine and Sioux Tribes of Fort Peck (81.7 mi (131.5 km)), State land, and privately owned land.

Unit MT–3, Fort Peck Reservoir
This unit encompasses approximately 77,370 ac (31,311 ha) of Fort Peck Reservoir, located entirely within the Charles M. Russell National Wildlife Refuge which is in Federal ownership, managed by the Service.

Effects of the Action

The adverse effects of human activities on piping plover that may result from the implementation of the RMP for MCFO include direct or indirect disturbance, injury, mortality, disturbance or loss of habitat, and actions that result in the attraction of predators. Some actions would improve habitat and result in beneficial impacts to piping plovers.

General

Protective measures applied to all BLM authorizations would require that standards for water quality; properly functioning riparian areas; and habitat requirements for special status species (which includes the piping plover), wildlife, and fisheries were met or exceeded. With this overarching stipulation applied to all BLM-authorized activities, habitat for piping plover in most instances will be maintained and in some instances could be improved.

The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. Surface-disturbing activities would avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations.

Operators proposing projects on BLM-administered lands will be required to review existing information on species and habitats and conduct surveys and identify federal protected species or habitat in proximity to the project area to identify potential concerns. In addition, the operator shall design the project to avoid, minimize or mitigate impacts to piping plover (and other federally protected species) or their habitat.

In general, a 0.25-mile buffer from piping plover occupied habitat would be applied to surface disturbance and disruptive activities. Some surface-disturbing and disruptive activities are to be "avoided" which in itself does not preclude their authorization.

Wildland and Fire Management and Ecology

Wildland fire would not be expected to occur within piping plover nesting habitat, as nesting habitat includes graveled substrates that are not normally considered as potential fuels. However, the current fire policy of direct

suppression includes delivery of wildfire fire chemicals (retardant and foam) near waterways, and the utilization of available water dip sites by aircraft where available. If these actions are located adjacent to piping plover nesting habitat, displacement of birds, or abandonment of nests sites is possible. The *Policy for Aerial Delivery of Wildland Fire Chemicals near waterways and the Guidelines for Aerial Delivery of Retardant or Foam near Waterways (USFS et al. 2009 and 2000)* (see the *Fire Appendix* in the PRMP/FEIS) will be utilized. Additionally, resource advisors will provide guidance to avoid dip sites within areas known or suspected as piping plover nesting habitat. Avoidance of activities such as dip sites near piping plover nesting habitat will ensure take of piping plovers does not occur.

Invasive Species

Invasive species such as tamarisk (salt-cedar), leafy spurge, and Russian olive could encroach upon otherwise suitable nesting habitat for piping plover. BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species list. As identified in this RMP, special status species habitat is a priority for treatment. Timing restrictions would be imposed on any treatments as to not disturb nesting piping plovers. Invasive species management outside of habitat occupation timeframes would be expected to result in improved habitat conditions for piping plovers.

Lands and Realty

ROWs granted for pipelines, power lines, communications lines and towers, road creation and vehicle access, and other activities, all have the potential to result in impacts to piping plover by physically disturbing or destroying nests, causing nest abandonment, or resulting in mortality from collisions. Suitable nesting sites could be rendered unusable as well or may be avoided by piping plover because of the presence of humans, vehicle traffic, and noise associated with these activities.

Protective measures would be applied that would prevent impacts to piping plovers from ROW actions. Surface-disturbing and disruptive activities in and within 0.25 miles of piping plover habitat will be avoided. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs will be avoided. The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. Surface-disturbing activities would be required to avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations. These protective measures would prevent take of piping plovers at ROW facilities and during project construction by avoiding surface-disturbing activities in piping plover habitat.
Locatable Minerals

The low probability of locatable development occurring in piping plover habitat and any protective measures developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of this species as a result of this action.

Coal

Coal exploration, development, and reclamation could impact those species by physically disturbing or destroying nests, or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by piping plover because of the presence of humans, vehicle traffic, mining equipment, and noise associated with coal development activities. The combination of the protective measures available would separate coal development activities from piping plover habitat and would eliminate the potential for take of piping plovers.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to the listed bird species through disturbance or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by piping plovers because of the presence of humans, vehicle traffic, mining equipment, and noise associated with development activities.

The areas closed to mineral material sales, in combination with the protective measures in place for piping plovers outside of closed areas, would segregate development activities from habitat, which would eliminate the potential of take of the listed species.

Oil and Gas Exploration, Production, and Development

Oil and gas leasing itself is not harmful to piping plover habitat, as it is an administrative exercise. However, leasing gives use rights to oil and gas developers to explore for, and if feasible, to develop oil and gas on leased lands. Oil and gas exploration, development, production, and reclamation of nonproducing wells could be harmful to piping plover by physically disturbing or destroying nests or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by piping plover because of the presence of humans, vehicle traffic, and noise associated with oil and gas activity.

Allowed oil and gas activities outside of floodplain, riverine, and wetland habitats may still pose a hazard if piping plover were to be exposed to contaminants associated with oil and gas development and production. Exposure could result from piping plover visiting wells sites and becoming entrapped in reserve pits or by releases of harmful contaminants that spread overland into piping plover nesting areas, which could destroy nests or kill adult and young birds.

Protections to piping plover habitats include a NSO (.25 miles of piping plover habitat), CSU and other stipulations for riparian and wetland areas. These requirements and protections for other species which overlap those habitats would therefore remove oil and gas activity from floodplain /riverine /wetland habitat that may be used by piping plovers and other listed species and effectively buffer areas used for nesting by the species.

The protections listed above would either preclude the accumulation of contaminants at wells or well infrastructure or prevent movement of contaminants toward downstream or riverine habitats used by piping plover, thus eliminating or greatly reducing to possibility of exposure of the species to contaminants and would also eliminate the potential for take of this species.

Renewable Energy

Wind energy projects could result in loss of piping plover or habitat during the development phase, when construction equipment could destroy nests, or in the operational phase when wind turbines could strike avian species including piping plovers in flight or during migration. Protections to piping plover habitats include NSO, CSU and other stipulations for riparian and wetland areas. These protective measures prevent take of piping plover at wind energy projects and facilities by avoiding surface-disturbing activities in piping plover habitat, and minimizing potential impacts in migratory habitats.

Recreation

Recreational activities such as fishing, hunting, rock collecting, wildlife photography, and boating are all considered casual use, which the BLM does not regulate. Some impacts from anglers and rock collectors could result if islands were accessed and occupied during the time piping plovers are nesting. Permitted activities include special recreation permits, generally issued for hunting purposes, occurring outside of the time least terns occupy the Planning Area habitats.

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).
Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to piping plover habitat.

Cumulative Effects

Cumulative effects include those of future state, tribal, local, or private actions that are reasonably certain to occur in the area. Effects from weather variability and fluctuating water levels may result in impacts to piping plover occupation of historic nesting locations. However, the long-term goals of the programs discussed are to maintain habitat quality where management actions are controlled by surface or subsurface ownership, which would benefit piping plovers.

Determination

The protective measures, BMPs, NSO stipulations, and CSU stipulations proposed are designed to segregate surface-disturbing or disruptive activities from occurring to piping plovers and suitable habitat and prevent take from occurring to piping plover. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect, the piping plover**.

Effects of the Action on Critical Habitat

The adverse effects of human activities on piping plover critical habitat that may result from the implementation of the RMP for MCFO include loss of or disturbance of habitat, actions which could improve habitat and potential increased predation rates as a result of those actions including effects to primary constituent elements such as the alkali lakes, wetlands, river channel sandbars and beaches. Although adverse effects on piping plover critical habitat could occur from the implementation of the RMP, the protective measures addressed below and in other sections (i.e. Oil and Gas Exploration, Production and Development) would negate effects to the species and its critical habitat.

Protective Measures

Protective measures would be applied that would prevent impacts to piping plover critical habitat. Oil and gas leasing would be offered with a No Surface Occupancy Stipulation which includes critical habitat for piping plover. Surface-disturbing and disruptive activities in and within 0.25 miles piping plover habitat will be allowed with specialized design features which maintain the functionality of piping plover habitat. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs will be avoided. Vegetated buffer zones would be established or maintained to protect riparian and wetland areas from activities outside of these areas. Surface-disturbing activities would be required to avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations in critical habitat.

The protective measures identified under the CFRs for locatable mineral entry and mining (43 CFR 3800 and 3809), and 43 CFR 3400 Ch. II (10-1-95 Edition) for coal development, as discussed previously, will also provide protection to critical habitat outlined in units 1-3.

Determination

The protective measures, BMPs, NSO stipulations, and CSU stipulations proposed and discussed for piping plover will be applied as necessary for actions proposed within the three units of critical habitat. Protective measures are designed to ensure actions occur outside of piping plover critical habitat. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect critical piping plover habitat**.

WHOOPING CRANE

Status of the Species

The adult whooping crane (*Grus Americana*), North America's tallest bird, has a white plumage with contrasting black wingtips visible only when wings are extended. Males weigh as much as 15 pounds, have a wingspan of 87 inches and a height of 52 inches, and are larger than females. A reddish-black patch of bristly feathers are visible on the top and back of head. The neck is long, as is the bill, which is dark and pointed. Juveniles are similar to adults but largely cinnamon-brown in color. White feathers begin to appear on the neck and back at about 4 months of age. Plumage is predominately white and adult-like by the following spring (descriptions compiled from Sibley 2000, Travsky and Beauvais 2004).

Whooping cranes occur exclusively in North America; however, it is suggested that numbers were never likely very common throughout their range. Prior to 1870, when European settlement began to have a significant impact on individuals and habitat, the population was estimated at 500 to 1400 birds (Allen 1952, Banks 1978, Lewis 1995). The historic breeding range stretched across Central America from central Alberta through southern Saskatchewan and Manitoba, northeastern North Dakota, western Minnesota, southern Wisconsin, northern Iowa, and northern Illinois (Travsky and Beauvais 2004). The Aransas/Wood Buffalo Population migrates through northeastern Alberta and southwestern Saskatchewan, northeastern Montana, the western half of North Dakota, central South Dakota, Nebraska and Oklahoma, and east-central Texas, a distance of roughly 2400 miles. This corridor accounts for 95 percent of confirmed sightings.

Great declines in population occurred in the second half to the 19th century, with the bird reported as extirpated from the United States portion of the historic breeding range by 1890 (Allen 1952, McNulty 1966). By the late 1930s, only two small breeding populations remained: a remnant non-migratory population in southwest Louisiana and a migratory population that nested in Canada and wintered in coastal Texas. Birds in the Louisiana population last nested in 1939. A hurricane the following year reduced that number from 13 to 6 individuals. The last member of this population was taken into captivity in 1950 (Travsky and Beauvais 2004).

Amid concerns with diminished populations and deteriorating habitat, in 1970 the whooping crane was designated as Endangered by the USFWS (CWS and USFWS 2007). This designation still remains for the Wood Buffalo/Aransas population. The Florida non-migratory population was designated "Endangered – experimental nonessential" in 1993, as was the Wisconsin-Florida migratory population in 2001. In 1997 the Rocky Mountain population was also designated as "Endangered – experimental nonessential"; however, this designation is no longer relevant since the population no longer exists.

Numerous sightings of whooping crane have been reported over the years; however, few were ever confirmed. In 1975, the USFWS initiated the Cooperative Whooping Crane Tracking Project. The CWS initiated a similar program in 1977. The intent was to compile information on the characteristics and locations of stopover sites and to protect migrating whooping cranes from disease and other potential hazards (CWS and USFWS 2007). This monitoring program is coordinated with reporting networks of wildlife agencies along the migration corridor. Whooping crane sightings compiled within the United States portion of the migration corridor by the

USFWS (1,352 confirmed sightings, 1943-99) was summarized by Austin and Richert (2001). In 2005, Wassenich created a map depicting the breeding areas, wintering areas, and primary migration pathway of the Aransas/Wood Buffalo Population. This map incorporates all confirmed sightings up until 1999 and delineates a 100- and 200-mile buffer, accounting for 82 and 95 percent of confirmed crane sightings.

Affected Environment

Portions of the planning area fall within the whooping cranes identified 200-mile wide migration corridor. This corridor accounts for 95 percent of the known whooping crane sightings within the Aransas/Wood Buffalo Population. Counties within Montana in which wild, non-experimental populations of whooping crane have been known to occur or is believed to occur includes the following: Custer, Daniels, Dawson, Fallon, McCone, Phillips, Prairie, Richland, Roosevelt, Sheridan, Valley, and Wibaux (Map 5). The majority of these sighting have been in Roosevelt and Sheridan counties, with the most recent sighting documented in the fall of 2011 in Sheridan County (C. Sullivan, USFWS, Personal Communication, August 2012). Whooping cranes typically migrate through Montana in the spring between mid-April and mid-May and in the fall between mid-September and the end of October.

Much of the whooping cranes habitat requirements revolve around a variety of wetland habitats. Breeding, migration, wintering, and foraging habitats include coastal marshes, estuaries, inland marshes, lakes, ponds, wet meadows, wetlands and rivers. However, in states and provinces, excluding Nebraska, whooping cranes primarily used shallow, seasonally and semi-permanently flooded palustrine wetlands for roosting, and various cropland and emergent wetlands for feeding (Johns et al. 1997, Austin and Richert 2001). Johns et al. (1997) reported areas characterized by a wetland mosaic appeared to provide the most suitable stopover habitat. Within the MCFO planning area, the greatest concentration of possible stopover habitat is within and adjacent to the Medicine Lake National Wildlife Refuge. This area provides a complex of wetland habitats, as well as interspersed small grains agricultural fields. Agricultural fields play a vital role during migration as the cranes may forage for weeks in particular fields with favorable forage conditions.

There are currently no consistently used migratory stopover locations in Montana. However, waterbodies that could be used for roosting or terrestrial habitats, which could be used for foraging within the 95 percent migratory pathway confidence interval should be considered potential migratory habitat (MNHP 2012).

Effects of the Action

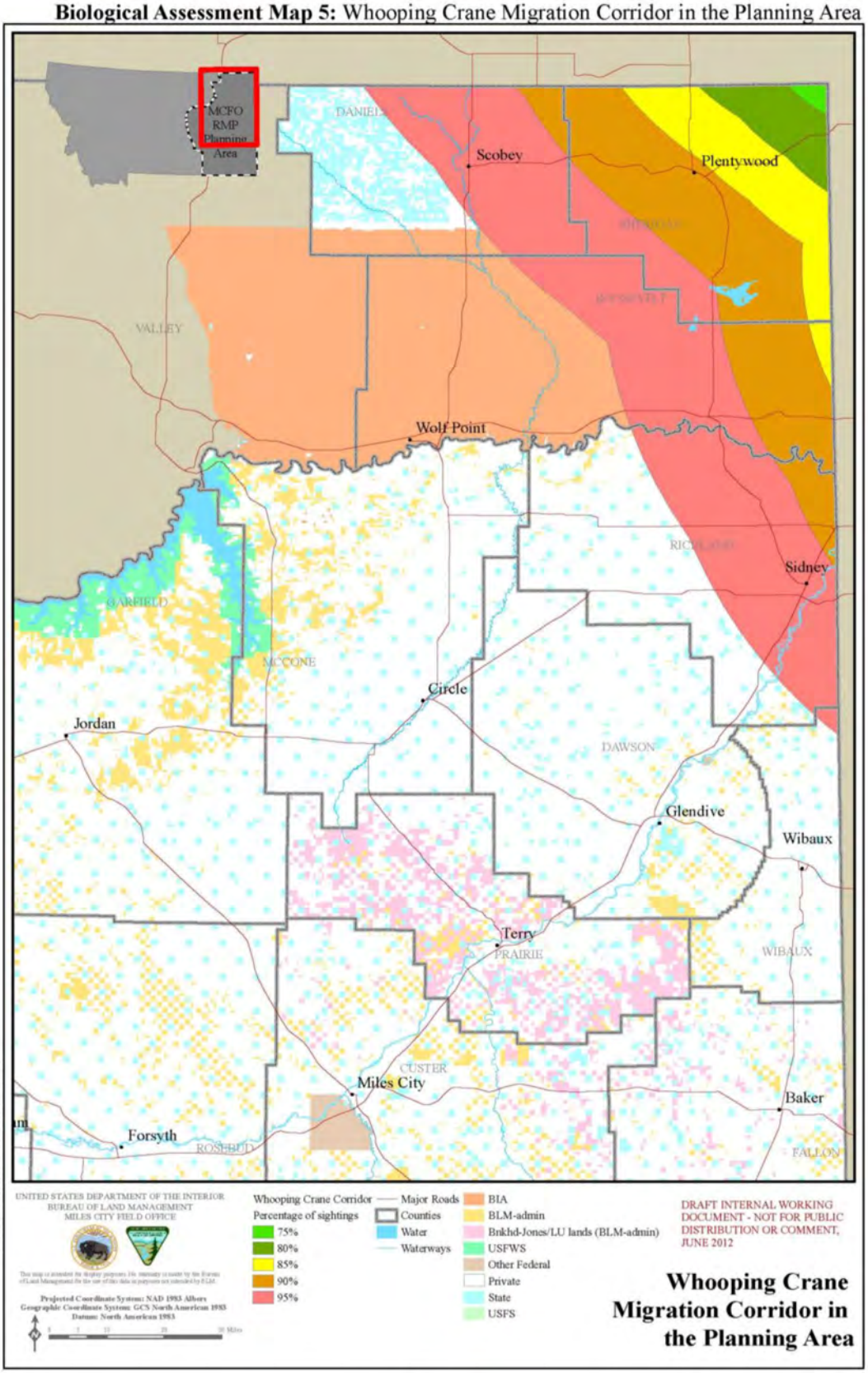
The adverse effects of human activities on whooping crane that may result from the implementation of the RMP include direct or indirect disturbance, injury, or mortality and disturbance or loss of habitat.

General

Protective measures applied to all BLM authorizations would require that standards for water quality, proper functioning riparian areas, and habitat requirements for special status species (which includes the Whooping Crane) are met or exceeded. This requirement to meet or exceed these standards will ensure the maintenance and continued availability of possible stopover sites on BLM-administered lands as whooping crane migrate though the planning area.

Vegetated buffer zones would be established or maintained to protect riparian and wetland areas from activities outside of these areas. Surface-disturbing activities would avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas.

Biological Assessment Map 5: Whooping Crane Migration Corridor in the Planning Area



BIOLOGICAL ASSESSMENT MAP-5

Operators proposing projects on BLM-administered lands will be required to review existing information on species and habitats and conduct surveys for and identify federal protected species or habitat in the vicinity of the project area to identify potential concerns. In addition, the operator shall design the project to avoid, minimize or mitigate impacts to whooping cranes (and other federally protected species) or their habitat. Additional protections will be afforded to whooping crane as a 0.25-mile buffer from interior least tern habitat would be applied to surface-disturbing and disruptive activities. Also, BLM-authorized actions within 0.25 miles of interior least tern and piping plover habitat would be subjected to a timing restriction in order to eliminate disturbance during the nesting and brood-rearing periods. These protection measures for interior least terns will indirectly benefit whooping crane as they sometimes use these areas as stopover habitat.

Lands and Realty

ROWs granted for pipelines, power lines, communications lines and towers, road creation and vehicle access, and other activities all have the potential to result in impacts to whooping cranes by physically disturbing or destroying suitable stopover sites. Additionally, the presence of humans, vehicle traffic, construction equipment, and noise associated with development activities could lead to the avoidance of otherwise suitable habitat. Aboveground infrastructure such as power poles, power lines, and towers can also lead to direct mortality as a result of collision.

Protective measures would be applied to prevent impacts to whooping cranes. Surface-disturbing and disruptive activities in and within 0.25 miles of interior least tern and piping plover habitat will be avoided. This measure would indirectly provide a level of protection for whooping cranes as their habitat use often overlaps. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs will be avoided. Vegetated buffer zones would be established or maintained to protect riparian and wetland areas from activities outside of these areas. Surface-disturbing activities would be required to avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in whooping crane habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term migratory whooping crane populations.

Requiring compliance with APLIC guidelines will reduce whooping crane strikes as APLIC guidelines provide guiding principles and examples to aid utilities in their development of infrastructure in an effort to reduce avian mortality.

The above-described protective measures will ensure that whooping crane stopover sites and the associated wetland mosaics will be maintained on BLM-administered lands. Additionally, protective measures and requirements associated with direct strikes on power poles, power lines, towers, and other associated utility infrastructure should eliminate the potential for take.

Locatable Minerals

The low probability of locatable development occurring in whooping crane habitat and any protective measures developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of this species as a result of this action.

Coal

Coal exploration, development, and reclamation could impact those species by physically disturbing or destroying nests, or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by piping plover because of the presence of humans, vehicle traffic, mining equipment, and noise associated with coal development activities. The above described protective measures and regulations will ensure that coal development is not occurring on BLM-administered lands in which suitable whooping crane stopover sites and associated wetland mosaics are located, which would eliminate the potential for take.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to Whooping Crane through disturbance. It may also be avoided by whooping cranes because of the presence of humans, vehicle traffic, mining equipment, and noise associated with development activities.

The areas closed to mineral material sales, in combination with the protective measures in place for piping plovers and least terns, which overlap with whooping crane habitats outside of closed areas, would segregate development activities from habitat, which would eliminate the potential of take of the listed species.

Oil and Gas Exploration, Production, and Development

Oil and gas leasing itself is not harmful to whooping crane habitat, as it is an administrative exercise. However, leasing gives use rights to oil and gas developers to explore for, and if feasible, to develop oil and gas on leased lands. Oil and gas exploration, development, production, and reclamation of nonproducing wells could be harmful to whooping cranes by physically disturbing or destroying nests or by causing nest abandonment. Suitable nesting sites could be rendered unusable as well, or may be avoided by whooping cranes because of the presence of humans, vehicle traffic, and noise associated with oil and gas activity.

Allowed oil and gas activities outside of floodplain, riverine, and wetland habitats may still pose a hazard if whooping cranes were to be exposed to contaminants associated with oil and gas development and production. Exposure could result from whooping cranes visiting wells sites and becoming entrapped in reserve pits or by releases of harmful contaminants that spread overland into potential foraging and roosting areas, which could cause habitat abandonment or kill adult and young birds.

Protections to least tern, piping plover and pallid sturgeon habitats include NSO, CSU and other stipulations for riparian and wetland areas. These requirements would therefore remove oil and gas activity from floodplain /riverine /wetland habitat that may be used by whooping cranes and other listed species and effectively buffer areas used for foraging or stop-over sites by the species.

As addressed above, these measures would either preclude the accumulation of contaminants at wells or well infrastructure or prevent movement of contaminants toward downstream or riverine habitats used by whooping cranes, thus eliminating or greatly reducing to possibility of exposure of the species to contaminants and would eliminate the potential of take of the listed species.

Renewable Energy

Wind energy projects could result in loss of whooping cranes or habitat during the development phase, when construction equipment could destroy roosting or foraging habitats, or in the operational phase when wind turbines could strike avian species including whooping cranes in flight or during migration. Protections to piping plover and least tern habitats include NSO, CSU and other stipulations for riparian and wetland areas which overlap with whooping crane habitats. These protective measures prevent take of whooping cranes at wind energy projects and facilities by avoiding surface-disturbing activities in whooping crane habitat, and minimizing potential impacts in migratory habitats.

Wildland Fire Management and Ecology

The majority of fuels management projects proposed which include mechanical treatments and prescribed fire would not be expected in potential or existing whooping crane stop-over habitats. Impacts to whooping crane are insignificant.

Wildland fire management activities primarily occur outside of potential whooping crane stop-over habitats (wetland or agricultural field areas) thus wildland fire management impacts to whooping crane are unlikely and discountable.

Invasive Species

Invasive species such as tamarisk (salt-cedar), leafy spurge, and Russian olive could encroach upon otherwise suitable stop-over habitats for whooping cranes. BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species list. As identified in the PRMP/FEIS, special status species habitat is a priority for treatment. Timing restrictions would be imposed on any treatments which may provide protections to whooping cranes depending on stop-over timeframes. Invasive species management would be expected to result in improved habitat conditions for whooping cranes. Invasive species impacts to whooping crane are unlikely and discountable.

Recreation

Recreational activities such as fishing, hunting, and boating are all considered casual use, which the BLM does not regulate. Permitted activities include special recreation permits and are issued for commercially guided hunting. Since fall migration of whooping cranes occurs in September and October, some impacts from hunters could affect whooping crane, but those impacts are extremely unlikely to occur.

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to whooping cranes.

Cumulative Effects

Cumulative effects include those of future state, tribal, local, or private actions that are reasonably certain to occur in the area. Most whooping crane habitat is outside of BLM control. Placement of oil and gas facilities, mineral material development and residential development, agricultural conversion, and altered wetland systems, all of which could impact the species, could and likely will occur. The increase in mineral development, especially oil and gas, is occurring in or adjacent to areas of suitable habitat for whooping crane. Infrastructure related to transporting and servicing the minerals industry is also increasing. An increase in utility infrastructure is anticipated as demands for energy distribution continues. Effects from those activities may result in reduced or degraded habitat availability, increased infrastructure collisions, and thus increased potential for mortality of whooping crane.

Determination

The status of the whooping crane is expected to be maintained as a result of implementation of the RMP. Protective measures, BMPs, NSO stipulations, and CSU stipulations identified for programs related to whooping cranes and their habitat and prohibiting surface-disturbing and disruptive activities within whooping crane habitat would minimize impacts to the species. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect, whooping cranes**.

RED KNOT

Status of the Species

The red knot was once the most numerous shorebirds in North America, but during the 1800s and early 1900s it was put under severe hunting pressure on its migratory route. The primary threat to the red knot is a decrease in the availability of horseshoe crab eggs, since horseshoe crabs are harvested primarily for use as bait and secondarily to support a biomedical industry (USDI, USFWS, 2010a, b). Other identified threat factors include habitat destruction due to beach erosion and various shoreline protection and stabilization projects, the inadequacy of existing regulatory mechanisms, human disturbance, and competition with other species for limited food resources.

The red knot is a medium sized, bulky sandpiper. It is a relatively short bird, with short legs. The head and breast are reddish in breeding plumage and grey the rest of the year. Outside of breeding season, it is found primarily in intertidal, marine habitats, especially near coastal inlets, estuaries, and bays. The red knot breeds in drier tundra areas, such as sparsely vegetated hillsides. The red knot typically feeds on invertebrates, especially bivalves, small snails, and crustaceans. During breeding season, the red knot also eats terrestrial invertebrates (Harrington, 2001). The Delaware Bay stopover is the final and most crucial spring stopover during the northern migration. This is because the birds feed on the eggs of spawning horseshoe crabs in preparation for their nonstop leg to the Arctic. The birds rest and feed in the Delaware Bay between late April and early June with the population peaking May 15th through 30th (Baker et al., 2004).

Affected Environment

The red knot was listed as a Candidate Species in 2006. The USFWS determined on 30 September 2013 that the Red Knot's status was Proposed Threatened and is now listed as Threatened (January, 2015). The red knot has been observed rarely during migration in at Medicine Lake National Wildlife Refuge, Goose Lake Waterfowl Production Area, and Round Lake, all located in the extreme northeastern corner of Montana. Other limited observations also occur near Fort Peck Lake and Rosebud County. The most recent observation was in 2009 at Round Lake, Sheridan County, Montana. Very few observations occur and no nesting or breeding occurs in the Miles City Field Office Planning Area.

Effects of the Action

The adverse effects from human activities would include direct or indirect disturbance to habitat, injury, or mortality; and actions that result in the attraction of predators. Some actions would improve habitat and result in beneficial impacts to red knot. Those programs identified with the potential to cause these types of impacts include Wildland and Fire Management and Ecology, Minerals (Coal, Oil and gas exploration, development, and production; Locatable Minerals; Mineral Materials; and Renewable Energy), Lands and Realty, and Invasive Species management. This section includes a description of how each of these activities can affect the red knot.

Invasive Species

Invasive species such as tamarisk (salt-cedar), leafy spurge, and Russian olive could encroach upon otherwise suitable nesting or stop-over habitat for red knot. BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species list. As identified in this RMP, special status species (including Red Knot) habitat is a priority for treatment. Timing restrictions would be imposed on any treatments as to not disturb potential migratory red knot. Invasive species management outside of habitat occupation timeframes (limited observation data indicates May-July) would be expected to result in improved habitat conditions for red knot.

Lands and Realty

Protective measures would be applied that would prevent impacts to red knots from ROW actions. Surface-disturbing and disruptive activities in and within 0.25 miles of interior least tern and piping plover habitat will be allowed with design features to maintain functionality of the subject habitats, which would also protect red knots in areas in which both species habitat overlaps. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs will be avoided. The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas will occur. Surface-disturbing activities would be required to avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations. These protective measures would prevent take of red knots at ROW facilities and during project construction by avoiding surface-disturbing activities in red knot habitat.

Locatable Minerals

The low probability of locatable development occurring in red knot habitat and any protective measures developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of this species as a result of this action.

Coal

Coal exploration, development, and reclamation could impact those species by physically disturbing or causing habitat loss for those species. Stop-over sites could be rendered unusable as well, or may be avoided by red knot because of the presence of humans, vehicle traffic, mining equipment, and noise associated with coal development activities. The combination of the protective measures available would separate coal development activities from red knot habitat and would eliminate the potential for take of the red knot.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to the listed bird species through disturbance. The area also may be avoided by red knot because of the presence of humans, vehicle traffic, mining equipment, and noise associated with development activities.

The areas closed to mineral material sales, in combination with the protective measures in place for piping plovers and least terns, which could overlap with red knot stop-over habitats outside of closed areas, would segregate development activities from habitat, which would eliminate the potential of take of the listed species.

Oil and Gas Exploration, Production, and Development

Leasing gives use rights to oil and gas developers to explore for, and if feasible, to develop oil and gas on leased lands. Oil and gas exploration, development, production, and reclamation of nonproducing wells could be harmful to red knots by physical disturbances.

The BLM would require a number of protective measures as lease stipulations or COAs that would prevent these types of impacts from occurring by applying NSO stipulations, CSU stipulations, and other protective measures. Oil and gas leasing would be offered with a CSU stipulation within 300 feet of riparian and wetland areas. These protections would be further bolstered by an NSO stipulation on floodplains. These requirements would therefore remove oil and gas activity from habitat used by red knots. Additionally, NSO and CSU protections for least tern, piping plover and pallid sturgeon habitats would also remove oil and gas activity from

floodplain /riverine /wetland habitat that may be used by the red knot and effectively buffer areas used for stop-over sites by the species.

Renewable Energy

Wind energy projects could result in loss of red knot or habitat during the development phase, when construction equipment could destroy roosting or foraging habitats, or in the operational phase when wind turbines could strike avian species including red knot in flight or during migration. Protections to piping plover and least tern habitats include NSO, CSU and other stipulations for riparian and wetland areas. These protective measures prevent take of red knot at wind energy projects and facilities by avoiding surface-disturbing activities in red knot habitat, and minimizing potential impacts in migratory habitats.

Wildland Fire Management

Wildland fire would not be expected to occur within red knot habitat, as limited observations include areas which are primarily wetland/lake habitats and not normally considered as potential fuels. However, the current fire policy of direct suppression includes delivery of wildfire fire chemicals (retardant and foam) near waterways, and the utilization of available water dip sites by aircraft where available. If these actions are located adjacent to red knot stop-over habitat, displacement of birds, or abandonment of those habitats is possible. The *Policy for Aerial Delivery of Wildland Fire Chemicals near waterways and the Guidelines for Aerial Delivery of Retardant or Foam near Waterways (USFS et al. 2009 and 2000)* (see the *Fire Appendix* in the PRMP/FEIS) will be utilized. Additionally, resource advisors will provide guidance to avoid dip sites within areas known or suspected red knot migratory habitats. Avoidance of activities such as dip sites near potential stop-over habitat for red knot will ensure take of red knot does not occur. Wildland fire management impacts, primarily suppression efforts, to red knot are unlikely and discountable as the probability of occurrence of wildland fires is extremely low.

Recreation

Recreational activities such as fishing, hunting, and boating are all considered casual use, which the BLM does not regulate. Permitted activities include special recreation permits and are issued for commercially guided fishing purposes that involve utilizing BLM lands for commercial use. Camping is also common within red knot stop-over habitats. Recreation impacts to red knot are unlikely and discountable.

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota (Appendix H), will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to red knots.

Cumulative Effects

Cumulative effects include those of future state, tribal, local, or private actions that are reasonably certain to occur in the area. The increase in mineral development, especially oil and gas, could occur in or adjacent to areas of suitable habitat for Red knot. However, the long-term goals of the programs discussed are to maintain

habitat quality where management actions are controlled by surface or subsurface ownership, which would benefit the red knot.

Determination

The protective measures, BMPs, NSO stipulations, and CSU stipulations proposed are designed to segregate surface-disturbing or disruptive activities from occurring to the red knot and suitable habitat and prevent take from occurring to the red knot. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect, the red knot**.

NORTHERN MYOTIS

Status of the Species

Northern Myotis (northern long-eared bat (NLEB)) has relatively long ears (14-19 mm) extending < 5mm beyond the nose when pushed forward, a long pointed tragus, forearm length 34-38 mm, hind foot length 8-10 mm and tail length 35-42 mm; the calcar lacks a prominent keel (but a slight keel may be present), and the fringe of the tail is hairless or with only a few sparse hairs. Pelage and membranes are brown and usually the same color. Females are generally larger and heavier than males. Dental formula is I 2/3, C 1/1, P 3/3, M 3/3 (Nagorsen and Brigham 1993, Caceres and Barclay 2000, Adams 2003).

Northern Myotis was formerly considered a subspecies of Keen's Myotis (Myotis keenii). Northern Myotis can be distinguished in the hand from Myotis lucifugus by the longer ears (extending well beyond the snout when pushed forward) and tragus and relatively longer tail; pelage color is similar, but less glossy than in Myotis lucifugus. Characteristic frequency of call is slightly higher than for Myotis lucifugus (41-45 kHz vs. 37-43 kHz) and high frequency calls may reach to 120 kHz. Myotis evotis has darker membranes and paler pelage, and the ears are longer; characteristic frequency of calls is lower (33-38 kHz) than for Northern Myotis.

No seasonal use data exists for the Northern Myotis in Montana. During the summer, these bats emerge shortly after sunset to forage. Their activity is bimodal, peaking 1 to 2 hours and 7 to 8 hours after sunset. They are less gregarious than M. lucifugus or other Myotis species. They tend to be solitary or found in smaller clusters than other Myotis species; one of the largest hibernating clusters was of 300 individuals mixed with about 1000 Myotis lucifugus. It also may be overlooked in hibernacula as it tends to occupy deep and narrow crevices. Longevity record is 18.5 years. Predators of Northern Myotis have not been reported (Caceres and Barclay 2000).

With regards to reproductive characteristics, no information exists for Montana. Elsewhere within the range, copulation occurs at hibernacula from late July to October (Caceres and Barclay 2000). Parturition in Montana may occur in late June or July; lactating females reported from late July through August in the Black Hills, South Dakota (Clark and Stromberg 1987).

Although no management measures have been enacted specifically for the protection of Northern Myotis in Montana, NLEB Interim Conference and Planning Guidance for USFWS Regions 2,3,4,5 and 6 (January 6, 2014) has been developed which provides interim conference and planning guidance. Protection of bat winter roosting habitat (abandoned mines and caves) with gating should be beneficial to this species. Protection guidelines and management protocols designated for Townsend's Big-eared Bat, Corynorhinus townsendii (Pierson et al. 1999) are also appropriate for Northern Myotis, especially during winter, and can be used as a default protocol. Little information is available on the Northern Myotis in Montana, including its distribution and relative abundance. Standardized surveys of potential roosts and foraging habitats are the first step to identifying the spatial and temporal context in which this species is present in the state. This basic information will make it easier to design and implement appropriate and effective conservation guidelines for the protection of important habitats and roosts.

Affected Environment

The NLEB (Myotis septentrionalis) was proposed for listing as endangered and is now listed as Threatened (April, 2015). It is included on the January of 2015 USFWS county list of species where one would reasonably expect the species to occur, but not necessarily every county where the species is listed. Counties included in within the MCFO Field Office boundaries are Carter, Custer, Dawson, Fallon, Powder River, Prairie, Richland, Roosevelt and Wibaux. In Montana, a single Northern Myotis individual was located (single observation) hibernating in an abandoned mine in river breaks habitat in Richland County (Swenson and Shanks 1979)

This species is widely distributed in the eastern United States and Canada, but is uncommon at the western extremes of its current reported range (Caceres and Barclay 2000, Adams 2003). Despite limited conifer forest cover necessary to support *M. septentrionalis* along the eastern border of Montana, the range map for the *M. septentrionalis* mammalian species account (Caceres and Barclay 2000) and range maps and historic ranges listed by the U.S. Fish and Wildlife Service in proposed listing documents (Federal Register 78(191):61046-61080, Federal Register 80(11):2371-2378) all show the eastern edge of Montana within the range of *M. septentrionalis* (Figures 1 and 2). This is apparently the result of a single specimen collected in an abandoned coal mine (since reclaimed) near Culbertson in Richland County on 12 January 1978 (Swenson and Shanks 1979) (Figure 2). The fact that *M. septentrionalis* has not been reported again in eastern Montana despite large numbers of mist net and acoustic surveys in what would seem to be the only suitable forest habitats available (Figures 3 and 4) is interesting. This may indicate that the species is absent from the region or that previous mist net and acoustic survey efforts were focused on the wrong microhabitats to detect the species. Regardless, because the 1978 Richland County record (Swenson and Shanks 1979) has been important in delineating continental range maps for the species despite a lack of other evidence for the species in eastern Montana and western North Dakota, genetic confirmation of the Richland County specimen and focal mist netting and acoustic surveys coupled with follow up genetic analysis is needed in the region (B. Maxell, Montana Natural Heritage Program, March 2015).

NLEB (Myotis septentrionalis) prefers cooler hibernacula than Myotis lucifugus and selects narrow crevices in which to hibernate. The closest known site documented as being used for winter hibernacula by this species in near Sturgis, South Dakota (Riparian Surveys in Eastern Montana, Montana Natural Heritage Program, April, 2006. The surface geology within the region consists predominantly of soft sandstones of the Fort Union Formation which are moderately to poorly cemented (crumbly and incompetent). Therefore the potential for caves, especially those with micro-climates required (cool temperatures/high humidity) within the vicinity of the planning area are extremely low. The few known cave structures within the area are shallow in nature and typically result from inter-beds of limestone which create rock overhangs that are typically 10 to 20 feet deep. These structures do not sufficiently isolate the locations from the exterior climate to create a cave climate typified by moisture etc. The nearest areas of known caves are in the little Rockies, Pryor Mountains and the Black Hills, The cave hills of South Dakota are not true caves but rather cave like cracks in the rocks that do not support the cave type micro-climate. With regards to man-made cave structures, these are very uncommon in vicinity of the planning area as they are typically associated with hard rock mining and vein structures of gold/silver or other metal ore which do not occur within the planning area. The few admits that do exist are coal mine test digs, these are typically shallow (less than 30 feet deep) and only went into the ground far enough to establish the coal seam quality. These are uncommon in the planning area as there are no known mine-able coal seams in the area (Personal communication, 1/2015; Nate Arave, Solid Minerals Geologist, BLM, MCFO).

With regards to roost sites, NLEB are not shown to have high sight fidelity to a particular roost site, but rather, are opportunistic in their selection. Summer day roosts are often in barns, cabins, and in cavities or crevices behind peeling bark in trees, usually in tall, wide-diameter and partially dead hardwoods (Caceres and Barclay 2000). Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1000 feet of other forested/wooded habitat (NLEB Interim Conference and Planning Guidance for USFWS Regions 2,3,4,5 and 6 (January 6, 2014) .

NLEBs migrate between their winter hibernacula and summer habitat, and although distances vary greatly, it is not known to be a long-distance migrant. Distances have been documented between 56-89 kilometers (35-55 miles; Nagorsen and Brigham, 1993). Other species accounts indicate that the subject species may travel up to

56 km between summer and winter roosts (hibernacula). [16] Caceres, M.C. and R.M.R. Barclay. 2000. *Myotis septentrionalis*. Mammalian Species Account 634:1-4.)

No food habits information is available from Montana. Range-wide, Northern Myotis feed on a variety of insects, oftentimes gleaning insects from foliage and sometimes from the ground (Caceres and Barclay 2000).

Effects of the Action

The adverse effects of human activities on NLEB that may result from the implementation of the RMP for MCFO include direct or indirect disturbance, injury, or mortality; disturbance or loss of habitat; and actions that result in the attraction of predators. Some actions would improve habitat and result in beneficial impacts to NLEB.

Invasive Species

Invasive species such as tamarisk (salt-cedar), leafy spurge, and Russian olive could encroach upon otherwise suitable roosting or summer habitat for NLEB. BLM would utilize Integrated Weed/Pest Management and work within federal guidelines, laws, statutes, plans and regulations to manage infestations of invasive species on the BLM, Montana, and local invasive species list. As identified in the PRMP/FEIS, special status species habitat is a priority for treatment. Invasive species management outside of habitat occupation timeframes (4/1-10/1) would be expected to result in improved habitat conditions for NLEB.

Locatable Minerals

The low probability of locatable development occurring in NLEB habitat and any protective measures developed to prohibit "Unnecessary or Undue" degradation would eliminate the potential for take of this species as a result of this action.

Coal

The potential for coal development in or adjacent to NLEB habitat is low.

The 43 CFR 3400 Ch. II (10-1-95 Edition) provides regulations that offer protections for NLEB and habitat as "unsuitable" for coal development. One or more of the following criterion from the CFRs may apply as protective measures for the NLEB and potential summer habitats:

- *Criterion Number 16:* Federal lands in riverine, coastal, and special floodplains (100 year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.
- *Criterion Number 18:* Federal lands with Natural Resource Waters, as identified by states in their water quality management plans, and a buffer zone of federal lands ¼ mile from the outer edge of the far banks of the water, shall be unsuitable for development.

In addition, coal leasing and development is not authorized within alluvial valley floors, which are determined by the Office of Surface Mining. The alluvial valley floor delineations would protect NLEB habitat where they overlap. Coordination with the MDEQ and USFWS may also result in additional protective measures that would prevent impacts to NLEB from coal development to ensure that surface-disturbing and disruptive activities in NLEB habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term NLEB populations. The combination of the protective measures available would separate coal development activities from NLEB potential habitat and would eliminate the potential for take of NLEB if listed as threatened or endangered.

Lands and Realty

Protective measures would be applied that would prevent impacts to NLEB from ROW actions. Surface-disturbing and disruptive activities in and within 0.25 miles of interior least tern and piping plover habitat will be allowed with design features to maintain functionality of the subject habitats, which would also protect NLEB in areas in which both species habitat overlaps. Surface-disturbing activities that impacted or did not benefit the functionality of perennial or intermittent streams, lakes, ponds, or reservoirs would be avoided. The establishment or maintenance of vegetated buffer zones to protect riparian and wetland areas from activities outside of these areas would occur. Surface-disturbing activities would be required to avoid riparian and wetland areas and within 300 feet of the boundary of riparian and wetland areas. In addition, surface-disturbing and disruptive activities in piping plover habitat would only be allowed if the habitat were maintained at a level capable of supporting long-term piping plover populations. These protective measures would prevent take of NLEB (if listed as threatened or endangered) at ROW facilities and during project construction by avoiding surface-disturbing activities in NLEB habitat.

Mineral Materials

In areas adjacent to the Lewis and Clark Historic Trail (Yellowstone and Missouri River Corridors), mineral material development could be harmful to the listed NLEB through disturbance or by abandonment of suitable roosting or summer habitat, because of the presence of humans, vehicle traffic, mining equipment, and noise associated with development activities. Mitigation measures such as timing restrictions, removal of potential roosting or summer habitat outside of the appropriate time-frames, surveys and/or other mitigation measures or conditions of approval would eliminate potential take to the listed species.

Oil and Gas Exploration, Production, and Development

Oil and gas leasing itself is not harmful to NLEB habitat, as it is an administrative exercise. However, leasing gives use rights to oil and gas developers to explore for, and if feasible, to develop oil and gas on leased lands. Oil and gas exploration, development, production, and reclamation of nonproducing wells could be harmful to NLEB by causing summer foraging or roosting habitat abandonment because of the presence of humans, vehicle traffic, and noise associated with oil and gas activity.

Protections to least tern, piping plover and pallid sturgeon habitats include NSO, CSU and other stipulations for riparian and wetland areas. These requirements would therefore remove oil and gas activity from floodplain /riverine /wetland habitat that may be used by the NLEB and other listed species and effectively buffer areas used for summer foraging and/or roosting by the species.

Allowed oil and gas activities outside of floodplain, riverine, and wetland habitats may still pose a hazard if NLEB were to be exposed to contaminants associated with oil and gas development and production. Exposure could result from NLEB visiting wells sites and becoming entrapped in reserve pits or by releases of harmful contaminants that spread overland into potential foraging and roosting areas, which could cause habitat abandonment or kill adult and young bats.

These measures would either preclude the accumulation of contaminants at wells or well infrastructure or prevent movement of contaminants toward downstream or riverine habitats used by NLEB, thus eliminating or greatly reducing to possibility of exposure of the species to contaminants and would eliminate take for this species.

Renewable Energy

Wind energy projects could result in loss of NLEB or habitat during the development phase, when construction equipment could destroy summer roosting or foraging habitats, or in the operational phase when wind turbines could strike NLEB in flight or during migration. Protections to piping plover and least tern habitats include NSO, CSU and other stipulations for riparian and wetland areas which include potential summer roost and foraging habitats for NLEB. These protective measures prevent take of NLEB at wind energy projects and

facilities by avoiding surface-disturbing activities in NLEB habitat, and minimizing potential impacts in migratory habitats.

Wildland Fire Management

Although wildland fire management impacts to NLEB are unlikely, wildland fires could cause potential loss of summer roost habitats. Wildland fire management impacts, primarily suppression efforts, to NLEB are unlikely and discountable.

Recreation

Recreational activities such as fishing, hunting, and boating are all considered casual use, which the BLM does not regulate. Permitted activities include special recreation permits and are issued for commercially guided fishing purposes that involve utilizing BLM lands for commercial use. Camping is also common within potential NLEB summer habitats. Recreation impacts to NLEB are unlikely and discountable.

Livestock Grazing

Livestock grazing actions will be consistent with achieving or maintaining the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota (Appendix H), will continue to be incorporated into livestock grazing permits and leases, and will apply to all livestock grazing activities.

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

Guideline #13: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Livestock grazing and management will have no adverse effects to NLEB.

Cumulative Effects

Cumulative effects include those of future state, tribal, local, or private actions that are reasonably certain to occur in the area. The increase in mineral development, especially oil and gas, is expected to occur in or adjacent to areas of suitable habitat for NLEB. Infrastructure related to transporting and servicing the minerals industry is also expected to increase. Effects from those activities may result in reduced habitat availability, and the increased potential for mortality of the NLEB. However, the long-term goals of the programs discussed are to maintain habitat quality where management actions are controlled by surface or subsurface ownership, which would benefit the NLEB.

Determination

The protective measures, BMPs, NSO stipulations, and CSU stipulations proposed are designed to segregate surface-disturbing or disruptive activities from occurring to the NLEB and suitable habitat and prevent take from occurring to the NLEB if listed as threatened or endangered. The BLM has therefore determined that implementation of the Miles City PRMP/FEIS Alternative E **may affect, but is not likely to adversely affect, the NLEB**.

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United States Department of the Interior

Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
Phone: (406) 449-5225; Fax: (406) 449-5339

File: M.02 BLM

July 10, 2015

Memorandum

To: Todd Yeager, Field Manager, Bureau of Land Management, Miles City Field Office, Miles City, Montana

From: *for* Jodi L. Bush, Field Supervisor, U.S. Fish and Wildlife Service, Montana Field Office, Helena, Montana

Subject: Miles City Field Office Resource Management Plan and Environmental Impact Statement Biological Assessment Concurrence

This is in response to your July 10, 2015, Biological Assessment (BA) prepared relative to "Alternative E" as presented in the Miles City Field Office Resource Management Plan (RMP) and Environmental Impact Statement (EIS). On July 10, 2015 we received the final BA and your request for U.S. Fish and Wildlife Service (Service) concurrence with the determinations of effect presented therein. This response is provided by the Service under the authority of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543), the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), and the Migratory Bird Treaty Act (16 U.S.C. 703-712), as amended.

The BA and RMP/EIS describe and analyze proposed management for public lands and resources in the planning area. The RMP/EIS addresses how the Bureau of Land Management (BLM) will administer public land and federal minerals within the planning area in Carter, Custer, Daniels, Dawson, Fallon, Garfield, McCone, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Treasure, and Wibaux counties and portions of Big Horn and Valley counties in Montana. The RMP/EIS provides goals, objectives, land use allocations, and management direction to maintain, improve, or enhance resource conditions and to provide for long-term benefits to the public.

Upon request from the BLM, on March 23, 2015, the Service determined that the endangered black-footed ferret, whooping crane, least tern, and pallid sturgeon; threatened piping plover (with critical habitat) and red knot; proposed endangered northern long-eared bat (subsequently listed as threatened on April 2, 2015 with an effective date of May 4, 2015); and candidate greater sage-grouse and Sprague's pipit may be present in the Miles City Field Office RMP planning area. You determined in the BA that implementation of Alternative E and proposed conservation measures as described in the RMP/EIS may affect, but is not likely to adversely affect any of the aforementioned listed endangered and threatened species or critical habitat. You elected not to provide determinations of effect for candidate species in the BA.

We concur with your "may affect, not likely to adversely affect" determinations for the black-footed ferret, whooping crane, least tern, pallid sturgeon, red knot, northern long-eared bat, piping plover, and piping plover critical habitat presented in the BA. This concurrence is based upon the action scope and location, implementation of proposed conservation measures listed and/or referenced in the BA, the fact that site-specific evaluations will be conducted for individual activities authorized under the Miles City Field Office RMP at the time they are proposed, and consultation or conference would occur with the Service for such activities that may affect listed and proposed threatened and endangered species, as well as candidate species.

This concludes informal consultation on this proposed action pursuant to regulations in 50 CFR 402.13 implementing the Endangered Species Act of 1973, as amended. This action should be re-analyzed if new information reveals effects that may affect threatened, endangered or proposed species, if the project is modified in a manner that causes an effect not considered in this consultation, or if the conservation measures stated or referenced in the July 10, 2015 BA will not be implemented.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your resource management planning. If you have questions or comments related to this issue, please contact Jeff Berglund at (406) 449-5225, extension 206.