Land and Resource Management Plan
for the
THUNDER BASIN NATIONAL GRASSLAND
Medicine Bow-Routt National Forest
Rocky Mountain Region
2001

Lead Agency

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This proposed Land and Resource Management Plan (Management Plan) was prepared according to the Secretary of Agriculture regulations (36 CFR 219), which are based on the Forest and Rangeland Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act of 1976 (NFMA). This Management Plan also was developed in accordance with regulations (40 CFR 1500) for implementing the National Environmental Policy Act of 1969 (NEPA). Because this Management Plan is considered a major federal action significantly affecting the quality of the human environment, a detailed Draft Environmental Impact Statement (DEIS) has been prepared as required by NEPA and 36 CFR 219.

If any particular provision of the Management Plan, or the application thereof to any person or circumstances, is found to be invalid, the remainder of the Management Plan and the application of that provision to other persons or circumstances shall not be affected.

PREFACE

Understanding the Revised Land and Resource Management Plan for Thunder Basin National Grassland (Medicine Bow-Routt National Forest)

Alternatives were formulated according to the NFMA and NEPA. An extensive analysis of the alternatives is described in the accompanying Final Environmental Impact Statement (FEIS). The planning process and the analysis procedures used to develop this Revised Management Plan are described or referred to in the FEIS. The FEIS also describes other alternatives considered in the planning process.

The Northern Great Plains Management Plans Revision process is an effort to revise three management plans affecting national grasslands and forests on the Northern Great Plains. Currently, three management plans for these lands are in force: the *1987 Custer National Forest Land and Resource Management Plan*, which directs resource use on the Dakota Prairie Grasslands in North and South Dakota, the *1984 Nebraska National Forest Land and Resource Management Plan*, which directs resource use on units of the Nebraska National Forest in South Dakota and Nebraska, and the *1985 Medicine Bow National Forest Land and Resource Management Plan*, which directs resource use on the Thunder Basin National Grassland in northeastern Wyoming.

This preface addresses management of the Thunder Basin National Grassland (Medicine Bow-Routt National Forest). The revised management plan for the Thunder Basin National Grassland will replace the current *1987 Medicine Bow National Forest Land and Resource Management Plan* as it relates to the Thunder Basin National Grassland.

PURPOSE OF THIS REVISED MANAGEMENT PLAN

This Revised Management Plan offers guidance for all resource management activities on the Thunder Basin National Grassland. It suggests management standards and guidelines, describes resource management practices, levels of resource production, people-carrying capacities, and the availability and suitability of lands for resource management.

This Revised Management Plan embodies the provisions of the NFMA, the implementing regulations and other guiding documents. Land-use determinations, management area prescriptions, and standards and guidelines are statements of the management direction. Projected outputs, services, and rates of implementation are dependent on the annual budgeting process.

RELATIONSHIP OF THIS REVISED MANAGEMENT PLAN TO OTHER DOCUMENTS

Five alternatives have been developed for revising the current management plan for lands administered by the Thunder Basin National Grassland (Medicine Bow-Routt National Forest). Portions of the management plan are the same in all alternatives, while other parts vary. Management direction is shown for Alternative 3 (preferred alternative) in this document.

Alternatives were formulated according to the NFMA and NEPA. An extensive analysis of the alternatives is described in the accompanying draft environmental impact statement (DEIS). The planning process and the analysis procedures used to develop this Revised Management Plan are described or referred to in the DEIS. The DEIS also describes other alternatives considered in the planning process.

Upon release of the final revised land and resource management plan for the Thunder Basin National Grassland, specific activities and projects will be to carry out the plan's direction. Forest Service managers will do environmental analyses on all projects, incorporating data and evaluations in the final Revised Management Plan and final environmental impact statement (FEIS). All project analysis will tier to the FEIS.

READER'S GUIDE TO THIS REVISED MANAGEMENT PLAN

The reader will find the following in this document:

Chapter 1: Grassland-wide Direction

This chapter contains direction that applies grassland-wide, unless more stringent or restrictive direction is found in Chapters 2 or 3. The grassland-wide direction includes national and regional goals, grassland-wide goals, objectives, standards and guidelines. Additional direction can be found in the appendices.

Chapter 2: Geographic Area Direction

Geographic direction is the most detailed management plan direction. Geographic areas include management direction that is too specific to apply across an entire grassland or several grasslands. For example, desired vegetation conditions need to be tailored to the vegetation types, climate, and productivity of a specific area. The geographic area direction is applied to the area in addition to the grassland wide direction in Chapter 1, and the management area direction in Chapter 3.

This chapter contains a brief section on each geographic area, which includes:

- Description of the physical setting and unique features; and
- Direction developed for the desired conditions and management emphases.

The setting section describes the size, location, climate, and major drainages, and topographic and vegetation features of the area. The setting section is followed by highlights of unique or unusual features offered by the area.

Maps at the back of the chapter also display direction for the geographic areas, including:

- Recreation Opportunity Spectrum (ROS) settings
- Scenic Integrity Objectives (SIOs)
- Travel management

Geographic areas are delineated on the enclosed Alternative 3 map.

Chapter 3: Management Area Direction

Management areas are defined as parts of the grassland that are managed for a particular emphasis or theme. Each management area has a prescription that outlines the theme, the desired conditions, and the standards and guidelines that apply to it (in addition to the grassland-wide standards and guidelines).

The prescriptions have been broken into eight major categories, based on a continuum from least evidence of human disturbance to most:

Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Least Facilities Disturbance <----------->Least Human Disturbance **More land use restrictions<----------->Fewer land use restrictions**							

For this revision, linear, point, and small management areas were combined into other management areas, or are handled through standards and guidelines. This includes campgrounds and picnic grounds (developed recreation sites), utility corridors, and riparian areas. Management areas devoted to a particular wildlife species were consolidated into "special" wildlife areas. Also new for this revision effort are prescriptions for Special Interest Areas (SIAs).

Chapter 4: Monitoring and Evaluation

Monitoring and evaluation are conducted at several scales and for many purposes, each of which has different objectives and requirements. Monitoring requirements and tasks are developed to be responsive to the objectives and scale of the plan, program, or project to be monitored.

Monitoring and evaluation are separate, sequential activities required by NFMA regulations to determine how well objectives have been met and how closely management standards and guidelines have been applied. Monitoring generally includes the collection of data and information, either by observation or measurement. Evaluation is the analysis of the data and information collected during the monitoring phase. The evaluation results are used to determine the need to revise management plans or how they are implemented, and form a basis for adapting management of national grasslands. Monitoring and evaluation keep the revised management plan up-to-date and responsive to changing issues by verifying the effectiveness of management plan standards and guidelines and anticipated program and project effects on resources, and providing information for amendments to the management plan.

This chapter provides programmatic direction for monitoring and evaluating management plan implementation. Monitoring provides the forest supervisor for the Medicine Bow-Routt National Forest, which administers the Thunder Basin National Grassland, with the information necessary to determine whether the revised management plan is sufficient to guide management of the national grassland for the subsequent year or whether modification of the plan is needed.

Appendices

In addition, 13 appendices are included in this Revised Management Plan. They include:

- Appendix A: Air Quality
- Appendix B: Recommended Fence Specifications for Big Game Movement
- Appendix C: Determining Animal Unit Equivalent Based on Livestock Weight
- Appendix D: Oil and Gas Stipulations
- Appendix E: Guideline for Constructing User-friendly Gates
- Appendix F: Geology and Minerals
- Appendix G: Glossary
- Appendix H: Habitat Descriptions for Management Indicator Species
- Appendix I: Suggested Stocking Rates
- Appendix J: Paleontology
- Appendix K: National Goals
- Appendix L: National and Regional Policies
- Appendix M: Accidental Disturbance of Human Remains

IMPLEMENTATION OF LAND AND RESOURCE MANAGEMENT PLANS

Introduction

This Revised Management Plan suggests the framework to guide the day-to-day resource management operations on the Thunder Basin National Grassland (Medicine Bow-Routt National Forest), and subsequent land and resource management decisions made during project planning. The NFMA requires that resource plans and permits, contracts, and other instruments issued for the use and occupancy of National Forest System (NFS) lands be consistent with the final revised management plan. Site-specific project decisions also must be consistent with the final revised management plan, unless the plan is modified by amendment.

Project-level Decisions

There are two objectives for project planning. In agency-initiated actions, the objective is to move toward or achieve the integrated direction in the management plan through the action. For example, if improvement of fisheries habitat is a grassland-wide goal, projects to move toward or achieve that goal might include placement of fish habitat structures in a stream to promote recovery of streamside vegetation.

For proposals made by others, the objective of project planning is to decide if the proposal is or could be made consistent with grassland-wide, management area and geographic area direction. In addition, it must be decided if the project is in the public's interest in terms of grassland-wide goals and objectives. An example of an external proposal might be the construction of a road or utility line serving private land across NFS lands.

The following ideas are important:

- Management plan goals and objectives guide the identification and selection of potential agency projects.
- The determination of whether an individual project is consistent with the management plan shall be based on whether the project follows grassland-wide, management area and geographic area direction.
- Projects that cannot comply with standards in the plan must be found inconsistent with management direction, unless the standard is modified through amendment. In the latter case, project approval and management plan amendment may be accomplished simultaneously.
- Grassland-wide and management area guidelines, project-specific outputs, and activity schedules should not be used in the consistency determination. Under those circumstances where a guideline is modified or not applied as described in the plan, the responsible official should recognize the purposes for which the guideline was developed. He or she should also provide assurance that any subsequently approved actions do not conflict with the objectives the guideline was intended to achieve. This will be documented during project analysis following the NEPA procedures.
- Resource plans and permits, contracts, and other instruments issued for the use and occupancy of NFS lands must be consistent with the plan, unless specifically exempted from applicability in an amendment or revision decision document. Determinations of consistency of permits, contracts, and other instruments for occupancy and use of NFS lands are based on whether they follow grassland-wide and management area standards.
- Generally, it is during plan implementation--when a project decision is made-- that the irretrievable commitment of resources is also made. Therefore, before making decisions, additional environmental analysis and site-specific disclosure of environmental effects are required according to NEPA procedures.

Following are some examples of site-specific project decisions that require additional environmental analyses and disclosure as the management plan is carried out. This list is not intended to be all-inclusive:

- Allotment management plans.
- Timber harvest methods and related activities.
- Wildlife improvement projects.
- Watershed improvement projects, abandoned-mine reclamation, and federal facility compliance projects (projects generating air and/or water pollutants and hazardous-material treatment or removal).
- Prescribed-burn projects in support of resource management objectives.
- Decisions for winter-sports development, outfitter-guide proposals for Wilderness or other areas, and other externally generated projects involving occupancy and use of NFS lands.
- Selection of roads and trails where motorized vehicle travel will be allowed, prohibited, or limited.
- Construction and reconstruction of trails, roads, staging areas, buildings, dams, bridges, recreation sites, utilities, potable water systems and road closures.
- Notice of intent to operate, prospecting permits, plans of operation, surface use plans of operation (36 CFR 228 A and C), and mineral sales contracts.

Operational Activities Exempt from the National Environmental Policy Act (NEPA) Process

To help carry out the management plan, national grassland staff conduct resource inventories, prepare action plans and schedules, and administer previously approved activities. These are called operational activities. They represent neither binding decisions nor irretrievable commitments of resources, so they are not subject to environmental analyses and disclosure under NEPA procedures.

Following are some examples of operational activities that do not constitute site-specific project decisions, and are therefore exempt from NEPA procedures. The list is not all-inclusive:

- Developing five-year wildlife action plans (FSM 2620).
- Conducting resource inventories or identifying adverse air-quality conditions in Class I airsheds (FSM 2580).
- Developing fire-situation reports, escaped-fire-situation analyses, fire evaluations, fire-season severity requests, fire-management action plans, and dispatching fires (FSM 5120, 5130).
- Developing implementation schedules, three- to five-year plans, etc.
- Scheduling maintenance for developed recreation sites, developing heritage-resource overview, scenic byway management plans, and interpretive plans (FSM 2330, 2360, 2380, 2390).

- Developing Wilderness operation and maintenance schedules (FSM 2320).
- Preparing landownership adjustment plans (FSM 5400).

Note: Operational activities exempt from the NEPA process are not synonymous with "categorical exclusions." Operational activities, as indicated in the examples above, do not represent irreversible commitments of resources and do not, in themselves, create any environmental effects. Actions that can be categorically excluded from documentation in an environmental assessment or environmental impact statement are described in FSM 1952.2 and FSH 1909.15. These actions may represent irreversible commitments of resources, but do not individually or cumulatively have significant effects on the human environment.

Public Involvement and Coordination with Other Government Agencies

Ongoing public involvement and governmental coordination are a central part of carrying out the administration of the Thunder Basin National Grassland, including implementation of land and resource management plans. The Thunder Basin National Grassland has committed to an intensive program of public involvement. This means that the door is always open and that national grassland personnel are available to explain management objectives, decisions, policy, or procedure, or answer any other questions people may have. Project planning will include public involvement and cooperation. In essence, the Thunder Basin National Grassland has committed to a partnership with the public and with other government agencies (local, state or federal). Monitoring and evaluation reports will be available annually for public review.

Budget Formulation

Annual budget proposals are based on the activities and actions required to achieve the goals and objectives of the management plans. Monitoring results and actual costs of carrying out the standards and guidelines in the final revised management plan will be the basis for each year's budget proposals. Costs to carry out the management plan are not complete without providing for an adequate level of monitoring and evaluation of projects.

Budget Execution

The annual budget must comply with the final revised management plan and any specific direction provided in the annual *Appropriations Act* (FSM 1930). As actual allocations rarely provide for full funding of the management plan, the scheduled activities and actions for any particular year are adjusted to conform to the intent of Congress. Although budget changes themselves do not require management plan amendment, implications of budget changes may. For example, a project for which money is appropriated must be consistent with the management plan; the project or the management plan may require modification to assure this consistency.

Management Plan Amendments

The amendment process allows changes in components of the management plan's management direction. Unless circumstances warrant a revision, an amendment is generally done when monitoring and evaluation show either of the following:

- That the achievement of one or all of the grassland-wide objectives is constrained by conflicting management plan direction, or
- That adequate progress toward achieving the grassland-wide objectives is not being made.

Other needs for amendments may arise during the evaluation of agency-initiated projects to achieve the integrated direction in the management plan, or during the evaluation of external proposals. Amendments arising from agency-initiated projects or external proposals may be analyzed and decisions documented in a decision notice or record of decision simultaneously with project-approval decisions. This can be done if the consequences of the amendment, and alternatives to it, are specifically disclosed in the project environmental assessment or environmental impact statement.

Significant and non-significant amendments are defined in 36 CFR 219.10(f). Significant amendments are those that affect the long-term balance of goods and services on the Thunder Basin National Grassland or the biological "health" of the Thunder Basin National Grassland.

Grassland personnel conduct the process and forward significant management plan amendments to the Regional Forester, the responsible official for significant amendments, for approval. The Medicine Bow-Routt National Forest Supervisor is the responsible official for non-significant amendments.

The Management Plan Revision Process

Normally, management plans are revised on a 10-year cycle (36 CFR 219.10). This means that the anticipated completion of a normal revision will occur about 10 to 15 years following completion of this management plan revision. Variations of this general rule may occur for various reasons. For example, a major event might suggest an acceleration of the revision. However, scheduled inventories, anticipated staffing changes, or other circumstances that might improve planning efficiency, might warrant a delay. Delaying a revision is not appropriate if monitoring and evaluation show immediate changes in the management plan are needed.

A thorough review of the management plan should be completed before initiating a management plan revision. An interdisciplinary team conducts this review, which includes the following:

- Results of recent monitoring and evaluation, along with pertinent research findings and recommendations.
- New laws, regulations, or policies that may suggest a need to change the management plan.
- How well the Thunder Basin National Grassland is progressing toward stated grassland-wide goals and objectives.
- Demand projections for selected outputs.

- Predicted and actual ecosystem responses.
- Predicted and actual costs, outputs, responses, etc.
- Emerging issues and opportunities.

Integration with Forest Service Directive System

Management direction in the Forest Service Directive System, including the *Forest Service Manual* (FSM) and the *Forest Service Handbook* (FSH), is part of the management plan's management direction and is appropriately referenced within the management plan. Management direction also includes applicable laws, regulations, and policies, although they might not be restated in the management plan.

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CHAPTER 1 GRASSLAND-WIDE DIRECTION

INTRODUCTION

This chapter contains direction that applies grassland-wide. Its direction includes Regional goals, Grassland goals, objectives, standards, and guidelines. Additional direction can be found in other chapters and appendices, which reference National goals, policies, statutes, regulations, and agreements.

GOALS AND OBJECTIVES

Land and resource management direction consists of goals, objectives, and management requirements (standards and guidelines) for the national grasslands and national forests. Goals and objectives provide broad, overall direction regarding the type and amount of goods and services the national grasslands and national forests provide and focus on achieving ecosystem health and ecological integrity. Management requirements set minimum standards that must be met or exceeded while achieving the goals and objectives. Administrative requirements also establish broad multiple-use management direction and generally apply to all areas of the national grasslands and national forests.

Goals are concise statements that describe desired conditions, and expected to be achieved sometime in the future. They are generally timeless and difficult to measure. Goals describe the ends to be achieved, rather than the means of doing so.

Objectives are concise, time-specific statements of measurable planned steps taken to accomplish a goal. They are generally achieved by implementing a project or activity. However, objectives are not targets. Targets are dependent upon budgets, which shall or shall not reflect management plan emphasis areas.

The reader will note that some resources, management programs, or responsibilities are only briefly mentioned or not mentioned at all in this chapter. Chapter 2 contains additional direction for the grassland and forest units. Forest Service personnel will strive to plan and implement projects that contribute to achieving the goals and objectives in a manner consistent with standards and guidelines and applicable legal requirements.

Many variables affect the achievement of goals and objectives. There are numerous legal mandates, congressional intent as directed by annual budgets, and political issues over which the national grasslands and national forests have little or no control. Given this situation, the USDA Forest Service leadership will determine what mix of activities is most appropriate in any given year and use every opportunity to move toward the overall management intent prescribed by the goals and objectives.

The goals and objectives presented here are tiered to the *USDA Forest Service Government Performance and Results Act Strategic Plan: 2000 Revision*. This strategic plan presents the goals, objectives and activities that reflect the Forest Service's commitment to a sustainable natural resource base for the American people. All goals and objectives fall under the overall mission of the Forest Service, which is to sustain the health, productivity, and diversity of the land to meet the needs of present and future generations. "Caring for the Land and Serving People" expresses the spirit of this mission. Implicit in this statement is the agency's

collaboration with people as partners in caring for the nation's forests and rangelands.

The Forest Service's mission, and strategic goals and objectives are derived from the laws defining and regulating the agency's activities. Goals and objectives describe tangible progress toward achieving the agency's mission through implementing land and resource management plans. These plans guide on-the-ground natural resource management to ensure sustainable ecosystems and to provide multiple benefits. The Forest Service is committed to achieving the following goals and objectives:

Goal 1: Ensure Sustainable Ecosystems

Promote ecosystem health and conservation using a collaborative approach to sustain the Nations forests, grasslands and watersheds.

Goal 1.a: Improve and protect watershed conditions to provide the water quality and quantity and soil productivity necessary to support ecological functions and intended beneficial water uses.

Objectives:

1. Within 10 years, identify watershed conditions to provide baseline data sufficient to meet the following objectives:

- Improve 20 percent of 6th Hydrologic Unit Code (sub-watershed) level watersheds from Class II to Class I, or from Class III to Class II. Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities.
- Achieve a 20 percent reduction in acres of eroded or disturbed soils by Forest Service permitted or management actions.
- Achieve a 20 percent reduction in the amount of degraded water bodies, such as dam impoundments by Forest Service permitted or management actions.

2. Implement management practices that will move at least 80 percent of riparian areas and woody draws toward self-perpetuating tree and shrub communities within site capability.

3. At least 80% of the perennial streams will meet or move toward Proper Functioning Condition (PFC).

4. Within 15 years, identify, maintain, and/or improve stream flows for at least 10 percent of stream segments having high resource values within watersheds.

5. Throughout the life of the Plan, ensure proper plugging of abandoned wells to prevent cross contamination of aquifers (e.g., seismograph holes, water wells, etc.).

Goal 1.b: Provide ecological conditions to sustain viable populations of native and desired non-native species and to achieve objectives for Management Indicator Species (MIS).

Objectives:

1. As scientific information becomes available, jointly develop with the US Fish and Wildlife Service and other agencies conservation and recovery strategies for plant and animal species, listed as threatened or endangered under the Endangered Species Act, and implement established conservation or recovery strategies over the life of the Plan.

2. Within 15 years, demonstrate positive trends in population viability, habitat availability, habitat quality, population distribution throughout the species range within the planning area, and other factors affecting threatened, endangered, sensitive species and MIS.

3. Develop and implement conservation strategies for Forest Service sensitive species, as technical information becomes available.

4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality, or any other applicable factors affecting species at risk.

5. Identify rare plant and animal communities, inventory them, and develop associated management strategies to conserve them. Support the development and implementation of State and Regional Conservation Plans as they apply to the grassland or forest units.

6. Within 10 years, provide sufficient habitat for Management Indicator Species to reduce adverse impacts on populations during droughts.

7. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitats and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

8. Complete and initiate implementation of conservations strategies for globally rare plant species (G2-3 rankings) including Barr's milkvetch and other high priority species in cooperation with other conservation agencies and organizations. .

9. Conduct target surveys for globally rare plant species (Barr's milkvetch, smooth goosefoot, Ute ladies' tresses) and other rare plant species with viability concerns.

Goal 1.c: Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species.

Objectives:

1. Within 10 years, implement management practices, including prescribed fire, that will move all affected landscapes toward desired vegetation composition and structure as described in Geographic Area direction.

2. Over the next 15 years, retain only those range structures (fences and water developments) that achieve resource management (i.e., wildlife habitat, botanical, range management, visual quality, and recreation) goals and objectives.

3. Within 5 years, develop and implement cooperative noxious weeds and undesirable non-native or invasive species management plans in consultation with appropriate partners and agencies.

4. Within 3 years, develop and implement a certified noxious weed-free forage program in consultation with appropriate state agencies.

5. Within 10 years, limit further expansion of areas affected by noxious weeds.

6. Within 10 years, implement an integrated prevention and pest control management program for noxious weeds and undesirable non-native or invasive plant species.

7. Immediately initiate hazardous material cleanup on identified sites.

8. In a timely manner, review PSD permit applications, and make recommendations where needed to reduce impacts to those Congressionally-designated Class I areas specified in the federal Clean Air Act as subject to air quality related values.

Goal 2: Multiple Benefits to People

Provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems.

Goal 2.a: Improve the capability of the Nation's forests and grasslands to provide diverse, high-quality outdoor recreation opportunities.

Objectives:

1. Annually maintain or reconstruct 20% of National Grassland trails to regional standards

2. Over the next 15 years, provide readily available information concerning recreation opportunities for developed, historic, and cultural sites.

3. Within 5 years, provide appropriate directional signing to key recreation sites and inform people about the public access routes to national grasslands and national forests.

4. Within 10 years, complete site and recreation plans, including rehabilitation and re-vegetation strategies. As demand warrants, increase recreational opportunities where compatible with resource objectives. These opportunities may include trails, campgrounds, and interpretation.

5. Within 5 years, draft and begin implementing a science and marketing based interpretive program strategy that uses a variety of communication media. The purpose of the strategy will be to effectively use communication principles and methods based in the field of interpretation to:

- Communicate with target audiences regarding management concerns or issues, changes in management direction, and specific projects
- Enhance visitor's recreation experiences by identifying and implementing interpretive projects that highlight national grassland and forest resources and management.

6. Provide nonmotorized and motorized trails for a wide variety of uses and experiences.

7. Manage trail systems to minimize conflicts among users.

8. When appropriate, authorize special use permits for outfitter-guide services on NFS lands.

9. Through partnerships, encourage, establish, and sustain a diverse range of recreational facilities and services on NFS lands. Encourage outfitters and guides who support interpretive and educational awareness of grassland ecosystems or who provide services to people with disabilities.

10. When appropriate, designate, and manage outfitted camp locations.

Goal 2.b: Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values.

Wilderness

Objective

1. Within 5 years of Congressional designation, revise or develop wilderness plans to emphasize recreational, aesthetic, and educational experiences consistent with values of those areas.

Heritage Sites

Objectives:

1. Within 5 years, develop and implement a heritage inventory strategy and implementation schedule to survey and evaluate sites, in support of management actions and activities as agreed upon with the State Historic Preservation Offices (SHPO), Tribal Historic Preservation Offices (THPO) and to include compliance with laws Sec. 106 and Sec. 110 of the National Historic Preservation Act.

2. Within 5 years, assess identified sites eligible for the National Register of Historic Places (NRHP) in conjunction with SHPO and THPO and provide interpretation for National Register of Historic Places sites where appropriate and consistent with developed preservation plans.

3. Within 3 years, identify and protect traditional cultural properties in consultation with federally recognized American Indian tribes.

4. Within 10 years, update prehistoric, ethnographic, and historic overviews.

5. Educate, interpret, and promote partnerships to increase public awareness, protect heritage resources, and further the goals of research.

Special Areas

Objective:

1. Within 5 years, develop and implement a management and monitoring plan for each Research Natural Area.

2.c: Improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Livestock Grazing

Objectives:

1. Annually, provide forage for livestock on suitable rangelands. Annual grazing levels will be adjusted, as needed, during periods of drought or for other conditions.

2. As needed, revise allotment management plans (AMP) to meet desired vegetative conditions described in Geographic Areas and to implement all appropriate management plan direction.

Geologic and Paleontologic Resources

Objectives:

1. Within 15 years, inventory and evaluate 20 percent of high potential paleontological formations.

2. Within 15 years, develop conservation plans for significant geological and paleontological sites.

3. Within 15 years, provide interpretation for at least 20 percent of important geological and paleontological sites, consistent with the conservation plans.

Mineral and Energy Resources

Objectives:

1. Ensure reclamation provisions of operating plans are completed to standard.

2. Honor all valid existing legal mineral rights.

Miscellaneous Products

Objective:

1. Provide appropriate opportunities to satisfy demand for miscellaneous products (special forest and grassland products, such as mushrooms, floral products and medicinal plants) through environmentally responsible harvest and collection methods on National Forest System Lands.

Scenery

Objective:

1. Implement practices that will meet, or move the landscape character toward scenic integrity objectives. Reference Geographic Area direction.

Special Uses

Objective:

1. Ensure all special use permits are meeting requirements for customer service and are in compliance with the terms of their permits or contracts.

Wildlife, Fish, and Plant Use

Objectives:

1. Within 10 years, identify, manage, develop, and interpret appropriate watchable wildlife and plant viewing sites.

2. Within 10 years, support native and desirable non-native plant, fish, and wildlife populations by meeting or making measurable progress towards desired vegetative composition and structure, as described in Geographic Area direction.

Goal 3: Scientific and Technical Assistance

Develop and use the best scientific information available to deliver technical and community assistance and to support ecological, economic, and social sustainability.

3.a: Improve the knowledge base provided through research, inventory, and monitoring to enhance scientific understanding of ecosystems, including humans, to support decision-making and sustainable management of the Nation's forests and grasslands.

Objectives:

1. Implement inventory and monitoring systems to provide scientific information and decision support across all land ownerships.

2. Provide research results and tools through technology transfer to support effective management, protection, and restoration of ecosystems.

3. Assess potential habitat capability at the local level for management indicator species by identifying existing or establishing new reference areas and implementing long-term monitoring. Some reference areas will need to be managed for multiple-year accumulation of vegetation and litter for those management indicator species of high structure grasslands and sagebrush habitats.

4. Assess the potential impacts of the construction of impoundments in upper watersheds on hydrologic flows and patterns on downstream habitat on the sturgeon chub and other sensitive native fish species.

5. Assess the condition of watersheds containing aquatic habitats of sensitive fish species that are found primarily in clear-water streams and rivers.

Goal 4: Effective Public Service

Ensure the acquisition and use of an appropriate corporate infrastructure to enable the efficient delivery of a variety of uses.

4.a: Improve the safety and economy of the USDA Forest Service roads, trails, facilities, and operations and provide greater security for the public and employees

Objectives:

1. Within 5 years, identify travel opportunities and restrictions, including designating motorized travel-ways and areas, to meet land management objectives. Provide reasonable access for use of the national grasslands and national forests.

2. Within 5 years, provide site-specific maps and information showing closures, restrictions, and opportunities for motorized and nonmotorized use using a science-based Roads Analysis process.

3. Within 5 years, identify the minimum Forest Service road system for administration, utilization, and protection of National Forest system lands and resources, while providing safe and efficient travel and minimizing adverse environmental effects.

4. Where appropriate, encourage and authorize recreation opportunities for people with disabilities.

4.b: Provide appropriate access to NFS lands and USDA Forest Service programs.

Land Ownership and Access

Objectives:

1. Within 3 years, develop and implement approved land ownership adjustment plan in response to resource management and public needs. The plan shall be coordinated, reviewed, and updated annually.

2. Within 3 years, develop and implement a 5-year Rights-of-Way Acquisition Program in response to resource management programs and access needs. This 5-year plan will be coordinated, reviewed, and updated annually.

Unauthorized Uses

Objective:

1. Take appropriate law enforcement or administrative actions on all unauthorized uses.

Public and Organizational Relations

Objectives:

1. Provide opportunities for federally recognized American Indian tribes to participate in planning and management of the national grasslands and national forests, especially where tribes have claimed special geographic, historical, or cultural interest.

2. Work in cooperation with federal, state, and county agencies, individuals, and non-government organizations for control of noxious weeds and invasive species and animal damage.

3. Create and foster partnerships with other agencies, accredited educational and research institutions, and other appropriate public and private sector organizations to further the goals of research, education, protection, and interpretation.

4. Cooperate with the appropriate state and federal agencies in balancing desired wildlife and fish population objectives with desired habitat conditions.

5. Identify opportunities for partnerships to provide new recreational fisheries and/or waterfowl and wetlands habitat.

STANDARDS AND GUIDELINES

This direction applies across the National Grasslands and forests. Additional direction is found in other chapters and appendices, which include more detailed information, or national and regional policies.

Standards are actions that must be followed or are required limits to activities in order to achieve Grassland objectives. Site-specific deviations from standards must be analyzed and documented in management plan amendments.

Guidelines are advisable actions that should be followed to achieve Grassland or forest goals and objectives. Deviations from guidelines must be analyzed during project-level analysis and documented in a project decision document, but do not require management plan amendments.

PHYSICAL RESOURCES

A. Air

1. Meet state and federal air quality standards, and comply with local, state, and federal air quality regulations and requirements, either through original project design or through mitigation, for such activities as prescribed fire, mining, and oil and gas exploration and production. (See Appendix A) **Standard**

2. Meet requirements of the Prevention of Significant Deterioration (PSD), State Implementation Plans (SIP), and applicable Smoke Management Plans. **Standard**

3. Reduce the impacts to air quality and loss of energy resources by only allowing flaring of gas from oil wells during production testing of wells. Connection to a pipeline or re-injection will be required once production is established. Exceptions will be considered on a case-by-case basis. **Guideline**

4. Partner with local and state government, energy producers and other appropriate stakeholders to devise dust control plans for unpaved roads on the Thunder Basin National Grassland. **Guideline**

B. Water

1. Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff. **Standard**

2. Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (exceptions shall occur in special habitat situations (e.g. prairie dog habitat)). **Standard**

3. In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term health and riparian ecosystem condition. **Standard**

4. Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life. **Standard**

5. Conduct actions so that stream pattern, geometry, and habitats are maintained or improved

toward robust stream health. **Standard**

6. Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetland to sustain their ecological function, per 404 regulations. The 404 regulations are guidelines established by the Environmental Protection Agency. They constitute the substantive environmental criteria used in evaluating activities regulated under Section 404(b)(1) of the Clean Water Act. The full text of these regulations can be found at 40 CFR 230. **Standard**

7. Return and/or maintain sufficient stream flows, under appropriate authorities, to minimize damage to scenic and aesthetic values, fish, and wildlife habitat, and to otherwise protect the environment. **Standard**

8. Manage water-use facilities to prevent gully erosion of slopes to prevent sediment and bank damage to streams. **Standard**

9. Construct roads and other disturbed sites to minimize sediment discharge into streams, lakes, and wetlands. **Standard**

10. Place new sources of chemicals and pathogenic pollutants where such pollutants will not reach surface or ground water. **Standard**

11. Apply runoff controls to disconnect new pollutant sources from surface and ground water. **Standard**

12. Apply chemicals using methods that minimize risk of entry to surface and ground water. **Standard**

13. Design activities to protect and manage the riparian ecosystem. Maintain the integrity of the ecosystem including quantity and quality of water. **Standard**

14. Locate activities and facilities away from the water's edge or outside the riparian areas, woody draws, wetlands, and floodplains unless alternatives have been assessed and determined to be more environmentally damaging. If necessary to locate activities or facilities in these areas, then:

- Deposit no waste material (silt, sand, gravel, soil, slash, debris, chemical, or other material) below high water lines, in riparian areas, in the areas immediately adjacent to riparian areas or in natural drainageways (draws, land surface depressions or other areas where overland flow concentrates and flows directly into streams or lakes).
- Prohibit deposition of soil material in natural drainageways.
- Locate the lower edge of disturbed or deposited soil banks outside the active floodplain.
- Prohibit stockpiling of topsoil or any other disturbed soil in the active floodplain.
- Locate drilling mud pits outside riparian areas, wetlands and floodplains. If location is unavoidable in these areas, seal and dike all pits to prevent leakage.
- Rehabilitate gravel pits, if located in riparian zones, to simulate a natural riparian/aquatic situation. **Guideline**

15. Do not allow new roads to parallel streams when road location must occur in riparian areas unless alternatives have been assessed and determined to be more environmentally damaging. Cross streams at right angles. Locate crossings at points of low bank slope and firm surfaces. **Standard**

(See the Geology and Minerals APPENDIX F for information on siting oil and gas facilities. Also see Water Conservation Practices Handbook, FSH 2509.25, for further information)

C. Soils

1. Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography, and climate. **Standard**

2. Stabilize and maintain roads and other disturbed sites during and after construction to control erosion. **Standard**

3. Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage. **Standard**

4. Prohibit soil-disturbing activities (e.g., road construction, well pad construction) on slopes greater than 40 percent and on soils susceptible to mass failure. **Guideline**

(See the Geology and Minerals APPENDIX F for information on siting oil and gas facilities. Also see Water Conservation Practices Handbook, Forest Service Handbook 2509.25, for further information.)

D. Minerals and Energy Resources

General

1. Require operators to obtain water for mineral operations from private sources, except in the following instances: a) private sources are not available; b) water is available from National Forest System land ponds or wells; and such use would not conflict with established uses. **Standard**

2. Prohibit rig stacking and storage of equipment not being used. **Standard**

3. Obliterate and rehabilitate special use and single use roads associated with oil and gas lease development, within one year from the end of their use period, unless a documented decision is made to keep the road for other management needs. **Guideline**

(See the Invasive Plant Species section for direction regarding re-vegetation, and the Infrastructure section for direction on facilities. Also see Geology and Minerals Appendix F for further information)

Geophysical Operations

4. Where no suitable mitigation measures are possible, prohibit geophysical (seismic) operations that cause surface disturbance in Research Natural Areas, Special Interest Areas, American Indian traditional use area, and known National Register eligible sites. **Standard**

5. Minimize surface and other resource disturbance from geophysical operations. **Guideline**

6. Do not allow new road construction, unless alternatives have been assessed and determined to be more environmentally damaging. **Guideline**

7. Allow geophysical operations within developed recreation sites; however, restrictions (type, timing, seasonal, or location restrictions) will be applied to avoid conflicts with recreationists, and to maintain the recreational setting of the developed site. **Guideline**

Oil and Gas Operations

8. Honor valid existing legal and private property rights pertaining to the development, production, and transport of mineral resources. See Fish, Wildlife, and Rare Plants; Recreation; and Scenery Management sections for additional direction. **Standard**

9. Promote the use of closed circulation systems. Discourage the use of open reserve pits for oil and gas drilling operations. In cases where the use of pits for drilling operations is justified, analyze and monitor construction and use for minimal potential for leakage and structural failure (including pit solidification). **Guideline**

10. Prohibit the use of production pits. **Standard**

11. Do not allow field offices unless operators demonstrate they are essential to production operations. When need is justified, facilities will be limited in size and design to serve only those purposes necessary. **Guideline**

12. Provide on- and off-site information warning of the dangers of hydrogen sulfide fumes around developed oil production sites. **Standard**

13. Limit noise levels from oil and gas production facilities within ¼-mile of developed recreation sites to be no more than 70 decibels, as measured by the A-weighted Sound level (dBA) system of measurements, at the edge of the developed site. This standard applies only to constant, routine, day-to-day production noises. It doesn't apply to noise from drilling and testing of production nor temporary noises such as work-over rigs and maintenance or repair tasks. **Standard**

(See the Developed Recreation Sites section for other standards and guidelines that shall apply to mineral operations)

Energy and Mineral-Related Special Uses

14. Minimize disturbance by co-locating roads, pipelines, gathering lines, and power lines for energy resource development. **Guideline**

15. Authorize commercial water disposal wells with a special use permit with appropriate fees for surface use. **Standard**

(See the Special Uses section for other standards and guidelines that may apply to mineral operations)

E. Paleontological Resources

1. Protect key paleontological resources (Classes 3, 4, and 5 of the Fossil Potential Classification) from disturbance, or mitigate the effects of disturbance, to conserve scientific, interpretive, and legacy values. (See Paleontological Appendix J for details). **Standard**

2. Survey and post federal land boundaries where paleontological sites have Fossil Potential Classification sensitivity ranking of 3, 4, or 5, (See Paleontological Appendix J for details). **Guideline**

3. Prior to ground-disturbing activities, conduct paleontologic surveys in any area where there is a high potential to encounter these resources according to the process outlined in Appendix J. **Standard**

BIOLOGICAL RESOURCES

F. Fish, Wildlife, and Rare Plants

General

The following Directions (Standard or Guideline) are subject to the permitting processes of the U.S. Fish and Wildlife Service and/or the State wildlife agency. Where a specific wildlife agency permit has been issued, and it does not conflict with, or violate other laws, the Forest Service may waive the specific direction on a site-specific basis.

1. Consult state and regional Partners in Flight Bird Conservation Plans for additional guidance on land bird habitat management. **Guideline**

2. Modify livestock grazing practices, as needed, to reduce adverse impacts of drought to threatened, endangered, and sensitive species and species at risk. **Standard**

3. When installing new livestock water tanks, install durable and effective escape ramps for birds and small mammals. During maintenance of existing tanks, replace ramps that are ineffective or missing. **Standard**

4. Design and build new structures, including fences, to reduce hazards to big game and to allow big game movement throughout the year. (Appendix B) This doesn't include fences designed to specifically exclude wildlife. **Guideline**

5. Do not authorize construction of new woven wire fences and barbed-wire fences with 5 or more strands. This doesn't include fences designed to specifically exclude wildlife. **Guideline**

6. Delay mowing of grasslands until July 15 or later to protect ground-nesting birds, including their nests and young broods. Project-level analyses will determine the earliest mowing date. **Guideline**

7. Manage vegetation so native forbs are periodically allowed to complete their full reproductive cycle. **Guideline**

8. Use the following criteria at the project level to help determine where to manage for rest and large blocks of high structure grasslands in upland areas for waterfowl, prairie grouse, and other ground-nesting birds:

- Presence of moderate to highly productive soils,
- Dominance of mid to tall grass species,
- Proximity to waterfowl pairing ponds and/or prairie grouse display grounds,
- Proximity to wetlands with well-developed emergent vegetation,
- Proximity to cooperative waterfowl/wetland development projects and other major wetland complexes. **Guideline**

9. Design new impoundments to provide new recreational fisheries and/or waterfowl and wetlands habitat. **Guideline**

10. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies to provide well-developed emergent vegetation through the growing season on 30 to 50% of the wetlands (natural and constructed) distributed across watersheds and landscapes, contingent on local site potential. **Guideline**

11. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies to provide for thick and brushy understories and multi-story and multi-age structure in riparian habitats, wooded draws and woody thickets, contingent on local site potential. **Guideline**

12. Provide access for bats and other cave-dependent species when closing mine shafts or caves. **Guideline**

13. Protect all known day roost areas and wintering sites used by bats. **Guideline**

14. To help reduce adverse impacts to breeding sharp-tailed grouse and their display grounds, prohibit construction of new facilities within 0.25 miles of active display grounds. A sharp-tailed grouse display ground is no longer considered active if it has been unoccupied during the last 2 breeding seasons. This does not apply to pipelines, fences, windmills, and underground utilities. **Standard**

15. To help reduce disturbances to breeding and nesting sharp-tailed grouse, do not authorize the following activities within 1.0 mile of active display grounds from March 1 to June 15:

- Construction (e.g., roads, water impoundments, pipelines, utilities, oil and gas facilities, fencing),
- Reclamation,
- Gravel mining operations,
- Seismic exploration,
- Oil and gas drilling,
- Drilling of water wells,
- Permitted recreation events,
- Training of bird hunting dogs. **Guideline**

16. Manage viewing activities on sharp-tailed grouse display grounds to reduce disturbances and adverse impacts to the birds. **Guideline**

17. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies that provide quality nesting and brooding habitat on at least 25% of the grasslands (consistent with GA objectives) within 1.0 mile of active sharp-tailed grouse display grounds. Consult Appendix H for a description of quality habitat for sharp-tailed grouse. **Guideline**

Threatened, Endangered, and Proposed Species

Black-footed Ferret

18. In prairie dog colonies known or thought to be occupied by black-footed ferrets, limit oil and gas development to one location per 80 acres to help maintain suitable ferret habitat. **Standard**

19. To help provide suitable habitat for black-footed ferrets and their young during the breeding and whelping seasons, prohibit the following activities within prairie dog colonies, or those portions of larger colonies, occupied or thought to be occupied by black-footed ferrets from March 1 through August 31:

- Construction (e.g., roads, water impoundments, oil and gas facilities),
- Reclamation,
- Gravel mining operations,
- Drilling of water wells,
- Oil and gas drilling. **Standard**

20. To help provide suitable habitat for black-footed ferrets and their young during the breeding and whelping seasons, do not authorize the following activities within prairie dog colonies, or those portions of larger colonies, occupied or thought to be occupied by black-footed ferrets from March 1 through August 31:

- Construction (e.g., pipelines, utilities, fencing),
- Seismic exploration,
- Permitted recreation events involving large groups of people. **Guideline**

21. Any net loss of suitable black-footed ferret habitat as a result of prairie dog poisoning or development of new facilities within colonies must be replaced with suitable ferret habitat. This is based on the amount of suitable habitat available when the poisoning or development is proposed to occur. **Standard**

22. For routine maintenance, access to oil and gas facilities in prairie dog colonies occupied or thought to be occupied by black-footed ferrets should be limited to daylight hours. This does not apply to emergency repairs. **Guideline**

Mountain Plover

23. Prescribe burn selected large flats (a section or more in size) to evaluate the effectiveness of burns in attracting and inventorying mountain plover. Prescribed burns should be timed to provide large blackened areas in the spring. **Standard**

24. In cooperation with the U.S. Fish and Wildlife Service and Wyoming Department of Game and Fish, evaluate the desirability and feasibility of trying to establish a nesting population with reintroduced birds. **Standard**

25. To help maintain suitable nesting habitat for mountain plover, prohibit development of new facilities within 0.25 miles of known mountain plover nests or nesting areas. This does not apply to pipelines, fences and underground utilities. **Standard**

26. To help maintain occupied nesting and brooding habitat on black-tailed prairie dog colonies, new oil and gas development will be limited to one well per 80 acres within occupied habitat. Cumulatively, structure and facility development will not occur on more than 2 percent of the occupied mountain plover nesting habitat in each prairie dog colony. **Standard**

27. Any net loss of suitable and occupied mountain plover habitat as a result of prairie dog poisoning or development of new facilities within prairie dog colonies will be replaced within the year by concurrent expansion of suitable plover habitat or in some cases, by enhanced management and protection of occupied plover habitat elsewhere on or near the national grassland. The amount of habitat loss is based on the amount of suitable and occupied habitat available prior to prairie dog dispersal in the year of the poisoning or development. **Guideline**

28. To help reduce disturbances and risks to nesting mountain plover, prohibit the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:

- Construction (e.g., roads, water impoundments, oil and gas facilities),
- Reclamation,
- Seismic exploration,
- Gravel mining operations,
- Oil and gas drilling,
- Drilling of water wells,
- Prescribed burning. **Standard**

29. To help reduce disturbances and risks to nesting mountain plover, do not authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:

- Construction (e.g., pipelines, utilities, fencing),
- Workover operations for maintenance of oil and gas wells,
- Permitted recreation events involving large groups of people,
- Grasshopper spraying,
- Prairie dog shooting (in consultation with state wildlife agencies and U.S. Fish and Wildlife Service). **Guideline**

30. To help reduce risks to mountain plover, access to oil and gas facilities in occupied mountain plover habitat for routine maintenance should be limited to once per 24 hour period and occur between 9 am and 5 pm. Duration of maintenance activities should not extend beyond 1 hour when possible. This does not apply to travel for emergency repairs. **Guideline**

31. To help reduce risks to mountain plovers from traffic, limit vehicle speeds in occupied mountain plover habitat to 25 mph on resource roads and 35 mph on local roads. **Standard**

32. Vegetation management projects in suitable mountain plover habitat will be designed to maintain or improve mountain plover habitat. **Standard**

33. To avoid attracting avian predators, new structures and facilities in occupied mountain plover habitat will be designed with low profiles and/or perch-inhibitors. This does not apply to structures and facilities less than 4 feet in height or those not expected to be used as hunting perches by raptors. **Guideline**

34. Use the following criteria at the project level to help determine where to use prescribed burning and high livestock grazing intensities (Appendix I) to provide low grassland structure and enhanced mountain plover nesting and brooding habitat:

- Proximity to existing mountain plover nesting areas,
- Proximity to prairie dog colonies,
- Presence of expansive and flat grassland areas. **Guideline**

Sensitive Plant and Animal Species

35. Do not authorize new facilities, roads, trails, fences, salting and mineral areas, water developments in habitat occupied by sensitive plant species. **Guideline**

36 . During the AMP process or as other opportunities arise, design and implement livestock grazing strategies that allow sensitive plant species to complete their reproductive cycles at a frequency that maintains and enhances populations of those species occurring in the local area. **Standard**

37 . Identify sensitive plant habitats and rare plant communities as priorities for invasive plant monitoring and control. **Guideline**.

38. Avoid the use of invasive plant control methods that may negatively impact sensitive plants. **Guideline**

39. As opportunities arise, design timing, intensity, and frequency of mowing, burning, and livestock grazing to maintain and/or increase sensitive plant species populations and the health of rare plant communities. **Standard**

40. Do not authorize vegetation management and construction projects that would prevent recolonization of sensitive plant populations from adjacent populations. **Standard**

41. Do not develop any additional springs and seeps where associated habitat for sensitive plant species would be degraded or lost. **Standard**

42. Design vegetation management activities (e.g., prescribed burning, mowing, or grasshopper spraying, livestock grazing) and pesticide application projects in known habitats of sensitive butterfly species to reduce mortality of butterflies and to maintain or enhance nectar and larvae host plant species. **Guideline**

43. Design and construct new facilities to minimize the risk of accidental spills and discharge of petroleum and other toxic materials into waters occupied by sensitive fish species, and implement appropriate precautionary measures. **Guideline**

44. Do not authorize uses that would deplete instream flows below levels needed to protect the aquatic habitats of sturgeon chub and other sensitive native fish species. **Standard**

45. Design and implement vegetation management and construction projects so they do not degrade habitat for plains top minnow and other clear-water stream species by increasing sediment load and turbidity. **Standard**

Sage Grouse

46. To help reduce adverse impacts to breeding sage grouse and their display grounds, prohibit construction of new oil and gas facilities within 0.25 miles of active display grounds. A display ground is no longer considered active if it's known to have been unoccupied during the past 5 breeding seasons. This does not apply to pipelines and underground utilities. **Standard**

47. To help reduce disturbances to nesting sage grouse, prohibit the following activities within 2.0 miles of active display grounds from March 1 to June 15:

- Construction (e.g., roads, water impoundments, oil and gas facilities),
- Reclamation,
- Gravel mining operations,
- Drilling of water wells,
- Oil and gas drilling,
- Training of hunting dogs. **Standard**

48. To reduce disturbances to nesting sage grouse, do not authorize the following activities within 2.0 miles of active display grounds from March 1 to June 15:

- Construction (e.g., pipelines, utilities, fencing),
- Seismic exploration,
- Workover operations for maintenance of oil and gas wells,
- Permitted recreation events involving large groups of people. **Guideline**

49. To help prevent reproductive failure , limit noise on sage grouse display grounds from nearby facilities and activities to 49 decibels (10 dBA above background noise) from March 1 to June 15. **Guideline**

50. Pastures will be managed for sage grouse/big sagebrush only if they contain sagebrush stands with 10% or more canopy cover of big sagebrush. **Guideline**

51. When constructing facilities or structures within 2 miles of a sage grouse active display ground, design them to discourage raptor perching by maintaining a low profile or using perch inhibitors. **Guideline**

52. Prohibit development or operations of facilities within 2 miles of a sage grouse display ground if these activities would exceed a noise level of more than 10 decibels above the background noise level (39 db), at 800 feet from the noise source, from March 1 to June 15. **Guideline**.

53. Manage display ground viewing activities to reduce disturbances and adverse impacts to the birds on the display grounds. **Guideline**

54. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies to provide quality nesting cover in all sagebrush stands (>15% canopy cover of big sagebrush, silver sagebrush, and greasewood) within at least 3.0 miles of active display grounds (consistent with GA vegetation objectives) where sagebrush is irregularly distributed around the display ground. This minimum distance can be reduced to 2.0 miles where sagebrush is uniformly distributed around display grounds. Consult Appendix H for a description of quality nesting habitat for sage grouse. **Standard**

55. In big sagebrush, silver sagebrush and greasewood wintering habitat, do not prescribe burn or treat with herbicides unless it can be demonstrated to be beneficial for local sage grouse populations. Treatments should not be conducted where shrub canopy cover averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the shrub stands in the wintering habitat. Shrub stands within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed. **Guideline**

56. During vegetation management practices, maintain or enhance wet and sub-irrigated meadows, seeps, riparian habitats, and other wetland areas that occur in or adjacent to sage grouse habitat as quality sage grouse foraging areas during the spring, summer, and fall. Consult Appendix H for a description of quality foraging habitat for sage grouse broods. **Standard**

57. During vegetation management projects, maintain or increase the size of big sagebrush (*Artemisia tridentata wyomingensis*) patches in sage grouse habitat. **Guideline**

58. When conducting vegetation management projects, maintain small openings within sagebrush and greasewood stands at a ratio of no more than 25% opening and at least 75% shrub canopy (e.g., 1 acre of opening for every 3 acres of shrub within the discrete stand). **Standard**

59. At the onset of drought, evaluate the need to adjust land uses to reduce impacts on sage grouse nesting and brooding habitat. **Guideline**

60. Manage for high vegetative structure in areas where it would enhance sage grouse nesting habitat. Emphasize areas characterized by:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses, with sagebrush canopy cover of 15-25%,
- Proximity to sage grouse display grounds. **Guideline**

Burrowing Owls

61. Do not spray grasshoppers within 0.25 mile of known burrowing owl nests. **Standard**

62. To optimize habitat for burrowing owls, manage for active prairie dog colonies that are larger than 80 acres. **Guideline**

Black-tailed Prairie Dog

63. Coordinate and consult with the appropriate wildlife management agencies and local landowners to prohibit prairie dog shooting in areas where significant risks have been identified for other wildlife species or where shooting is preventing or slowing a desired prairie dog population expansion. Restrictions shall be year-long or seasonal, and dates of seasonal restrictions shall vary depending on the species at risk. **Standard**

64. Prohibit activities that would alter water flow regimes and flood prairie dog burrows. **Standard**

65. Evaluate prairie dog management 3 years after management plan approval. Evaluate prairie dog management again when the total acres of active prairie dog colonies expand to 35,000 acres (approximately 7%) of suitable habitat on the Thunder Basin National Grassland. **Standard**

66. To reduce risks and habitat loss for prairie dogs and other wildlife species closely associated with prairie dog colonies, align new roads outside prairie dog colonies. If it's necessary to place a new road in a prairie dog colony, minimize the amount of road within the colony to the extent that soil, drainage, topographical and other physical factors will allow. **Guideline**

Swift Fox

67. To reduce disturbances to swift fox during the breeding and whelping seasons, prohibit the following activities within 0.25 miles of their dens from March 1 to August 31:

- Construction (e.g., roads, water impoundments, oil and gas facilities),
- Reclamation,
- Gravel mining operations,
- Drilling of water wells,
- Oil and gas drilling. **Standard**

68. To reduce disturbances to swift fox during the breeding and whelping seasons, do not authorize the following activities within 0.25 miles of their dens from March 1 to August 31:

- Construction (e.g., pipelines, utilities, fencing),
- Seismic exploration,
- Workover operations for maintenance of oil and gas wells,
- Permitted recreation events involving large groups of people. **Guideline**

69. Prohibit the use of M-44s (sodium cyanide) for predator control in occupied swift fox habitat on the national grasslands. **Standard**

70. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies that provide a mosaic of low, moderate and high grassland structure in occupied swift fox habitat, consistent with vegetation objectives for the geographic area. **Guideline**

71. Pursuant to the Swift Fox Conservation Strategy, identify population monitoring and habitat inventory methods; identify key habitats on national grasslands; and develop appropriate population and habitat management strategies. **Guideline**

72. Pursuant to the Swift Fox Conservation Strategy, implement management activities for expanding the distribution of swift fox. **Guideline**

Raptors

73. To help prevent abandonment, reproductive failure or nest destruction, prohibit development of new facilities within the minimum distances (line of sight) of active raptor nests and winter roost sites as specified in the following table. For the bald eagle, golden eagle, merlin,

ferruginous hawk and Swainson's hawk, a nest is no longer considered active if it's known to have been unoccupied for the last 7 years. For the burrowing owl and other raptor species, a nest is no longer considered active if it's known to have been unoccupied during the current or most recent nesting season. This does not apply to pipelines, fences and underground utilities. **Standard**

Species and Habitat	Minimum Distance (miles)
Bald Eagle Nest	1.0
Bald Eagle Winter Roost Area	1.0
Golden Eagle Nest	0.25
Merlin Nest	0.25
Ferruginous Hawk Nest	0.25
Swainson's Hawk Nest	0.25
Burrowing Owl Nest	0.25
Nests of Other Raptors	0.125

74. To help reduce disturbances to nesting and wintering raptors, prohibit the following activities within the minimum distances (line of sight) of active raptor nests and winter roost areas during the dates specified in the table below:

- Construction (e.g., roads, water impoundments, oil and gas facilities),
- Reclamation,
- Gravel mining operations,
- Drilling of water wells,
- Oil and gas drilling,
- Timber harvest and fuel treatments
- Precommercial thinning. **Standard**

Species and Habitat	Minimum Distance (miles) and Dates
Bald Eagle Nest	1.0 from 2/1 to 7/31
Bald Eagle Winter Roost Area	1.0 from 11/1 to 3/31
Golden Eagle Nest	0.50 from 2/1 to 7/31
Merlin Nest	0.50 from 4/1 to 8/15
Ferruginous Hawk Nest	0.50 from 3/1 to 7/31
Swainson's Hawk Nest	0.50 from 3/1 to 7/31
Burrowing Owl Nest	0.25 from 4/15 to 8/31
Nests of Other Raptors	0.125 from 2/1 to 7/31[a]

[a] Dates may vary depending on the species

75. To help reduce disturbances to nesting and wintering raptors, do not authorize the following activities within the minimum distances (line of sight) of active raptor nests and winter roost areas during the dates specified in the previous table:

- Construction (e.g., pipelines, utilities, fencing),
- Seismic exploration,
- Workover operations for maintenance of oil and gas wells,
- Fuelwood cutting,
- Permitted recreation events involving large groups of people. **Guideline**

76. If a winter roost area or nest site is discovered, ensure that the necessary habitat components are maintained, including maintenance and regeneration of woodlands. **Standard**

G. Fire Suppression, Fuels Treatments, Prescribed Fire

Fire Suppression

1. Develop an Appropriate Management Response (AMR) for each management area outlined in the Fire Management Plan for the National Grasslands. Until an AMR for each given management area is completed, suppress all wildfires, natural and human-caused, using fire management strategies based on aggressive initial attack. Encourage the use of natural barriers and burning out when appropriate. **Guideline**

2. Minimize impacts to paleontological and heritage resources, streams, stream banks, shorelines, lakes and associated vegetation, and habitat for threatened, endangered, proposed, and sensitive species from wildfire suppression efforts in the following ways:

- Prohibit the use of earth-moving equipment on known paleontological or heritage sites.
- Discourage the application of fire-retardant chemicals over riparian areas, wetlands, and open water.
- Prior to using earth-moving equipment, consult appropriate specialists for guidance.
- Notify USFWS when TES habitat is threatened or impacted by fire. **Guideline**

3. In Backcountry Recreation Nonmotorized areas, and Research Natural Areas, encourage the use of wildland fire suppression strategies and tactics that minimize land and resource disturbance. **Guideline**

Fuel Treatment

4. Reduce the threat of wildfire to public and private developments by following guidelines in the National Fire Protection Association Publication 299, Protection of Life and Property from Wildfire, and reduce the fuel load to acceptable levels. **Guideline**

5. Participate in the "Firewise" community program. **Guideline**

Prescribed Fire

6. During project-level planning for prescribed burning, schedule prescribed fire activities at intervals designed to improve or maintain habitats of desired plant and animal species.

Guideline

H. Animal Damage Management

1. Restrict the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations.

- Public health and safety risks occur in the immediate area,
- Damage to private and public facilities, such as cemeteries and residences. **Standard**

2. Consult state-wide prairie dog conservation strategies for additional guidance on the appropriate response to complaints of unwanted prairie dog colonization on adjoining agricultural lands (private, state, and tribal lands). **Guideline**

3. Reduce conflicts with adjacent landowners over prairie dog management through an active landownership adjustment program. **Guideline**

4. From January 1 through September 30, don't use rodenticides (above-ground baits) to reduce prairie dog populations. This is necessary to reduce risks to migratory birds. To reduce risk to other wildlife, don't use burrow fumigants in prairie dog colonies. **Standard**

I. Livestock Grazing

1. Allow bison grazing on the Grasslands by permit, and require amendments to grazing agreements and rules of management to allow a change of class of livestock to include bison. Evaluate bison grazing to include the following criteria: associated health issues; fence requirements; wildlife habitat needs; handling facilities; and human safety. **Standard**

2. Cooperate with states in ensuring healthy livestock (including bison), such as requiring permittees to test for diseases (e.g., Brucellosis) and vaccinate for other diseases prior to placement on public lands. **Standard**

3. As needed, or at a minimum annually, adjust management activities to account for the effects of natural processes (e.g., drought, fire, flood, grasshoppers) on forage availability. **Guideline**

4. Manage livestock grazing to maintain or improve riparian/woody draw areas. Implement the following practices:

- Avoid season-long grazing and activities, such as feeding, salting, herding, or water developments, which concentrate livestock in riparian/woody draw areas.
- Control the timing, duration, and intensity of grazing in riparian areas to promote establishment and development of woody species. **Guideline**

5. Meet rest objectives based on, but not limited to the following desired conditions:

- Where high structure is required for plant and animal communities (See Geographic Area), and Management Indicator Species;
- Where increased fuel loads are desired for prescribed burning;
- Where ungrazed areas are desired for monitoring vegetation structure or for research needs;
- Where desired to improve reproductive success of Management Indicator Species and threatened, endangered, and sensitive species, or

- Where ungrazed areas are desired for biological diversity. **Guideline**

6. When allotment management plans are revised, consider adjusting animal unit equivalents to account for the variations in liveweight of livestock to meet desired vegetative conditions. (See Appendix C). **Guideline**

7. Prohibit feed storage or regular and routine feeding of domestic livestock on National Forest System lands. **Standard**

8. Prohibit livestock grazing in developed recreation sites unless it can be accommodated before or after the recreation-use season, and unless it enhances the management of the site. **Guideline**

9. Prioritize for removal any fences or water developments that are not contributing in achieving desired conditions. **Guideline**

(See Infrastructure for standards and guidelines relating to capital investments on lands with moderate to high mineral development potential)

J. Insect and Disease Control, Noxious Weeds, Non-native, and Invasive Species

1. Manage invasive plant species using integrated management techniques, including mechanical, chemical, and biological control methods. **Guideline**

2. To prevent the spread of undesirable non-native and invasive plant species, include necessary provisions in contracts and permits for use of the National Grasslands and its resources. **Standard**

3. Allow haying only where noxious weeds are not present or are pre-treated to prevent seed set unless haying is needed as a method of noxious weed control. If used as such a control, ensure proper disposal of hay. **Guideline**

4. Contain and control established undesirable non-native and infestations based on the following:

- Rate of species spread;
- Invasions within special management areas, such as RNAs and Wildernesses, activity corridors, and high use areas
- Probability of successful treatment(s) in meeting desired conditions. **Guideline**

5. Allow only certified noxious weed seed-free products for animal feed or re-vegetation projects. This includes use of certified hay or straw, and heat-treated, or other appropriately processed products. **Standard**

6. Utilize all methods feasible, including livestock grazing strategies in the integrated pest management program. **Guideline**

7. Where technically and economically feasible, use genetically local (at the ecological sub-section level) native plant species in re-vegetation efforts. To prevent soil erosion, non-native annuals or sterile perennial species may be used while native perennials are becoming established. **Guideline**

8. Control insects and diseases using integrated pest management techniques. Treatment activities will be based on potential risks to human health and the value of and risks to wildlife habitat, adjacent lands, public lands, and other resources. Priority should be given to areas where

values to be protected exceed the cost of protection. **Guideline**

9. Where chronic hotspots cannot be corrected through livestock grazing strategies, allow grasshopper control through baiting of chronic hotspots. **Guideline**.

10. Restrict pesticide use where it would have adverse effects on species at risk. **Guideline**

11. Set priorities for controlling insects, disease, and invasive plant species based on the following:

- Prevent the introduction of new invasive species
- Treat new infestations. **Standard**

MANAGED RECREATION

K. Recreation

General

1. Protect instream flows at special recreation features. Use the following categories to rank streams and stream reaches based on the recreation features and values described:

- High priority features: scenic areas and overlooks, visitor centers, canoeing areas, scenic byways, native threatened, endangered, and sensitive species, Wilderness water resources under threat of degradation, and similar features where flowing water is critical to a quality recreational experience.
- Moderate priority features: recreation areas, including roads, trails, campgrounds and picnic grounds next to streams and reservoirs where flowing water contributes to a quality recreational experience and to aesthetic values. **Standard**

2. Refrain from building new recreation facilities in riparian areas unless a clear public need can be demonstrated, and no other reasonable alternative exists. **Guideline**

3. Implement a "pack-it-in/pack-it-out" solid waste/garbage removal policy where disposal facilities are not available. **Standard**

4. On sites where dispersed recreation activities have contributed to bare mineral soil and accelerated erosion, mitigate the impacts by redirecting the use, rehabilitating or hardening the site to minimize erosion and off-site movement of soil. **Standard**

Developed Recreation Sites

5. Harden sites to protect resources or accommodate user needs. **Guideline**

6. Close facilities if public safety or sanitation cannot be provided. **Standard**

7. Design recreational facilities to blend with the elements found in the natural landscape. **Guideline**

8. Make facilities at trailheads or along trails consistent with the Recreation Opportunity Setting Spectrum and provide for parking, trail information and appropriate sanitation facilities, as needed. **Guideline**

9. Allow oil and gas leasing within developed recreation sites, but do not permit ground-disturbing oil and gas activities. **Standard**

Outfitters and Guides

10. Consider the following criteria before making a decision to issue an outfitter and guide service permit:

- There will not be significant conflict with other permitted outfitters and guides, other permittees, or other users as a result of the activities associated with the permit.
- Other resource considerations, including the biological needs of wildlife, are considered and found compatible with the proposed activity.
- The permit furthers national grassland and forest goals. **Guideline**

11. Require all outfitter and guide permittees conducting activities with a relatively high risk or frequency of serious injury to have at least one guide on each trip who possesses current advanced first aid certification. Examples of high risk activities include, but are not limited to: horse, mule, or pack animal use, snow machine or all-terrain vehicle use, rock climbing, hang gliding, etc. **Standard**

12. Administer permits and pursue and prosecute illegal outfitters and guides. **Standard**

13. Prohibit permanent facilities or caches on NFS lands. **Standard**

L. Scenery Management

1. Manage activities to be consistent with the scenic integrity objective(s), as referenced by the Adopted Scenic Integrity Objective map in Chapter 2. **Guideline**

2. Rehabilitate areas that do not meet the scenic integrity objectives specified for the management area. Consider the following when setting priorities for rehabilitation:

- Relative importance of the area and the amount of deviation from the scenic integrity objectives.
- Length of time it will take natural processes to reduce the visual impacts so that they meet the scenic integrity objective;
- Length of time it will take rehabilitation measures to meet scenic integrity objectives;
- Benefits to other resource management objectives to accomplish rehabilitation. **Guideline**

(Also see the sections on Special Uses and Recreation)

ADMINISTRATION

M. Land Ownership

General

1. In general, base land acquisitions on the premise of a willing buyer and seller. **Guideline**

2. Honor existing rights, such as treaty rights, mineral rights, water rights, and private property access. **Standard**

3. Consider the following when opportunities to acquire lands occur (Reference 36 CFR 254):
    - Lands with important or unique resources, such as water frontage, wetlands, flood plains and associated riparian ecosystems, cave resources, crucial big-game winter range, threatened or endangered species habitat and habitats needed for recovery, Forest Service sensitive species habitat, important paleontological or geologic sites, important historical, heritage resources or traditional cultural properties, outstanding scenic values, or critical ecosystems when these resources are threatened by change of use, or when management may be enhanced by public ownership.
    - Lands that include prairie dog colonies or that present opportunities to allow expansion of colonies that already exist on nearby National Forest System lands are a high priority.
    - Important botanical, wildlife, and fishery management areas. This includes lands supporting rare plant communities.
    - Lands with important value for outdoor recreation purposes.
    - Lands needed to protect resource values by eliminating or reducing fire risks or soil erosion.
    - Non-federal lands in mineralized areas that have low potential for future mineralized patents, and where the minerals will be donated to the United States.
    - Lands that reduce Forest Service administrative costs and improvement of management efficiency. This includes: reducing miles of landline boundaries and number of corners, special uses, title claims, rights-of-way grants and easements, numbers of allotments and intermingled ownership livestock pastures, and other factors that decrease administrative costs and improve management efficiency.
    - Lands that would reduce conflicts between Forest Service, tribal lands, and private landownership objectives, especially when conflicts are adversely impacting National Forest System management. This includes reducing conflicts involving the management of prairie dog colonies along National Forest System lands.
    - Lands within or around existing blocks of public ownership of at least 2,000 acres.
    - Lands that would correct maladjustments of land use as described in the Bankhead-Jones Farm Tenant Act. **Guideline**

4. Consider the following to identify lands for possible disposal:
    - Lands suitable for development by the private sector, if developments, such as residential, agricultural, industrial, or recreational, are in the public interest.
    - Isolated parcels of any size, such as parcels having no legal public or administrative access and the effort to acquire such access is not cost-efficient or otherwise reasonable.
    - Lands less than 2,000 acres and not contiguous to larger blocks of public lands.
    - Existing reserved or acquired rights-of-way parcels that are no longer needed for rights-of-way purposes. **Guideline**

5. Consider the following before making land adjustments:

- Lands with important or unique resources may be disposed of, consider mitigation and compensation values gained in acquired lands. Discourage use of reservation or partial interests as mitigation measures.
- Avoid land adjustments that could result in a trend toward federal listing or loss of population viability for species of concern. Sensitive species habitat can be conveyed if conveyance would not result in a trend toward federal listing or adversely impact the population viability of the species, or if mitigation and compensation values gained in acquired lands are to be considered, or if effects could be mitigated. **Guideline**

6. Obtain reasonable public and administrative access to all National Grasslands in the following ways:

- Require reciprocal grants, where needed, when granting rights-of-way easements across the grassland.
- Reserve in land disposal actions, existing and designated inventoried rights-of-way that are needed for implementation of the management plan and to protect them for future construction and occupancy. **Guideline**

7. Acquire through purchase or donation rights-of-way to provide public access where needed. **Standard**

8. As part of the land acquisition process, determine management prescription allocation. **Guideline**

N. Heritage Resources

1. Consult with designated representatives of federally recognized American Indian tribes during design of projects with potential to affect cultural rights and practices to help ensure protection, preservation, and use of areas that are culturally important to them. **Standard**

2. Consider American Indian traditional cultural plant use, when designing vegetative management activities. **Guideline**

3. Leave human remains undisturbed. **Guideline**

4. In case of disturbance, take steps outlined in Appendix M. Follow state law regarding the discovery of human remains. **Standard**

5. Protect heritage resources from damage by activities or vandalism through project design, specified protection measures, monitoring, and coordination. **Guideline**

6. Enhance and interpret significant heritage sites for the education and enjoyment of the public, while protecting the integrity of the site. **Guideline**

7. Limit non-research oriented ground-disturbing activities on heritage districts and sites eligible for the National Register Historic Preservation (NRHP) that creates adverse impacts to the district or site.. **Guideline**

O. Special Forest or Grassland Products

1. Ensure plant collecting does not jeopardize the continued vigor or existence of a plant population or associated plant communities. **Standard**

2. Require permits to collect sensitive plants or parts of sensitive plants. **Standard**

3. Require permits to commercially collect special forest or grassland products. **Standard**

4. Protect the distribution and species viability of plants associated with medicinal and traditional cultural values. **Guideline**

5. Protect American Indian traditional collecting areas for religious purposes. **Guideline**

6. Allow non-commercial collection of paleontological resources with authorization (permit or area designation). The maximum amount of collected petrified wood person per day does not exceed 25 pounds, and that the total maximum weight in one calendar year per person does not exceed 250 pounds. Permits shall be issued, however, to museums, educational institutions, and similar groups for larger amounts. **Standard**

7. Allow rock hounding (hunting and collecting of non-fossil rocks and minerals) on the National Grasslands without a permit, providing the activity does not damage the resource and specimens are for personal, non-commercial uses (See 36 CFR 228.62[e]). Collected material should not exceed 25 pounds per person, per day, and 250 pounds per year. Permits may be issued for larger amounts. **Guideline**

8. Research oriented, noncommercial, and commercial collection of miscellaneous products may be allowed if, information exists to maintain sustainable quantities. **Guideline**

9. Allow non-commercial collections of desired miscellaneous products by federally recognized American Indian tribes, in accordance with treaty rights. **Standard**

P. Special Uses

1. Permit utility companies to construct new utility corridors, unless prohibited by management direction provided in Chapters 1, 2, and 3. **Guideline**

2. Consolidate utility lines within existing corridors or in areas adjacent to roads wherever possible. **Guideline**

3. Bury electrical utility lines of 33 KV or less and telephone lines (Refer to MA direction for more specific corridor direction). **Guideline**

4. Ensure utility corridors are consistent between adjoining National Forest System , regions, and other federal, tribal, and state land management agencies. **Guideline**

5. Place all new pipelines underground. **Guideline**

6. Route new roads, pipelines, gathering lines, and technically required overhead power lines in a manner as to minimize visual impacts and conform to approved corridors. When these facilities leave corridors, they should be subordinate to the landscape (see Scenic Integrity in Glossary). **Guideline**

7. Design and construct new power lines to minimize the risk of raptor electrocution by ensuring that an 80-inch distance between conductors and ground wire. Upon renewal of permits, retrofit to provide for 80-inch distance between conductors and ground wire or install perch-inhibitors. **Standard**

8. Design night lighting to minimize light pollution. Limit continuous or dusk-to-dawn lighting at facilities. Exceptions may be made for the lighting of towers or lines to facilitate flight safety,

and staffed, around-the-clock operations. **Guideline**.

9. Don't approve land-use authorizations identified for disposal if that occupancy will affect disposal action. **Standard**

10. Act on special-use applications according to the following priorities:

- Land and land-use activity requests relating to public safety, health and welfare, e.g., highways, power lines and public service improvements.
- Land and land-use activities contributing to increased economic activity associated with Grassland National Forest System resources, e.g., oil and gas and energy minerals.
- Land and land-use activities that benefit only private users, e.g., road permits, rights-of-way for power lines, telephones, waterlines, etc. **Guideline**

11. Require a special-use road permit for motorized access to private land where access for the general public is not available. **Guideline**

12. Don't approve any special-use applications that can reasonably be met on private or other federal lands unless it is clearly in the public interest. **Guideline**

(See Geology and Minerals, Energy and Minerals Related to Special Uses for standards and guidelines regarding mineral operations.)

Q. Infrastructure Use and Management

1. Prohibit all motorized cross-country travel off existing roads and trails, except for authorized emergency services (i.e., law enforcement, medical, search and rescue) and administrative use (i.e., fire control, grazing administration, noxious weed control, and wildlife surveys). **Standard**

2. Consider existing roads and trails open and allow motorized vehicle use on them unless the following occurs:

- A decision restricts motorized use.
- The area is designated nonmotorized.
- Motorized use is specifically prohibited in management area direction or existing orders. **Guideline**

3. Allow motorized wheelchair use in a nonmotorized area so long as that wheelchair meets the legal definition of Title V, Section 507(c) (2) of the Americans with Disabilities Act. **Standard**

4. Perform site-specific Roads Analysis, including public involvement, prior to making any decisions on road construction, reconstruction, and decommissioning. **Guideline**.

5. Do not invest in new facilities on lands meeting the criteria for disposal. **Guideline**

6. Build new and reconstructed fences to provide for access for other uses such as big game movement, recreation, fire protection, and mineral development. **Guideline**

7. As opportunities allow, install gates along all existing fences at intervals to facilitate recreation and other uses to provide reasonable access. **Guideline**

8. Install all gates so they are easily opened and closed by all users. **Guideline**

9. Install cattle guards or hinged metal gates on popular and designated travel routes. **Guideline**

10. Prioritize and reconstruct those fences that do not meet big game specifications. **Guideline**

11. Reference Appendix B for fence construction for livestock, including bison. **Guideline**

12. Restrict capital investments on lands with non-federal mineral estate ownership in areas of moderate to high mineral development potential if purpose of capital investment would conflict with mineral development. **Guideline**

13. Perform site-specific mineral evaluations prior to making substantial investments, such as recreation developments, on federal mineral estate in areas of moderate to high potential for valuable mineral deposits. Depending on conclusions from mineral evaluation and potential for mineral development, consider alternate location for capital investment, withdrawal of locatable minerals, or restrictions on surface occupancy for leasable minerals. **Guideline**

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CHAPTER 2 GEOGRAPHIC AREA DIRECTION

INTRODUCTION

Geographic areas include management direction that is too specific to apply across an entire grassland or several grasslands. For example, desired vegetation conditions need to be tailored to the vegetation types, climate, and productivity of a specific area. The geographic area direction is applied to the area in addition to the grassland- and forest-wide direction in Chapter 1 and the management area direction in Chapter 3.

This chapter contains a brief section on each geographic area and includes the following:

- Description of the physical setting and unique features.
- Direction developed for the desired conditions and management emphases.

The size, location, climate, major drainages, and topographic and vegetation features are described in the Setting section. This section also includes the area's unique or unusual features. The management direction for each area is listed in the following sections: Geographic Area Direction – Objectives and Geographic Area Direction – Standards and Guidelines. Maps at the back of this chapter also display direction for the geographic areas. They include the following information:

- Recreation Opportunity Spectrum (ROS) settings
- Scenic Integrity Objectives (SIOs)
- Travel management direction

The Thunder Basin National Grassland encompasses about 572,000 acres of National Forest System (NFS) lands in the eastern region of Wyoming. These lands are interspersed with lands of other ownership, including state and private. The Douglas Ranger District (Douglas, Wyoming) administers the Thunder Basin National Grassland.

The Thunder Basin National Grassland is divided into the following 6 geographic areas. The areas are delineated on the enclosed Alternative 3 map.

- Broken Hills
- Cellers Rosecrans
- Fairview Clareton
- Hilight Bill
- Spring Creek
- Upton Osage

BROKEN HILLS GEOGRAPHIC AREA

Setting

The Broken Hills Geographic Area includes about 157,440 acres of National Forest System lands in east-central Wyoming. It consists of the Rochelle Hills, Red Hills, Cow Creek Buttes, and the Downs area southeast of Bill, Wyoming.

The climate of the Broken Hills Geographic Area can be classified as semi-arid Continental. The area is characterized by cold winters and warm summers, with somewhat infrequent periods of hot weather of more than 100^{o} Fahrenheit. Annual precipitation is generally between 10 and 14 inches, with about 40 inches of snowfall each year. Winds from the southwest are prevalent and sometimes strong.

The topography of the area is characterized by rolling hills to steep escarpments. Elevation ranges from about 4,500 feet above sea level in the Downs area to about 5,200 feet in the Rochelle Hills. The primary drainages in this geographic area are Black Thunder Creek and its tributaries Little Thunder and HA Creeks, the mainstem of Dry Creek and its tributaries Bobcat, Deer, and Little Rat Creeks, the Dry Fork of the Cheyenne River, and tributaries to Antelope Creek. The dominant vegetation includes Wyoming big sagebrush, needle-and-thread grass, blue grama grass, western wheatgrass, and ponderosa pine.

Desired Conditions

The desired condition in this geographic area is an open, scenic landscape with little evidence of human influence or activity. Insects, diseases, wildfire, and grazing patterns will create plant communities with diverse composition (seral stages) and structure. Natural outbreaks of native insects and diseases will be allowed to proceed without intervention unless there is a substantial threat to high-value resources. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass.

Habitat suitability and effectiveness will be maintained for key wildlife species. Prairie dog colonies will be maintained or increased.

The streams and riparian areas will be in proper functioning condition or moving towards proper functioning condition (BLM 1993). Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, as well as other woody plants. Soils in this geographic area will have high infiltration rates and low soil compaction, resulting in minimal overland flow events.

Primitive conditions with minimal facility development will be emphasized. Mineral developments, such as oil and gas wells and pipelines, will be present but visually subordinate to the landscape in the mid and background. Pastures will be large.

Unique Attributes

- Scenic buttes and hilly landscapes.
- Remote and secluded roadless areas.
- Significant populations of mule deer, pronghorn antelope and elk.
- Largely undisturbed open country.

Management Area Prescription Allocation

Prescription		Approximate Acres
1.31	Backcountry Recreation Nonmotorized	6,545
2.1	Special Interest Area	14,170
3.63	Black-footed Ferret Reintroduction Area	13,619
3.65	Rangelands with Diverse Natural-Appearing Landscapes	71,100
3.68	Big Game Range	18,426
5.12	General Forest and Rangeland	33,577

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
15 to 25%	30 to 40%	25 to 35%	10 to 20%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure -Objective

High	Moderate	Low
30 to 40%	40 to 50%	15 to 25%

High vegetation structure can be achieved on moderate and highly productive grasslands

dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Forest Vegetation

1. Manage timber stands to enhance wildlife and TES habitats while doing the following:

- Improving forest health.
- Preventing potentially damaging forest pest populations.
- Reducing fuel loading and risk of catastrophic wildfire adjacent to communities and homes.
- Improving riparian habitat. **Objective**

2. During vegetation management projects in ponderosa pine forests, use methods that emphasize development of structural stages 4 (mature) and 5 (late successional). Long-term objective is to have 40% of the forest cover in structural stage 4 and 20% in structural stage 5. **Objective**

3. Over the long term (100 years), manage forest cover to create stands with four structural stages in the forest cover as follows:

- 15-25% in structural stage 2.
- 15-25% in structural stage 3.
- 40% in structural stage 4.
- 20% in structural stage 5. **Objective**

4. Within 10-15 years, achieve forest structural diversity by maintaining or enhancing hardwood trees, shrub inclusions, and other beneficial plant communities and openings. **Objective**

Disturbance Processes

1. To achieve Goal 1.c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1.c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1 to 10% of the suitable rangeland each year as determined by project specific resource needs. **Objective**

Infrastructure

1. Increase the average pasture size as opportunities arise over the next 15 years. **Objective**

2. Provide at least 20 miles of system non-motorized trails within 10 years. **Objective**

Wildlife

Black-tailed Prairie Dog (MIS)

1. Maintain an increasing trend of black-tailed prairie dog populations across the geographic area over the next 10 to 15 years. **Objective**

2. Maintain and expand the current distribution of black-tailed prairie dogs across the geographic area over the next 10 to15 years. **Objective**

3. Improve the complex of prairie dog colonies (10 or more colonies with distances between nearest colonies not exceeding 6 miles) in the central part of this geographic area over the next 10 to 15 years. This area has been designated as MA 3.63. **Objective**

4. To help increase prairie dog populations and habitat for associated species, allow and encourage expansion of the prairie dog colony complex (10 or more colonies with a total colony acreage of at least 1,000 acres and intercolony distances of less than 6 miles) in the central portion of this geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, may be considered part of a complex. **Objective**

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Guideline**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range
1.31	25%	25-30%	35%	35-40%	30%	25-30%	10%	10-15%
2.1	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
3.63	15%	10-15%	10%	10-15%	15%	15-20%	60%	60-65%
3.65	20%	20-25%	35%	30-35%	30%	30-35%	15%	10-15%
3.68	25%	25-30%	35%	30-35%	25%	25-30%	15%	10-15%
5.12	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. **Guideline**

Structural Condition by M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
1.31	30%	30-35%	50%	45-50%	20%	15-20%
2.1	30%	30-35%	50%	45-50%	20%	15-20%
3.63	30%	30-35%	10%	10-15%	60%	60-65%
3.65	35%	30-35%	50%	45-50%	15%	10-15%
3.68	40%	40-45%	50%	45-50%	10%	10-15%
5.12	40%	40-45%	40%	40-45%	20%	15-20%

Forest Vegetation

1. When doing planned vegetation treatments, emphasize the maintenance and development of forest structural stages 4 (mature) and 5 (late successional). **Guideline**

2. Replicate biological processes found in the areas and strive to replicate natural vegetative patterns and patch size when doing management activities. **Guideline**

3. When developing openings in vegetative communities, simulate naturally shaped edges. **Guideline**

4. Don't make wood fiber production, Christmas tree cutting, or fire wood harvest the primary objectives of vegetative manipulation. **Standard**

Snags and Dead Woody Material Management

1. During vegetation treatments, maintain an average of four hard snags per forested acre. **Guideline**

2. If there are fewer than four hard snags per forested acre, projects to increase snag numbers may be implemented. **Guideline**

3. Snags can be clumped or individual but should be well distributed throughout the planning unit. **Guideline**

4. In areas not meeting the snag standard, consider snag cutting restrictions and treating live replacement trees to create snags. **Guideline**

5. Retain all soft snags unless they are a safety hazard. **Guideline**

6. Leave large woody debris on harvested or thinned sites to help retain moisture, prevent soil movement, provide micro-sites for establishment of forbs, grasses, shrubs, and trees and to provide habitat for wildlife. Locate woody debris concentrations where fuel loading is not a concern. **Guideline.**

7. On conifer-forested sites (ponderosa pine), retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available) or largest woody material found on-site. **Guideline**.

	Hard Snags			**Downed Logs**	
Forest Type	Minimum Diameter	Average per Acre *	Minimum Height	Minimum Diameter	Linear Feet per Acre *
Ponderosa pine	10 inches	4.0	25 feet	10 inches	50 feet

*This does not mean that every acre will have a snag or downed log; these are averages across the geographic area

Infrastructure

1. Maintain or increase average pasture size. **Guideline**

2. Maintain or reduce the net classified road density. If new short-term roads are constructed, existing unclassified or classified roads should be decommissioned. **Guideline**

Special Uses

1. Bury all electrical utility lines of 33KV or less and telephone lines. **Standard**

Wildlife

Black-tailed Prairie Dog (MIS)

1. Emphasize an active landownership adjustment program adjacent to the complex, throughout the geographic area in an attempt to reduce private land conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations in this area. Landownership adjustments may need to be completed in some locations before implementation of some actions to accelerate prairie dog population growth. **Guideline**

2. A range of 23,616 to 31,488 acres of low structure grasslands is prescribed for this geographic area. Much of this acreage should be located in the northeast portion of the geographic area in areas adjoining existing colonies and where prairie dog colonies are known to have occurred in the recent past. This will accelerate expansion of existing colonies and re-establishment of past colonies that are not along private land boundaries. **Guideline**

Sage Grouse (MIS)

1. A range of 55,104 to 62,976 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%,
- Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

CELLERS ROSECRANS GEOGRAPHIC AREA

Setting

The Cellers Rosecrans Geographic Area includes about 121,080 acres of National Forest System lands in east-central Wyoming. This geographic area lies largely within the central part of the Thunder Basin National Grassland from the Cheyenne River north.

The climate of the Cellers Rosecrans Geographic Area can be classified as semi-arid Continental. The area is characterized by cold winters and warm summers with somewhat infrequent periods of hot weather of more than 100^{o} Fahrenheit. Annual precipitation is generally between 10 and 14 inches, with about 40 inches of snowfall each year. Winds from the southwest are prevalent and sometimes strong.

Fairly level plains to rolling hills characterize the topography of the area. Elevation ranges from about 4,300 feet above sea level to 4,700 feet above sea level. The primary drainages in the geographic area are Black Thunder Creek and the lower portion of Little Black Thunder Creek. Portions of the Cheyenne River (including tributaries Frog and Horse Creeks) and Antelope Creek also flow through this geographic area. The dominant vegetation includes blue grama, Wyoming big sagebrush, cottonwood, western wheatgrass and needle-and-thread.

Desired Conditions

Insects, diseases, wildfire, and grazing patterns will create plant communities with diverse composition and structure. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass. Management activities will maintain or enhance hardwood and coniferous trees, woody shrub inclusions and other beneficial plant communities and increase vegetative diversity. Tree densities within stands will vary to create landscape-scale diversity. Fire will be used in some areas to promote open park-like timber stands. Late successional-stage vegetation may be found in the area.

Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Some areas will be managed to achieve rapid development of cottonwood and willow riparian habitats. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, and other woody plants.

Management direction in Special Interest Areas will emphasize cultural and zoological resources. Plant and animal species and communities associated with black-footed ferrets and black-tailed prairie dogs will be actively restored.

Primitive conditions with minimal facility development will be emphasized. Mineral developments such as oil and gas wells and pipelines will be present but visually subordinate in the mid and background. Pastures will remain large.

Unique Attributes

- A proposed Cheyenne River Valley reintroduction site for the endangered black-footed ferret.
- Significant populations of black-tailed prairie dogs.
- Large, consolidated areas of public land.

Management Area Prescription Allocation

Number	Prescription	Approximate Acres
2.1	Special Interest Areas	6,940
2.2	Research Natural Areas	1,213
3.63	Black-footed Ferret Reintroduction Area	34,275
3.68	Big Game Range	6
5.12	General Forest and Rangelands: Range Vegetation Emphasis	78,647

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
10 to 20%	20 to 30%	25 to 35%	25 to 35%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure - Objective

High	Moderate	Low
30 to 40%	25 to 35%	30 to 40%

High vegetation structure can be achieved on moderate and highly productive grasslands dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Forest Vegetation

1. Manage timber stands to enhance wildlife and TES habitats while doing the following:

- Improving forest health.
- Preventing potentially damaging forest pest populations.
- Reducing fuel loading and risk of catastrophic wildfire adjacent to communities and homes.
- Improving riparian habitat. **Objective**

2. During vegetation management projects in ponderosa pine forests, use methods that emphasize development of structural stages 4 (mature) and 5 (late successional). Long-term objective is to have 40% of the forest cover in structural stage 4 and 20% in structural stage 5. **Objective**

3. Over the long term (100 years), manage forest cover to create stands with four structural stages in the forest cover as follows:

- 15-25% in structural stage 2.
- 15-25% in structural stage 3.
- 40% in structural stage 4.
- 20% in structural stage 5. **Objective**

4. Within 10-15 years, achieve forest structural diversity by maintaining or enhancing hardwood trees, shrub inclusions, and other beneficial plant communities and openings. **Objective**

Disturbance Processes

1. To achieve Goal 1.c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1.c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1-10% of the suitable rangeland each year as determined by project specific resource needs **Objective**

Infrastructure

1. The landscape is dominated by large pasture size. **Objective**

Wildlife

Black-tailed Prairie Dog (MIS)

1. Maintain an increasing trend of black-tailed prairie dog populations across the geographic area over the next 10 to 15 years. **Objective**

2. Maintain and expand the current distribution of black-tailed prairie dogs across the geographic area over the next 10 to15 years. **Objective**

3. Improve the complex of prairie dog colonies (10 or more colonies with distances between nearest colonies not exceeding 6 miles) in the southwestern part of this geographic area over the next 10 to 15 years. This area has been designated as MA 3.63. **Objective**

4. To help increase prairie dog populations and habitat for associated species, allow and encourage expansion of the prairie dog colony complex (10 or more colonies with a total colony acreage of at least 1,000 acres and intercolony distances of less than 6 miles) in the central portion of this geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, may be considered part of a complex. **Objective**

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Standard**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range
2.1	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
2.2	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
3.63	15%	10-15%	10%	10-15%	15%	15-20%	60%	60-65%
3.68	25%	25-30%	35%	30-35%	25%	25-30%	15%	10-15%
5.12	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Structural Condition By M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
2.1	30%	30-35%	50%	45-50%	20%	15-20%
2.2	40%	35-40%	40%	35-40%	20%	15-20%
3.63	30%	30-35%	10%	10-15%	60%	60-65%
3.68	40%	40-45%	50%	45-50%	10%	10-15%
5.12	40%	40-45%	40%	40-45%	20%	15-20%

Forest Vegetation

1. When doing planned vegetation treatments, emphasize the maintenance and development of forest structural stages 4 (mature) and 5 (late successional). **Guideline**

2. Replicate biological processes found in the areas and strive to replicate natural vegetative patterns and patch size when doing management activities. **Guideline**

3. When developing openings in vegetative communities, simulate naturally shaped edges. **Guideline**

4. Don't make wood fiber production, Christmas tree cutting, or fire wood harvest the primary objectives of vegetative manipulation. **Standard**

Snags and Dead Woody Material Management

1. During vegetation treatments, maintain an average of four hard snags per forested acre. **Guideline**

2. If there are fewer than four hard snags per forested acre, projects to increase snag numbers may be implemented. **Guideline**

3. Snags can be clumped or individual but should be well distributed throughout the planning unit. **Guideline**

4. In areas not meeting the snag standard, consider snag cutting restrictions and treating live replacement trees to create snags. **Guideline**

5. Retain all soft snags unless they are a safety hazard. **Guideline**

6. Leave large woody debris on harvested or thinned sites to help retain moisture, prevent soil movement, provide micro-sites for establishment of forbs, grasses, shrubs, and trees and to provide habitat for wildlife. Locate woody debris concentrations where fuel loading is not a concern. **Guideline.**

7. On conifer-forested sites (ponderosa pine), retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available) or largest woody material found on-site. **Guideline**.

	Hard Snags			**Downed Logs**	
Forest Type	Minimum Diameter	Average per Acre *	Minimum Height	Minimum Diameter	Linear Feet per Acre *
Ponderosa pine	10 inches	4.0	25 feet	10 inches	50 feet

*This does not mean that every acre will have a snag or downed log; these are averages across the geographic area

Infrastructure

1. Maintain or increase average pasture size in Management Areas 2.1, 2.2, and 3.63. **Guideline**

2. Maintain or reduce the net classified road density. If new short-term roads are constructed, existing unclassified or classified roads should be decommissioned. **Guideline**

Special Uses

1. Bury all electrical utility lines of 33KV or less and telephone lines. **Standard**

Wildlife

Black-tailed Prairie Dog (MIS)

1. Emphasize an active landownership adjustment program adjacent to the complex, throughout the geographic area in an attempt to reduce private land conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations in this area. Landownership adjustments may need to be completed in some locations before implementation of some actions to accelerate prairie dog population growth. **Guideline**

2. A range of 36,324 to 42,378 acres of low structure grasslands is prescribed for this geographic area. Much of this acreage should be located in the northeast portion of the geographic area in areas adjoining existing colonies and where prairie dog colonies are known to have occurred in the recent past. This will accelerate expansion of existing colonies and re-establishment of past colonies that are not along private land boundaries. **Guideline**

Sage Grouse (MIS)

1. A range of 42,378 to 48,432 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%.
- Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

FAIRVIEW CLARETON GEOGRAPHIC AREA

Setting

The Fairview Clareton Geographic Area encompasses about 92,130 acres of National Forest System lands in east-central Wyoming. This geographic area is located in the easternmost part of the national grassland, between the Cheyenne River and US Highway 16.

The climate of the Fairview Clareton Geographic Area can be classified as semi-arid Continental. The area is characterized by warm summers with somewhat infrequent hot periods of more than 100^{o} Fahrenheit. Winters can be very cold, with temperatures dipping below minus 35^{o} Fahrenheit. Annual precipitation is generally between 10 to 14 inches at the lower elevations, and between 15 to 19 inches in the more northerly areas of the geographic area. About 40 inches of snowfall occurs on an average annual basis. Winds from the southeast are prevalent and are often strong.

The topography of the area consists of nearly level plains to rolling and moderately steep hills with some gullied lands. Elevation ranges between 3,800 to 4,800 feet above sea level. The primary drainages in the geographic area are Lodgepole Creek (including tributaries Wildcat, Lone Tree, Deep, and Hay Creeks) and Beaver Creek (including tributaries South Beaver, Mush, Fiddler, and lower Iron and Turner Creeks). The dominant vegetation includes Wyoming big sagebrush, blue grama and western wheatgrass.

Desired Conditions

Grazing will be a significant activity. The area will be managed to provide a rural/agricultural landscape. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass.

The streams and riparian areas will be in proper functioning condition or moving towards proper functioning condition (BLM 1993). Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, as well as other woody plants. Soils in this geographic area will have high infiltration rates and low soil compaction, resulting in minimal overland flow events.

There will be more development and a moderate number of facilities in this geographic area. Facilities and landscape modifications will be visible but reasonably mitigated to blend with natural features. Portions of the area will contain frequent fences, livestock developments, and roads. Structures associated with mineral development (e.g., oil and gas wells, pipelines) will be clearly visible. In some locations, operations will dominate the landscape; in others, they will be visually subordinate in the background. At the conclusion of mineral activities, lands will be reclaimed to approximate pre-disturbance levels or to meet a specific purpose consistent with the management area direction.

Unique Attributes

- Highly valued paleontological and archeological resources are present.
- There is substantial minerals development, including bentonite, oil, and gas.

Management Area Prescription Allocation

Number	Prescription	Approximate Acres
2.1	Special Interest Areas	5,670
4.32	Dispersed Recreation High Use	5,650
5.12	General Forest and Rangelands: Range Vegetation Emphasis	14,165
6.1	Rangeland with Broad Resource Emphasis	66,653

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
10 to 20%	30 to 40%	30 to 40%	10 to 20%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure - Objective

High	Moderate	Low
25 to 35%	45 to 55%	15 to 25%

High vegetation structure can be achieved on moderate and highly productive grasslands dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Disturbance Processes

1. To achieve Goal 1c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1-10% of the suitable rangeland each year as determined by project-specific resource needs. **Objective**

Wildlife

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the negative effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Standard**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range
2.1	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
4.32	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
5.12	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
6.1	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Structural Condition by M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
2.1	30%	30-35%	50%	45-50%	20%	15-20%
4.32	30%	30-35%	50%	45-50%	20%	15-20%
5.12	40%	40-45%	40%	40-45%	20%	15-20%
6.1	30%	25-30%	50%	50-55%	20%	15-20%

Special Uses

1. Bury electrical utility lines of 33 KV or less and telephone lines, except when:

- Scenic integrity objectives of the area can be met using an overhead line.
- Burial is not feasible due to geologic hazard or unfavorable geologic conditions.
- It is not reasonable as determined by a cost-effectiveness analysis.
- Greater long-term site disturbance would result.
- It is not technically feasible. **Guideline**

Wildlife

Sage Grouse (MIS)

1. A range of 27,639 to 32,245 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%.
- Proximity to sage grouse display grounds: 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

HILIGHT BILL GEOGRAPHIC AREA

Setting

The Hilight Bill Geographic Area encompasses about 100,780 acres of National Forest System lands in east-central Wyoming. This geographic area is located roughly parallel to Wyoming State Highway 59 from Bill to Wright, Wyoming.

The climate of the Hilight Bill Geographic Area can be classified as semi-arid Continental. The area is characterized by cold winters and warm summers with somewhat infrequent periods of hot weather of more than 100^{o} Fahrenheit. Winter temperatures may dip to as much as minus 35^{o} Fahrenheit. Annual precipitation is generally between 10 and 14 inches, with about 40 inches of snowfall each year. Winds from the southwest are prevalent and sometimes strong.

Fairly level plains with slopes of less than 15% characterize the topography of the area. Elevation ranges between 4,700 feet to 5,300 feet above sea level. The primary drainages in the geographic area are the headwaters of Antelope Creek (including tributaries Bates, Spring, and Porcupine Creeks), the Dry Fork of the Cheyenne River, and Dry Creek. The dominant vegetation includes big sagebrush, western wheatgrass, and needlegrass and blue gramma.

Desired Conditions

Minerals exploration and development and livestock grazing will be significant management activities in this geographic area. In some areas, there may be restrictions on public use to ensure public safety and to avoid unreasonable interference with mineral operations. In those areas where mining is emphasized, reclamation activities will restore the area to a reasonable level of its pre-mining condition. In areas with other management emphases, existing vegetative diversity and structural conditions will be maintained and enhanced. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass.

The streams and riparian areas will be in proper functioning condition or moving towards proper functioning condition (BLM 1993). Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, as well as other woody plants. Soils in this geographic area will have high infiltration rates and low soil compaction, resulting in minimal overland flow events.

There will be more development and a moderate number of facilities in this geographic area. Facilities and landscape modifications will be visible but reasonably mitigated to blend with natural features. Higher fence densities and intensive mineral development may occur.

Mineral developments and facilities such as coal mines, railroads, oil and gas wells, and pipelines will be present and will often dominate the landscape. When mineral activities are concluded, the disturbed lands will be reclaimed to blend in with adjacent undisturbed areas.

Unique Attributes

- There is significant extraction of coal, uranium, oil, and gas.
- Recreational hunting for mule deer, elk and pronghorn antelope is common.
- High incidence of raptor nesting occurs.

Management Area Prescription Allocation

Number	Prescription	Approximate Acres
3.68	Big Game Range	1,354
6.1	Rangeland with Broad Resource Emphasis	51,440
8.4	Mineral Production and Development	47,993

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
10 to 20%	30 to 40%	30 to 40%	10 to 20%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure - Objective

High	Moderate	Low
25 to 35%	45 to 55%	15 to 25%

High vegetation structure can be achieved on moderate and highly productive grasslands dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Disturbance Processes

1. To achieve Goal 1c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1-10% of the suitable rangeland each year as determined by project specific resource needs. **Objective**

Wildlife

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Standard**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range
3.68	25%	25-30	35%	30-35%	25%	25-30%	15%	10-15%
6.1	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
8.4	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Structural Condition by M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
3.68	40%	40-45%	50%	45-50%	10%	10-15%
6.1	30%	25-30%	50%	50-55%	20%	15-20%
8.4	30%	25-30%	50%	50-55%	20%	15-20%

Special Uses

1. Bury electrical utility lines of 33 KV or less and telephone lines, except when:

- Scenic integrity objectives of the area can be met using an overhead line.
- Burial is not feasible due to geologic hazard or unfavorable geologic conditions.
- It is not reasonable as determined by a cost-effectiveness analysis.
- Greater long-term site disturbance would result.
- It is not technically feasible. **Guideline**

Wildlife

Sage Grouse (MIS)

1. A range of 25,195 to 30,234 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%.
- Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

SPRING CREEK GEOGRAPHIC AREA

Setting

The Spring Creek Geographic Area encompasses about 48,740 acres of National Forest System lands in eastern Wyoming. This geographic area is located about 30 miles north of Gillette, Wyoming.

The climate of the Spring Creek Geographic Area can be classified as semi-arid Continental. The area is characterized by cold winters and warm summers with somewhat infrequent periods of hot weather of more than 100^{o} Fahrenheit. Winter temperatures may dip to as much as minus 35^{o} Fahrenheit. Annual precipitation is generally between 15 and 17 inches, with about 40 inches of snowfall each year. Winds from the southwest are prevalent and sometimes strong.

The topography of the area is characterized by nearly level to moderately steep plains, with rolling hills and steep escarpments in the western and northern portions of the geographic area. Elevations range between 4,100 feet to 4,600 feet above sea level in the Weston Hills area.

The primary drainages in the geographic area are Duck Creek, ZV Creek, Spring Creek (including tributaries Dry Fork Spring Creek and Wild Horse Creek), and Prairie Creek (including Horse Creek tributary). Duck, ZV, and Spring Creeks flow west/northwest into the Little Powder River. Prairie Creek flows east-northeast and eventually drains into the Little Missouri River.

The dominant vegetation includes sagebrush, western wheatgrass, little bluestem and needlegrass. About 6,000 acres of ponderosa pine occurs primarily in the Weston Hills and the northern part of the geographic area.

Desired Condition

Insects, diseases, wildfire, and grazing patterns will create plant communities with diverse composition and structure. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass. Management activities will maintain or enhance hardwood and coniferous trees, woody shrub inclusions and other beneficial plant communities and increase vegetative diversity. Tree densities within stands will vary to create landscape-scale diversity. Fire will be used in some areas to promote open park-like timber stands. Late successional-stage vegetation may be found in the area.

Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Some areas will be managed to achieve rapid development of cottonwood and willow riparian habitats. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, and other woody plants.

Areas with heavy recreation use will have picnicking and camping facilities available. Motorized and nonmotorized trails will have signs to distinguish different uses.

Primitive conditions with minimal facility development will be emphasized. Mineral developments such as oil and gas wells and pipelines will be present but visually subordinate in

the mid and background. Pastures will remain large.

Unique Attributes

- Ponderosa pine forests, woody draws and grasslands.
- Scenic landscapes, including scoria outcroppings.
- Recreational hunting of pronghorn antelope and mule deer.

Management Area Prescription Allocation

Number	Prescription	Approximate Acres
3.65	Rangelands with Diverse Natural-appearing Landscapes	12,332
4.32	Dispersed Recreation High Use	1,929
5.12	General Forest and Rangeland: Range Vegetation Emphasis	34,481

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
10 to 20%	30 to 40%	30 to 40%	10 to 20%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure (Objective)

High	Moderate	Low
35 to 45%	35 to 45%	15 to 25%

High vegetation structure can be achieved on moderate and highly productive grasslands dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant

species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Forest Vegetation

1. Manage timber stands to enhance wildlife and TES habitats while doing the following:

- Improving forest health.
- Preventing potentially damaging forest pest populations.
- Reducing fuel loading and risk of catastrophic wildfire adjacent to communities and homes.
- Improving riparian habitat. **Objective**

2. During vegetation management projects in ponderosa pine forests, use methods that emphasize development of structural stages 4 (mature) and 5 (late successional). Long-term objective is to have 40% of the forest cover in structural stage 4 and 20% in structural stage 5. **Objective**

3. Over the long term (100 years), manage forest cover to create stands with four structural stages in the forest cover as follows:

- 15-25% in structural stage 2.
- 15-25% in structural stage 3.
- 40% in structural stage 4.
- 20% in structural stage 5. **Objective**

4. Within 10-15 years, achieve forest structural diversity by maintaining or enhancing hardwood trees, shrub inclusions, and other beneficial plant communities and openings. **Objective**

Disturbance Processes

1. To achieve Goal 1.c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1.c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1-10% of the suitable rangeland each year as determined by project specific resource needs. **Objective**

Infrastructure

1. Increase the average pasture size as opportunities arise over the next 15 years. **Objective**

Wildlife

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Plains Sharp-tailed Grouse (MIS)

1. Provide diverse and quality grassland habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sharp-tailed grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure over the next 10 to 15 years. **Objective**

3. Reduce the impacts of extended droughts on sharp-tailed grouse populations and their recovery after droughts by managing land uses in sharp-tailed grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Recreation

1. Provide at least 1 developed recreation facility at a fishery-stocked reservoir within the next 10 years. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Standard**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range
3.65	20%	20-25%	35%	30-35%	30%	30-35%	15%	10-15%
4.32	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%
5.12	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Structural Condition by M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
3.65	35%	30-35%	50%	45-50%	15%	10-15%
4.32	30%	30-35%	50%	45-50%	20%	15-20%
5.12	40%	40-45%	40%	40-45%	20%	15-20%

Forest Vegetation

1. When doing planned vegetation treatments, emphasize the maintenance and development of forest structural stages 4 (mature) and 5 (late successional). **Guideline**

2. Replicate biological processes found in the areas and strive to replicate natural vegetative patterns and patch size when doing management activities. **Guideline**

3. When developing openings in vegetative communities, simulate naturally shaped edges. **Guideline**

4. Don't make wood fiber production, Christmas tree cutting, or fire wood harvest the primary objectives of vegetative manipulation. **Standard**

Snags and Dead Woody Material Management

1. During vegetation treatments, maintain an average of four hard snags per forested acre. **Guideline**

2. If there are fewer than four hard snags per forested acre, projects to increase snag numbers may be implemented. **Guideline**

3. Snags can be clumped or individual but should be well distributed throughout the planning unit. **Guideline**

4. In areas not meeting the snag standard, consider snag cutting restrictions and treating live replacement trees to create snags. **Guideline**

5. Retain all soft snags unless they are a safety hazard. **Guideline**

6. Leave large woody debris on harvested or thinned sites to help retain moisture, prevent soil movement, provide micro-sites for establishment of forbs, grasses, shrubs, and trees and to provide habitat for wildlife. Locate woody debris concentrations where fuel loading is not a concern. **Guideline.**

7. On conifer-forested sites (ponderosa pine), retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available) or largest woody material found on-site. **Guideline**.

	Hard Snags			Downed Logs	
Forest Type	Minimum Diameter	Average per Acre *	Minimum Height	Minimum Diameter	Linear Feet per Acre *
Ponderosa pine	10 inches	4.0	25 feet	10 inches	50 feet

*This does not mean that every acre will have a snag or downed log; these are averages across the geographic area

Infrastructure

1. Maintain or increase average pasture size in Management Areas 3.65 and 4.32. **Guideline**

2. Maintain or reduce classified road density. If new short-term roads are constructed, existing unclassified or classified roads should be decommissioned. **Guideline**

Special Uses

1. Bury all electrical utility lines of 33KV or less and telephone lines. **Guideline**

Wildlife

Sage Grouse (MIS)

1. A range of 17,059 to 19,496 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%.
- Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

Plains Sharp-tailed Grouse (MIS)

1. A range of 17,059 to 19,496 acres of high structure grasslands is prescribed for this geographic area. A substantial amount of this acreage should be located where it would optimize habitat for sharp-tailed grouse and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses,
- Proximity to sharp-tailed grouse display grounds,
- Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**

2. Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining a diversity of forb species in grassland communities and regeneration of shrub patches and the shrub component of wooded draws and riparian habitats. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sharp-tailed grouse habitat to avoid significantly magnifying the adverse effects of drought on grouse populations and vegetation for nesting, brooding and foraging. **Guideline**

UPTON OSAGE GEOGRAPHIC AREA

Setting

The Upton Osage Geographic Area includes about 32,310 acres of National Forest System lands in east-central Wyoming. It lies in the extreme northeastern portion of the Thunder Basin National Grassland and west of the Black Hills, which accounts for its many stands of ponderosa pine.

The climate of the Upton Osage Geographic Area can be classified as semi-arid Continental. The area is characterized by cold winters and warm summers with somewhat infrequent periods of hot weather where temperatures exceed 100^{o} Fahrenheit. Annual precipitation is generally between 15 and 19 inches, with about 40 inches of snowfall each year. Winds from the southwest are prevalent and sometimes strong.

Nearly level plains to ascending hills characterize the topography of the area. Elevation ranges from about 4,200 feet above sea level to about 4,500 above sea level. The dominant vegetation includes ponderosa pine in the more hilly locations, with sagebrush and numerous grass species on the more level plains.

Most of the area drains toward the Cheyenne River, although a small portion does drain toward the Belle Fourche River. The principal drainages in the Cheyenne River watershed are Pine, Iron, and Turner Creeks—headwater tributaries of Beaver Creek: The principal drainages in the Belle Fourche watershed are Wind Creek, Arch Creek, and Willow Creek.

Desired Condition

Insects, diseases, wildfire, and grazing patterns will create plant communities with diverse composition and structure. This area will have a healthy and diverse mix of grasses, including the following species: western wheatgrass, needle and thread grass, green needlegrass, little bluestem, blue grama, and prairie junegrass. Management activities will maintain or enhance hardwood and coniferous trees, woody shrub inclusions, and other beneficial plant communities and increase vegetative diversity. Tree densities within stands will vary to create landscape-scale diversity. Fire will be used in some areas to promote open park-like timber stands. Late successional-stage vegetation may be found in the area.

Riparian areas/woody draws will be managed to maintain or enhance different age classes of herbaceous plants, shrubs, and trees. Some areas will be managed to achieve rapid development of cottonwood and willow riparian habitats. Desired riparian species include sedges, rushes, snowberry, rose, willow, cottonwood, and other woody plants.

Areas with heavy recreation use will have picnicking and camping facilities available. Motorized and nonmotorized trails will have signs to distinguish different uses.

Primitive conditions with minimal facility development will be emphasized. Mineral developments such as oil and gas wells and pipelines will be present but visually subordinate in the mid and background. Bentonite mining operations will be present, but will typically be less than 160 acres in size. Some mines may be much larger than 160 acres, but they will not dominate the landscape. When mineral activities are concluded, the disturbed lands will be

reclaimed to blend in with adjacent undisturbed areas. Pastures will remain large.

Unique Attributes

- Substantial ponderosa pine forest stands.
- Extensive sagebrush plains.
- Significant populations of mule deer and pronghorn antelope.
- Multiple mineral extraction industries.

Management Area Prescription Allocation

Number	Prescription	Approximate Acres
3.68	Big Game Range	14,107
4.32	Dispersed Recreation High Use	18,200

Geographic Area Direction - Objectives

Vegetation

1. Desired seral stages (plant species composition) and vegetation structure across the geographic area are as follows:

Desired Seral Stages - Objective

Late	Late Intermediate	Early Intermediate	Early
15 to 25%	30 to 40%	25 to 35%	10 to 20%

Across the landscape, grass and sagebrush are intermingled. In some areas, grasses are the dominant species; in other areas, sagebrush is the dominant species. The vegetation composition varies depending on seral stage.

In grass-dominated communities in mid to late seral stages, the dominant native grass species are western wheatgrass, needle and thread grass, green needlegrass, and little bluestem. In grass-dominated sites in early to mid seral stages, grasses such as blue grama often dominate. Threeawn and blue grama are commonly the dominant grasses on prairie dog colonies in early seral stage.

In sagebrush-dominated communities, there is more sagebrush in the mid to late seral stages than in early to mid seral stages. As the community moves from early to late seral stage, the percentage of grasses declines. In the understory, the dominant native plant species are western wheatgrass and green needlegrass.

Desired Vegetation Structure - Objective

High	Moderate	Low
30 to 40%	45 to 55%	10 to 20%

High vegetation structure can be achieved on moderate and highly productive grasslands dominated by mid grasses (late or late intermediate seral stages). Grasslands on moderate to highly productive soils but in an early seral condition and dominated by short-stature plant species generally do not have the capability to provide high vegetation structure. Management changes may be necessary to move some existing seral conditions toward a higher seral

condition to meet structure objectives.

Prairie dog colonies provide low structure, as do grassland areas grazed by livestock at high intensities. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid grasses.

The height and density of grasses, forbs and sedges in the understory of sagebrush stands are important factors influencing structure for several wildlife species. The relationship of structure to quality nesting habitat for sage grouse is described in Appendix H. Appendix H describes quality nesting as sagebrush understories with residual herbaceous cover averaging at least 7 inches in height. This objective is primarily provided when sagebrush habitat types are in a late seral condition.

Forest Vegetation

1. Manage timber stands to enhance wildlife and TES habitats while doing the following:

- Improving forest health.
- Preventing potentially damaging forest pest populations.
- Reducing fuel loading and risk of catastrophic wildfire adjacent to communities and homes.
- Improving riparian habitat. **Objective**

2. During vegetation management projects in ponderosa pine forests, use methods that emphasize development of structural stages 4 (mature) and 5 (late successional). Long-term objective is to have 40% of the forest cover in structural stage 4 and 20% in structural stage 5. **Objective**

3. Over the long term (100 years), manage forest cover to create stands with four structural stages in the forest cover as follows:

- 15-25% in structural stage 2.
- 15-25% in structural stage 3.
- 40% in structural stage 4.
- 20% in structural stage 5. **Objective**

4. Within 10-15 years, achieve forest structural diversity by maintaining or enhancing hardwood trees, shrub inclusions, and other beneficial plant communities and openings. **Objective**

Disturbance Processes

1. To achieve Goal 1.c Ecological Integrity, fire will be reintroduced into the ecosystem. The amount and scope of burning will be determined by project specific resource needs. **Objective**

Livestock Grazing

1. To achieve Goal 1.c Wildlife and Fish Habitat, as well as Grassland Wide Direction, rest 1-10% of the suitable rangeland each year as determined by project specific resource needs. **Objective**

Infrastructure

1. Increase the average pasture size as opportunities arise over the next 15 years. **Objective**

2. Provide at least 10 miles of additional system motorized and non-motorized trails within 10

years. **Objective**

Wildlife

Sage Grouse (MIS)

1. Provide diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting habitat for sage grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years. **Objective**

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Plains Sharp-tailed Grouse (MIS)

1. Provide diverse and quality grassland habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sharp-tailed grouse and other wildlife with similar habitat needs. **Objective**

2. Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H) and associated wildlife by meeting vegetation objectives for high structure over the next 10 to 15 years. **Objective**

3. Reduce the impacts of extended droughts on sharp-tailed grouse populations and their recovery after droughts by managing land uses in sharp-tailed grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats. **Objective**

Recreation

1. Develop at least 2 recreation facilities (e.g., toilets, picnic sites, boat ramps) at fishery-stocked reservoirs within the next 10 years. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I) to help design and implement range management strategies for meeting desired vegetation objectives. **Standard**

2. Manage vegetation by Management Area (MA) according to the following table to achieve the desired seral stage (plant species composition) objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Seral Condition By M.A.

MA	Late		Late Intermediate		Early Intermediate		Early	
	Target	Range	Target	Range	Target	Range	Target	Range

3.68	25%	25-30%	35%	30-35%	25%	25-30%	15%	10-15%
4.32	15%	15-20%	35%	30-35%	35%	30-35%	15%	15-20%

3. Manage vegetation by Management Area (MA) according to the following table to achieve the desired structural objectives for the Geographic Area. The table has a target percent displayed, with and acceptable range of percents included. **Guideline**

Structural Condition by M.A.

MA	High		Moderate		Low	
	Target	Range	Target	Range	Target	Range
3.68	40%	40-45%	50%	45-50%	10%	10-15%
4.32	30%	30-35%	50%	45-50%	20%	15-20%

Forest Vegetation

1. When doing planned vegetation treatments, emphasize the maintenance and development of forest structural stages 4 (mature) and 5 (late successional). **Guideline**

2. Replicate biological processes found in the areas and strive to replicate natural vegetative patterns and patch size when doing management activities. **Guideline**

3. When developing openings in vegetative communities, simulate naturally shaped edges. **Guideline**

4. Don't make wood fiber production, Christmas tree cutting, or fire wood harvest the primary objectives of vegetative manipulation. **Standard**

Snags and Dead Woody Material Management

1. During vegetation treatments, maintain an average of four hard snags per forested acre. **Guideline**

2. If there are fewer than four hard snags per forested acre, projects to increase snag numbers may be implemented. **Guideline**

3. Snags can be clumped or individual but should be well distributed throughout the planning unit. **Guideline**

4. In areas not meeting the snag standard, consider snag cutting restrictions and treating live replacement trees to create snags. **Guideline**

5. Retain all soft snags unless they are a safety hazard. **Guideline**

6. Leave large woody debris on harvested or thinned sites to help retain moisture, prevent soil movement, provide micro-sites for establishment of forbs, grasses, shrubs, and trees and to provide habitat for wildlife. Locate woody debris concentrations where fuel loading is not a concern. **Guideline.**

7. On conifer-forested sites (ponderosa pine), retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available) or largest woody material found on-site. **Guideline**.

	Hard Snags			Downed Logs	
Forest Type	Minimum Diameter	Average per Acre *	Minimum Height	Minimum Diameter	Linear Feet per Acre *
Ponderosa pine	10 inches	4.0	25 feet	10 inches	50 feet

*This does not mean that every acre will have a snag or downed log; these are averages across the geographic area

Infrastructure

1. Maintain or increase average pasture size. **Guideline**

2. Maintain or reduce the net classified road density. If new short-term roads are constructed, existing unclassified or classified roads should be decommissioned. **Guideline**

Special Uses

1. Bury all electrical utility lines of 33KV or less and telephone lines. **Standard**

Wildlife

Sage Grouse (MIS)

1. A range of 11,308 to 12,924 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%.
- Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

Plains Sharp-tailed Grouse (MIS)

1. A range of 11,308 to 12,924 acres of high structure grasslands is prescribed for this geographic area. A substantial amount of this acreage should be located where it would optimize habitat for sharp-tailed grouse and associated species. The following criteria will be considered during site-specific project level planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses,
- Proximity to sharp-tailed grouse display grounds,
- Proximity to shrub habitats, private croplands, and other sharp-tailed grouse foraging habitats. **Guideline**

2. Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining a diversity of forb species in grassland communities and regeneration of shrub patches and the shrub component of wooded draws and riparian habitats. **Guideline**

3. At the onset of drought, evaluate the need to modify land use practices in sharp-tailed grouse habitat to avoid significantly magnifying the adverse effects of drought on grouse populations and vegetation for nesting, brooding and foraging. **Guideline**

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CHAPTER 3 MANAGEMENT AREA DIRECTION

INTRODUCTION

Management areas are defined as parts of the grassland that are managed for a particular emphasis or theme. Each management area has a prescription that outlines the Theme, the Desired Conditions, and the Standards and Guidelines that apply to it (in addition to the Grassland-wide Standards and Guidelines).

Prescriptions have been broken into eight major categories which range from least evidence of disturbance to most evidence of disturbance: For example, Proposed Wilderness (MA 1.2) would have the least amount of facilities and Rangeland with Broad Resource Emphasis (MA 6.1) would show the greatest evidence of facilities, including things like roads, oil wells, pipelines, and water developments.

Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Least facilities<----------> Most facilities **More land use restrictions<----------Fewer land use restrictions**							

For this revision, linear, point, and small management areas were combined into other management areas, or are handled through discrete standards and guidelines. This includes campgrounds and picnic grounds (developed recreation sites), utility corridors, woody draws and riparian areas. Management areas devoted to a particular wildlife species were consolidated into "special wildlife areas."

The eight categories of management prescriptions are described below:

Prescription Category 1

Category 1 includes Wilderness Areas and the various prescriptions used within them, and the backcountry recreation settings. Ecological processes, such as fire, insects, and disease, are essentially allowed to operate relatively free from the influence of humans. Diversity resulting from natural succession and disturbances predominates, and non-native vegetation is rare. Users must be self-reliant and should expect little contact with other people. Few, if any, human-made facilities are present. With rare exceptions, travel is nonmotorized.

Prescription Category 2

Category 2 areas are intended to conserve representative (or particularly rare and narrowly distributed) ecological settings or components. They help protect ecosystems or ecosystem components that may have important functions, ensuring the overall sustainability of larger landscapes. Human influences on ecological processes are limited as much as possible, but are sometimes evident. Types of human use vary, but generally are not intensive. Travel is generally nonmotorized. They help play an important role under an adaptive-management philosophy by serving as a "natural" reference for areas that are intensively managed for a particular objective. These areas are formally designated Research Natural Areas (RNAs).

Prescription Category 3

Ecological values in Category 3 areas are in balance with human occupancy, and consideration is given to both. Resource management activities may occur, but natural ecological processes and resulting patterns normally predominate. Although these areas are characterized by predominately natural-appearing landscapes, an array of management tools may be used to restore or maintain relatively natural patterns of ecological process. This results in some evidence of human activities. Users expect to experience some isolation from the sights and sounds of people, in a setting that offers some challenge and risk.

Prescription Category 4

The ecological values in Category 4 areas are managed to be compatible with recreation use, but are maintained well within the levels necessary to maintain overall ecological systems. Resource use for other values is not emphasized and has little impact on ecological structure, function, or composition. Sights and sounds of people are expected, and may even be desired. Motorized transportation is common.

Prescription Category 5

Category 5 areas are forested areas managed for a mix of forest products, forage, and wildlife habitat, while protecting scenery and offering recreation opportunities. Ecological sustainability is protected, while selected biological structures and compositions which consider the range of natural variability are emphasized. These lands often display high levels of investment, use, and activity; density of facilities; and evidence of vegetative treatment. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common.

Prescription Category 6

Category 6 areas are primarily non-forested ecosystems that are managed to meet a variety of ecological and human needs. Ecological conditions will be maintained while emphasizing selected biological (grasses and other vegetation) structures and compositions which consider the range of natural variability. These lands often display high levels of investment, use, and activity; density of facilities; and evidence of vegetative manipulation. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common.

Prescription Category 7

Category 7 areas are public lands intermingled with private land to such an extent that ecosystem management objectives for National Forest System lands must be tempered by other landowners' uses and objectives. Human activities have altered the natural appearance of these landscapes in most area on both the public and private lands. Sights and sounds of people predominate. Private land uses is often residential. Resource use is not planned on a sustainable basis, but many occur in concert with surrounding private land values. Motorized transportation is common.

Prescription Category 8

Ecological conditions, including processes, within Category 8 areas are likely to be permanently altered by human activities, beyond the level needed to maintain natural-appearing landscapes and ecological processes. These areas are generally small. Ecological values are protected where they affect the health and welfare of humans. Human activities are generally commercial in nature, directly or indirectly providing jobs and income. Motorized transportation is common.

1.31 NONMOTORIZED BACKCOUNTRY RECREATION

Theme

Backcountry, nonmotorized recreation areas are managed to provide recreation opportunities in a natural-appearing landscape.

Desired Conditions

A variety of un-crowded, nonmotorized, recreation opportunities are provided in a natural or natural-appearing setting. There will usually be less than 15 encounters with other parties per day. These areas may offer unique hunting opportunities away from motorized vehicles.

Improvements such as trailheads, trails, signs, bridges, fences, primitive shelters, and water developments, may be present. Existing two-track roads and old roads may be evident but will diminish over time or may become designated trails.

The number of structures and facilities to support management activities is limited. Large pasture size and unobtrusive developments promote an open, natural-appearing landscape.

Vegetation is moving toward the range of natural variability. Natural processes, such as fire, insects, diseases, rest, and grazing control vegetative composition and structure.

Standards and Guidelines

General

1. Allow uses and activities only if they do not degrade semi-primitive character of the area. **Standard**

2. Reclaim disturbed lands to a condition suitable for the purposes for which the area was identified. **Standard**

3. Limit all motorized, including snowmobile use, to authorized and permitted administrative, law enforcement, search and rescue, and emergency purposes. **Standard**

4. Prohibit new road construction or existing road reconstruction or maintenance unless authorized for administrative purposes or to honor existing rights. **Guideline**

Mineral and Energy Resources

1. If access for geophysical surveys is not feasible by off-road travel, use of portable techniques is required. **Guideline**

2. Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**

3. Prohibit mineral material removal. **Standard**

4. Honor all valid existing oil and gas leases. Refer to Chapter 1, Grassland-wide Directions; Goal 2.c and Section D, Oil and Gas). **Standard**

Fire

1. Prohibit use of heavy ground-disturbing equipment for fire suppression unless authorized by the district ranger. **Guideline**

2. Refer to Chapter 1, Grassland-wide Direction, Section G, for fire suppression direction.

Silviculture

1. Trees may be cut or removed under the following circumstances; however, new road construction is prohibited:

- To reduce fuel loads and fire risk, especially to adjoining private land.
- To curtail imminent threat of epidemic insect attack.
- To improve aesthetics, such as enhancing a scenic view from a prominent overlook.
- To enhance growth of rare plant species and community types.
- To maintain wildlife habitat diversity. **Guideline**

Livestock Grazing

1. Refer to Chapter 1, Grassland wide Direction, Section I, Livestock Grazing and Chapter 2, Geographic Area Descriptions.

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Develop necessary trailhead facilities on public land to provide adequate public parking in these areas, provide for sanitation facilities and to reduce conflicts with private landowners. **Guideline**

2. Refer to Chapter 1, Grassland-wide Direction, Section K.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide Direction, Section N, for additional heritage resource direction.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of High. **Guideline** (see Appendix G)

Special Uses

1. No new utility corridors or additional development within existing corridors will be permitted. Existing corridors may be maintained until they are abandoned. Valid existing rights will be honored. **Standard**

2. Prohibit new special-use facilities except for valid existing rights **Guideline**

Infrastructure

1. Prohibit construction of facilities and structures that are not visually subordinate to the landscape. **Guideline**

2. Utilize natural materials in the construction/reconstruction of facilities. **Standard**

3. For additional information refer to Chapter 1, Grassland-wide Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

4. Limit fence density by allowing new fence construction only to facility protection, public safety, or habitat protection or enhancement. **Guideline**

5. Within three years, perform roads analysis to determine road decommissioning and trail needs. **Standard**

2.1 SPECIAL INTEREST AREAS

Theme

Special Interest Areas (SIA) are managed to protect or enhance and, where appropriate, develop and interpret for public education and recreation, areas with unusual characteristics.

Desired Conditions

Evidence of human activities is consistent with the characteristics for which each SIA was established. Encounters between individuals or parties depend on the objectives for each SIA.

Vegetation, terrestrial, and aquatic habitats will usually, but not always, appear natural. Vegetation manipulation may be used to maintain or restore natural conditions; to protect threatened, endangered, and sensitive species; or enhance other values for which the SIA was designated.

Standards and Guidelines

General

1. Allow uses and activities that maintain and enhance the characteristics for which the SIA was designated. **Standard**

2. Reclaim disturbed lands to a condition suitable for the purposes for which the SIA was identified. **Standard**

Mineral and Energy Resources

1. When withdrawal is necessary to protect the values for which the area was designated, request withdrawal from mineral entry in conformance with Section 204 of the Federal Land Policy and Management Act of 1976 (PL 94-576). **Standard**

2. Refer to the Preface and Chapter 2, Geographic Area Direction.

Fire

1. Refer to Grassland-wide Direction, Section G, for fire suppression direction.

Livestock Grazing

1. Reference Chapter 1, Grassland-wide Direction, section I, (Livestock Grazing) and Chapter 2, Geographic Area Descriptions.

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Refer to Chapter 1, Grassland-wide Direction, Section K Recreation

Heritage Resource

1. Refer to Chapter 1, Grassland-wide Direction, Section N, for additional heritage resource direction.

Scenery Management

1.Manage the area to meet a Scenic Integrity Objective of High (see Appendix G). **Guideline**:

Special Use

1. No new utility corridors or additional development within existing corridors will be permitted. Existing corridors may be maintained until they are abandoned. Valid existing rights will be honored (Refer to Preface, Chapter 1, Grassland-wide Direction, Section D Oil and Gas, and Appendix G) **Standard**

Infrastructure

1. For additional information refer to Chapter 1, Grassland-wide Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

SIA Descriptions

2.1a - Cellers SIA: This 960-acre site is characterized by a series of prehistoric camps atop a continuous ridge overlooking the surrounding terrain. This complex of more than 120 stone circles was a major prehistoric stopping point for early American Indians. Management emphasizes protecting the archeological features and increasing our understanding of the site by working in concert with contemporary American Indian tribes.

Additional Direction:

- Prohibit ground-disturbing fire control methods. **Standard**
- Prohibit geophysical operations. **Standard**
- Allow camping only if part of a scientific study. **Standard**
- Require monitoring by a professional archeologist during all soil disturbance. **Standard**
- Consult with traditional religious practitioners of federally recognized tribes before approving any projects within the area. **Standard**
- Prohibit additional structural or non-structural rangeland improvements**. Standard**
- Allow maintenance of existing structural range facilities only after it has been determined by an on-site survey there will be no damage to heritage resources. **Standard**
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**
- Conduct on-the-ground survey for heritage resources before and during soil disturbance for development of existing oil and gas leases. **Standard**
- Prohibit mineral material removal**. Standard**

Additional Direction, cont.

- Prohibit locatable mineral operating plans that would harm scientific value of the heritage resources. **Standard**
- Prohibit new special-use facilities except for valid existing rights. **Guideline**
- Limit off road motorized vehicle use to authorized administrative purposes including , fire control, emergency services, research, permitted activities, control of invasive plants, and motorized use necessary to exercise outstanding rights. **Standard**

2.1b - Cheyenne River Zoological SIA: This 5,980-acre site provides for approximately 3,000 acres of prairie dog complex, including occupied mountain plover habitat and potential black-footed ferret habitat. About 6 ¾ miles of the Cheyenne River winds through the area, offering habitat for fish and beaver. Raptors also nest in the area. The river corridor also offers potential habitat for the Ute's lady's tresses and bald eagle winter roost sites. Management emphasis is on protecting and enhancing habitat conditions.

Additional Direction:

- Coordinate and consult with the appropriate state wildlife agency to prohibit prairie dog shooting and fur harvest within the SIA. **Standard**
- Restrict motorized travel to locations and time periods when it would not reduce the optimum habitat effectiveness of the area. **Standard**
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities if they may have adverse effects on black-footed ferret reintroduction objectives. **Standard**.
- Prohibit locatable mineral operating plans that would reduce effectiveness of the habitats emphasized. **Standard**
- Prohibit new special-use facilities except for valid existing rights. **Guideline**
- Manage livestock grazing and stocking rates to achieve the most rapid development of mature cottonwood willow riparian area while promoting best habitat conditions for mountain plover breeding, nesting, and brood rearing. **Standard**

2.1c - Alkali Divide SIA: This 5,140-acre site features a high concentration of fossil remains from the late Cretaceous Period ending about 65 million years ago. The site is within the Lance Formation, which is composed of 2,600 feet of dull-gray sandy shales alternating with lenticular, light-colored sandstones and thin lignite beds. The Lance Formation has a high potential to produce a large variety of fossils ranging from microvertebrate to large dinosaurs, all of excellent research value. This is the most productive fossil-bearing site on the Thunder Basin National Grassland. Management emphasis is on interpretation, research and education of geology and paleontology.

Additional Direction:

- Prohibit ground-disturbing fire control methods. **Standard**
- Only allow collection of the paleontological resource through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency duties. **Standard**

- Require monitoring by a professional paleontologist during all soil disturbance. **Standard**
- Allow maintenance of existing structural range facilities only after it has been determined by an on-site survey there will be no damage to paleontological resources. **Standard**
- Limit livestock concentration activities, such as salting, supplement feeding, dust and oil stations, temporary corrals, to designated locations where a site survey has determined no risk of damage to paleontological resources. **Standard**
- Prohibit mineral material removal. **Standard**
- Prohibit locatable mineral operating plans that would harm scientific value of the paleontological resources. **Standard** .
- Limit off road motorized vehicle use to authorized administrative purposes including , fire control, emergency services, research, permitted activities, control of invasive plants, and motorized use necessary to exercise outstanding rights. **Standard**

2.1d - Buffalo Divide SIA: This 490-acre site features a series of teepee rings that run along a grassy ridge in the watershed between the Belle Fourche and Cheyenne Rivers. Excavations conducted in the early 1990s indicated a Protohistoric occupation as a hunting camp during the summer and fall. The good preservation of the site and the presence of many associated artifacts make this site a good candidate for further research. It is eligible for the National Register of Historic Places. Management emphasis is on conservation of the heritage resources, scientific study, environmental education, and interpretation.

Additional Direction:

- Prohibit ground-disturbing fire control methods. **Standard**
- Prohibit geophysical operations. **Standard**
- Prohibit new special-use facilities except for valid existing rights. **Guideline**
- Allow camping only if part of a scientific study. **Standard**
- Require monitoring by a professional archeologist during all activities that disturb the soil. **Standard**
- Consult with traditional religious practitioners of federally recognized tribes before approving any projects within the area. **Standard**
- Prohibit additional structural or nonstructural rangeland improvements**. Standard**
- Allow maintenance of existing structural range facilities only after an on-site survey has been determined there will be no damage to heritage resources. **Standard**
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**
- Conduct an on-ground survey for heritage resources before and during soil disturbance for development of existing oil and gas leases. **Standard**
- Prohibit mineral material removal**. Standard**
- Prohibit locatable mineral operating plans that would harm scientific value of the heritage resources. **Standard**

- Limit off road motorized vehicle use to authorized administrative purposes including , fire control, emergency services, research, permitted activities, control of invasive plants, and motorized use necessary to exercise outstanding rights. **Standard**

2.1e - Cow Creek Historic Rangeland SIA: This 14,170-acre site features naturally appearing rangelands that function in a self-sustaining ecological manner. It is intended to provide a glimpse into what rangelands were like in the pre homestead era, prior to the 1880s. The area is managed for a primitive ecological condition. Naturally appearing landscapes and an abundance of native wildlife including big game (e.g., elk, deer, and antelope) along with domestic livestock prevail. Native vegetation and ecological processes function and are basically unaffected by man, except for the introduction of domestic livestock and the basic facilities needed to maintain them.

To duplicate the open range days of early Wyoming, there will be few water developments, uneven utilization by livestock, and very large pastures. A viable livestock grazing operation will be allowed. This will require balancing the desired ecological and historical context with economic viability and type and amount of range facilities. Vegetation and physical structures will be managed/constructed to preserve and protect the primitive landscape. This will create a recreational setting similar to pre-settlement conditions.

Additional Direction:

- Maintain or increase existing pasture size. **Guideline**
- Prohibit new special-use facilities and range facilities that are not congruent with historic rangeland theme, except for valid existing rights. **Guideline**
- Allow no net gain of livestock water developments. **Guideline**
- Place new fences where they are visually subordinate to the landscape**. Guideline**.
- Encourage, but don't require, the use of salt houses for livestock salting. Design the salt houses to look like they did in the 1880s; use rustic building materials to construct them. **Guideline**
- When economically feasible, design structures to look like they did in the 1880s; use rustic building materials. **Standard**.
- Restrict construction of new roads, pipelines, facilities, or power lines to those necessary to exercise outstanding rights, such as oil and gas leases. At the end of use, new roads and facilities will be restored and/or removed to approximate pre-disturbance conditions. **Guideline**.
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities for new oil and gas leasing. **Standard**.
- Limit motorized use to administrative purposes including, but not limited to, the following:
    - Fire control
    - Emergency public services, and the permitted activities of (a) scheduled maintenance and operation of range facilities, (b). emergency repair of livestock water facilities, (c). geo physical seismic operations when analysis of the proposed project finds that after two growing seasons there will be no evidence on the land of the project

  - Motorized use necessary to exercise outstanding rights
  - Control of invasive plants. **Standard**.
- Limit maintenance of existing roads to that only necessary to provide minimal access for the maintenance and operation of livestock facilities or to exercise outstanding rights. Reclaim unneeded existing roads or convert them to nonmotorized trails. **Guideline**

2.1f - Lance Geologic SIA: This 40-acre site is a 10-acre wash containing paleontological resources and numerous mushroom-like geologic features (hoodoos) that provide three-dimensional views of ancient sedimentary structures. This unique geologic area lies below the visual line of the prairie and cannot be seen until one is on the edge or below the wash. The geologic features in this SIA aren't found anywhere else on the Thunder Basin National Grassland. The SIA offers the opportunity for researchers to study these unique geologic features, as well as ancient depositional environments and paleontological resources. Management will emphasize the scientific and educational opportunities of the site and protection of the resource. Use by tour groups, universities, and education groups will be encouraged. Use by the general public will not be prohibited or encouraged.

Additional Direction

- Prohibit ground-disturbing activities for fire control. **Standard**
- Prohibit new special-use facilities except for valid existing rights. **Guideline**
- Prohibit all rock collecting and all collection of paleontological resources without a written permit. **Standard**
- Require monitoring by a professional paleontologist during all activities that disturb the soil. **Standard**
- Do not put signs in the area, include information in brochures directing the public to the site, or otherwise encourage dispersed recreation use. **Standard**
- Prohibit camping and campfires in the SIA. **Standard**
- Non-soil disturbing recreation and other non-soil disturbing land uses are allowed as long as damage to the geologic features will not occur. **Standard**
- Allow livestock grazing, but prohibit livestock concentration associated with salt stations, corrals, and water developments. **Standard**
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**
- Prohibit mineral material removal. **Standard**
- Allow recreation and land uses that don't disturb the soil as long as damage to the Prohibit locatable mineral operating plans that would harm scientific values of the area. **Standard**
- Prohibit special uses in the wash containing the geologic structures. Prohibit above-ground special uses on the rest of the SIA. Buried power lines, pipelines, telephone lines, etc. outside the wash are acceptable. **Standard**
- Limit off road motorized vehicle use to authorized administrative purposes including , fire control, emergency services, research, permitted activities, control of invasive plants, and motorized use necessary to exercise outstanding rights. **Standard**

2.2 RESEARCH NATURAL AREAS

Theme

Research Natural Areas (RNAs) form a network of ecological reserves designated for non-manipulative research, education, and the maintenance of biodiversity. This prescription is applicable to both designated existing Research Natural Areas and areas proposed for RNA designation.

Desired Conditions

Maintain natural (relatively pristine/pre-European settlement) conditions by maintaining or restoring natural ecological processes. Vegetation, habitat, soil productivity, water quality, and ecological processes are in a natural condition (within the range of natural variability). Vegetation manipulation may be used to maintain the ecosystem or unique features for which the RNA was established or to reestablish natural ecological processes, such as fire and herbivory.

Standards and Guidelines

General

1. Until formal establishment, manage proposed RNAs to maintain and enhance the character and ecological values for which the areas have been identified. **Standard**

2. Reclaim disturbed lands to a condition suitable for the purposes for which the RNA was identified. **Standard**

3. Limit all motorized use, including snowmobiles, to administrative, law enforcement, search and rescue, and emergency -and scientific purposes. **Standard**

4. Close or obliterate existing roads, except where they provide necessary access for administrative or scientific purposes, or valid private access, as funding allows. **Guideline**

5. Allow uses that maintain or improve the ecological characteristics for which the RNA was designated. **Standard**

6. Require a permit for collection of all products. **Standard**

MINERAL AND ENERGY RESOURCES

1. When withdrawal is necessary to protect the values for which the area was designated, request withdrawal from mineral entry in conformance with Section 204 of the Federal Land Policy and Management Act of 1976 (PL 94-576). **Standard**

2. Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**

3. Prohibit mineral material removal. **Standard**

Fire

1. Refer to Grassland-wide direction, Section G, for fire suppression direction.

Livestock Grazing

1. Do not increase animal unit months (AUMs) or developments unless determined necessary in the Research Natural Area management plan. Grazing suitability and desired vegetative conditions will be determined by the Research Natural Area management plan. **Standard**

2. Refer to Chapter 1, Grassland-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area descriptions

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Restrict recreational use if it hinders achievement of the desired condition for the Research Natural Area. **Standard**

2. Refer to Chapter 1, Grassland-wide Direction, Section K.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide Direction, Section N, for additional heritage resource direction.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of High (see Appendix G). **Guideline**

Special Uses

1. No new utility corridors or, additional development within existing corridors will be permitted. Existing corridors may be maintained until abandoned. **Standard**

Infrastructure

1. Prohibit the construction of new roads and trails, except when necessary to correct resource damage occurring from existing trails. **Standard**

2. For additional information refer to Chapter 1, Grassland-wide Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

Research Natural Area Descriptions

Rock Creek RNA: The 590-acre Rock Creek area is located approximately eight miles northwest of Clareton, Wyoming. It lies within the ecoregion classified as the Great Plains-Palouse Dry Steppe Province, Powder River Basin Section, Southern Powder River Basin-Scoria Hills Subsection. The area contains segments of two intermittent branches of Rock Creek flowing south in valleys approximately 100 feet deep. Slopes face mainly east or west and are gentle. The bedrock is soft sandstone with small amounts of shale, both of the Tullock Member of the Paleocene-aged Fort Union Formation. The substratum in the intermittent stream valleys is alluvium derived from the surrounding uplands. Elevation ranges between 4,450 to 4,640 feet above sea level.

The principal distinguishing features include rolling hills with vegetation of the big sagebrush/needle-and-thread plant association and the needle-and-thread/blue grama plant association, and draws supporting the silver sagebrush/western wheatgrass plant association. Barr's milkvetch, a plant species of conservation interest but with no federal status, is found in the area. Three undesirable plants occur in the area: cheatgrass, meadow brome and yellow alyssum. Elk may utilize the area. Pronghorn antelope and mule deer are common.

Only recently did this area become part of the Thunder Basin National Grassland. Livestock grazing has become an allowable use of the area. No major impacts from mineral exploration or production are expected should the area become a designated Research Natural Area. Recreational use is mostly limited to autumn hunting.

***Wildlife Draw RNA*:** The 640-acre Wildlife Draw area is located approximately 32 miles west of Newcastle, Wyoming. It lies within the ecoregion classified as the Great Plains-Palouse Dry Steppe Province, Powder River Basin-Scoria Hills Subsection. The area contains rolling hills with several draws. Orientation of the area is north to south across a valley with a generally eastward, intermittent drainage. Elevation ranges from about 4,440 feet to 4,630 feet above sea level.

Wildlife Draw is vegetated entirely with grasslands and sagebrush shrub-steppe. Vegetation includes needle-and-thread, blue grama, western wheatgrass, hound’s toungue and threadleaf sedge. Wyoming big sagebrush is widespread. Three draws contain ephemeral streams and support silver a sagebrush/western wheatgrass association. Four exotic plant species are present: cheatgrass, meadow brome, yellow alyssum and salsify. This area represents the mosaic of the following associations reasonably well: needle-and-thread/blue grama and big sagebrush/needle-and-thread.

No federally listed threatened or endangered plant or animal species are known to be present in the area. Judging by the gentle roll of the grasslands in the area, prairie dogs probably used the are at least intermittently before settlement. The narrow shape and small acreage of the area is too small to support populations of pronghorn antelope, elk and mule deer. Establishment of this area as an RNA might require a change in the current livestock grazing management.

3.63 BLACK-FOOTED FERRET REINTRODUCTION HABITAT

Theme

Black-tailed prairie dog colony complexes are actively and intensively managed as reintroduction habitat for black-footed ferrets.

Desired Conditions

Large prairie dog colony complexes are established and maintained as suitable habitat for black-footed ferret reintroductions. Land uses and resource management activities are conducted in a manner that is compatible with maintaining suitable ferret habitat.

The Forest Service works with other agencies and organizations to pursue conservation agreements or easements with adjoining land jurisdictions to achieve black-footed ferret recovery objectives. Where landownership patterns are not conducive to effective and successful prairie dog and black-footed ferret management, landownership adjustments with willing landowners may also be used to help resolve management issues.

The U.S. Fish and Wildlife Service is the regulatory agency that determines many of the conditions including when and where black-footed ferrets, an endangered species, may be released.

Standards and Guidelines

General

1. Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. **Standard**

2. Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies. **Standard**

Mineral and Energy Resources

1. Oil and gas stipulations for black-footed ferrets (Appendix D) apply to all prairie dog colonies within this management area. **Standard**

Livestock Grazing

1. Prior to the U.S. Fish and Wildlife Service authorizing a black-footed ferret release, the Forest Service will coordinate and consult with the U.S. Fish and Wildlife Service, the state wildlife agency and other agencies that conduct, authorize or fund predator control to help ensure that predator control activities on the national grassland to reduce livestock losses do not pose significant risks to black-footed ferrets. **Standard**

Fish and Wildlife

1. Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. The conditions when prairie dog poisoning may be authorized are presented in Chapter 1. **Standard**

2. Relocation of prairie dogs to establish new colonies and accelerate growth of prairie dog populations in selected areas may occur only after consultation with appropriate state and Federal wildlife agencies. **Standard**

Recreation

1. To help expand and maintain suitable black-footed ferret habitat, coordinate and consult with the state wildlife agency to prohibit prairie dog shooting within black-footed ferret reintroduction habitat. **Standard**

3.65 RANGELANDS WITH DIVERSE NATURAL-APPEARING LANDSCAPES

Theme

Management emphasizes maintaining or restoring a diversity of desired plants and animals and ecological processes and functions while providing for a mix of other rangeland values and uses, with limits on facilities to support livestock grazing.

Desired Conditions

These areas have relatively few livestock grazing developments, such as fences and water tanks, resulting in a mosaic of livestock grazing patterns and diverse vegetation composition and structure. Livestock graze most areas annually, but some areas receive little or no grazing due to topography.

Riparian areas and streams will move toward properly functioning condition and have few human-caused alterations. Restored riparian areas and or streams will be evident.

Prescribed fire is used as a management tool. Wildfires are aggressively controlled. Natural outbreaks of native insects and diseases are allowed to proceed without intervention unless there is a substantial threat to high-value resources. Natural-appearing landscapes predominate; however, oil and gas development may occur and are visually subordinate to the landscape.

Standards and Guidelines

Minerals and Energy Resources

1. Allow oil and gas leasing and development. **Guideline**

2. Allow removal of mineral materials. **Guideline**

3. Refer to Chapter1, Grassland-wide Direction, Geology and Minerals, Air, Water, Soils, Recreation, Scenery Management and Special Uses sections.

Fire

1. Refer to Chapter 1, Grassland-wide Direction, Section G, for fire suppression direction.

Livestock Grazing

1. Reference Chapter 1, Grassland-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area descriptions.

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Refer to Recreation Grassland-wide direction Chapter 1, Section K.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide Direction, Section N, for additional heritage resource direction.

Scenery Management

1. Manage area to encompass the spectrum of scenery integrity objectives. **Guideline** (see Scenic Integrity Objective maps in Chapter 2 and definitions in the glossary, Appendix G)

Special Uses

1. Locate new utilities along road corridors or within other areas already disturbed. **Guideline**

2. Refer to Chapter 1, Grassland-wide Direction, Section P, Special Uses

Infrastructure

1. When reconstructing water impoundments, consider opportunities to enhance native wildlife and plant species habitat and restoration of natural drainage patterns. **Guideline**

2. Limit fence density by allowing new fence construction only to facility protection, public safety, or habitat protection or enhancement. **Guideline**

3. For additional information refer to Chapter 1, Grassland-wide Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

3.68 BIG GAME RANGE

Theme

These areas are managed to emphasize deer, elk, and pronghorn habitat.

Desired Conditions

Activities and uses are managed so that big game can effectively use the area. High levels of suitability and habitat effectiveness are maintained for big game. Conflicts that cannot be mitigated are resolved in favor of big game.

Big game habitat management goals are developed by the Forest Service in consultation with states and owners of intermingled, privately owned land to minimize resource conflicts on and off National Forest System lands and to provide recreation opportunities and a diversity of plant and animal communities.

Standards and Guidelines

General

1. Allow uses and activities (e.g. recreation, grazing, mineral leasing) only if they do not degrade the characteristics for which the area was identified. **Standard**

2. Limit activities during big game wintering from December 15 through March 15 if they would reduce habitat effectiveness. **Guideline**

3. Limit activities during elk parturition from May 1 through June 30 if they would reduce habitat effectiveness. **Guideline**

Wildlife

1. Maintain big-game habitat-effectiveness at 85%. **Standard**

- Consider road densities, forage allocations, proximity of developments, and seasons of use when determining habitat effectiveness.

Livestock Grazing

1. Modify livestock grazing forage allocation to improve conditions where big game forage and cover conditions are limiting. **Standard**

2. Where needed, alter livestock grazing systems, season of use, and stocking rates to meet big game habitat objectives. **Guideline**

3. In riparian habitats, wooded draws, and other wooded habitats, only allow those livestock grazing strategies that promote dense understory and mid-story vegetation for cover and forage. **Standard**

4. In shrublands, including big sage and silver sage plant communities, only allow those livestock grazing strategies that promote healthy herbaceous understories and productive shrubs. **Standard**

5. Do not convert shrublands to other vegetation types. **Guideline**

Silviculture

1. Do not allow cutting or removal of trees if thermal cover is less than 20 percent of the forested area. **Guideline**

Recreation

1. Permit recreation facilities needed to support recreational activities, but close them during periods when big game are present in concentrated numbers. **Guideline**

Infrastructure

1. Close roads, as needed, to prevent disturbance during the winter and during fawning/calving periods. **Guideline**

2. Construct new roads as local roads. **Guideline**

3. Prohibit new roads from crossing important forage, cover, and fawning/calving areas. **Guideline.**

4. Limit fence density by allowing new fence construction only to facility protection, public safety, or habitat protection or enhancement. **Guideline**

4.32 DISPERSED RECREATION: HIGH USE

Theme

These areas are managed for recreational opportunities and scenic qualities and are usually adjacent to high use developed recreation sites and bodies of water.

Desired Conditions

Visitors recreate in a relatively natural environment, while pursuing a variety of activities, such as camping, picnicking, hiking, fishing, and motorized vehicle use where allowed. Because of the amount and types of use, these areas offer a more social type of recreational experience. Management activities are evaluated in terms of their impact on the recreational opportunities of the area. Motorized travel may be restricted during certain times of the year.

The areas offer few conveniences for users but may have picnic tables, toilets, trash cans, fire grills, and vehicle barriers if needed to protect resources. Existing improvements, such as roads, trails, bridges, fences, oil and gas wells, and water developments, blend into the landscape where feasible.

The potential for contact with other users is moderate to high. Solitude or isolation is less important than the opportunity to participate in desired recreational activities.

Generally, these areas appear as a natural-appearing landscape over large areas, but modifications on a small scale are acceptable and blend with the area's natural features. Biological communities complement the recreational values.

Standards and Guidelines

General

1. Allow uses and activities only if they do not degrade the recreational characteristics, scenic qualities or the environment. **Guideline**

Minerals and Energy Resources

1. Allow mineral leasing and development. **Guideline**

2. Refer to Chapter1, Grassland-wide Direction; Air, Water, Soils Geology and Minerals, Recreation, Scenery Management and Special Uses, Sections A, B, C, D, K, L, and P, respectively, for direction.

Fire

1. Refer to Grassland-wide direction, Section G, for fire suppression direction.

Livestock Grazing

1. Do not salt or supplement feed within ¼ mile of existing roads. **Guideline**

2. Refer to Chapter 1, Grassland Wide Direction, section I, Livestock Grazing; and Chapter 2, Geographic Area descriptions.

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Allow new OHV trail construction where resource values can be protected. **Guideline**

2. Provide developed facilities at areas of concentrated use to protect adjacent resources **Guideline**

3. Refer to Recreation Grassland-wide direction Chapter 1, Section K.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide Direction, Section N, for additional heritage resource direction.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of Moderate (see Appendix G-55). **Guideline**

Special Uses

1. Allow construction of new utility corridors only if they do not degrade the characteristics for which the area is managed or was designated. **Standard**

2. Locate new utilities along road corridors or within other areas already disturbed. **Guideline**

Infrastructure

1. For additional information refer to Chapter 1, Grassland-wide Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

5.12 GENERAL FOREST AND RANGELANDS: RANGE VEGETATION EMPHASIS

Theme

These areas are managed for the sustainability of physical, biological, and scenic values associated with woody vegetation and open grassland.

Desired Conditions

These areas are dominated by open meadows, grasslands, shrublands, and areas of woody vegetation. Diversity is achieved by maintaining or enhancing hardwood and coniferous trees, shrub inclusions and other beneficial plant communities and openings. Tree densities vary within stands to create landscape-scale diversity. Fire is used to promote open, park-like timber stands. Late-successional vegetation may be found in the area.

Management emphasis is on a balance of resource uses and opportunities, such as livestock grazing, wildlife habitat, dispersed recreation, minerals management and timber harvest. Some areas produce substantial forage for livestock and wildlife. Though some areas are forested, they usually do not produce commercial wood fiber because of poor site potential.

Recreation facilities may be present. Range and other management activities are coordinated with recreation so they do not conflict with the managed use season. Signs of motorized travel, hunting, hiking, timber harvest, mining and livestock grazing may be evident. Recreation use is moderate throughout the summer and increases during hunting seasons.

See Chapter2, Geographic Areas, for further direction.

6.1 RANGELAND WITH BROAD RESOURCE EMPHASIS

Theme

This area is primarily a rangeland ecosystem managed to meet a variety of ecological conditions and human needs. Ecological conditions will be maintained while emphasizing selected biological (grasses and other vegetation) structure and composition that consider the range of natural variability. These lands often display high levels of development, commodity uses, and activity; density of facilities; and evidence of vegetative manipulation. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common on designated roads and two-tracks.

Desired Conditions

This management area will display low to high levels of livestock grazing developments (such as fences and water developments), oil and gas facilities, and roads.

Livestock will graze most areas annually, but a spectrum of vegetation structure and a high degree of biodiversity will be present. Livestock grazing intensity will vary, however moderate use will prevail over most of the MA. Natural disturbance processes, including grazing and fire, will be used to emulate the natural range of variability of vegetation structure and composition (see matrix objectives in Geographic Area direction). Rest and prescribed fire will be incorporated into the landscape.

Prairie dog colonies will increase in some areas of the MA.

When no substantial threat to high-value resources occurs, natural outbreaks of native insects and disease will be allowed to proceed without intervention.

See Chapters 1 and 2 for further direction.

8.4 MINERAL PRODUCTION AND DEVELOPMENT

Theme

These areas are managed for solid mineral operations.

Desired Conditions

Mineral operations of all types are emphasized to effectively and efficiently remove available commercial mineral resources, concurrent with other ongoing resource uses and activities. Operations include development and production of solid minerals, such as coal, bentonite, uranium and hard rock, open-pit mines, stock-piled overburden and top soil, and various ancillary facilities. Facilities and landscape modifications are visible but are reasonably mitigated to blend and harmonize with natural features. Reclamation activities restore the area to a reasonable level of its pre-mining condition. Grazing will occur, except on areas being actively being mined and areas under reclamation for bond release.

Restrictions on public use occur to ensure public safety and to avoid unreasonable interference with mineral operations. Visitors can experience frequent encounters with people, heavy equipment, and noise.

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CHAPTER 4 MONITORING AND EVALUATION

INTRODUCTION

Overview

The purpose of this chapter is to provide the support and direction to facilitate successful monitoring. In brief, the steps to successful monitoring are:

1. **Establish a Monitoring Budget:** As part of the annual program budgeting process, establish an annual monitoring budget to collect, manage, and evaluate data, coordinate with partners, produce the annual report, and fund the Monitoring ID Team.
2. **Identify a Monitoring ID Team:** At least one year in advance of the published monitoring report, establish an ID Team with the authority to coordinate and supervise monitoring activities, administer monitoring funding, evaluate the data collected and produce the annual monitoring report.
3. **Build a Monitoring Guide:** The ID Team will annually build, update, or validate a Monitoring Guide designed to facilitate data collection and storage on monitoring items using standardized monitoring protocols and corporate data/information storage.
4. **Find Cooperators:** The ID Team will find and manage cooperators who will aid in data collection and possibly data evaluation. Cooperators will play a key role in a successful monitoring effort.
5. **Establish an Annual Monitoring Work Plan:** The ID Team under the direction of the Forest/Grassland Leadership Team will build and work under a work plan with the budget provided. The project work plan will identify the monitoring questions to be addressed for the year, the funding available, where data on monitoring items will be collected, and who will have the responsibility to obtain the data.
6. **Manage the Collection & Storage of Data:** The ID Team will work with Forest Service employees and cooperators to see that data is collected using standard methods found in the Monitoring Guide and is entered into the appropriate corporate data storage system.
7. **Evaluate the Data:** The ID Team will evaluate the data collected with the goal of answering the monitoring questions.
8. **Publish & Distribute the Annual Monitoring Report:** The ID Team will write and distribute the annual monitoring report.

Monitoring Purpose

Effective Land and Resource Management Plan (LRMP) monitoring and evaluation fosters improved management and more informed planning decisions. It helps identify the need to adjust desired conditions, goals, objectives, standards and guidelines as conditions change. Monitoring and evaluation helps forests, grasslands, the Agency and the public determine how a LRMP is being implemented, whether plan implementation is achieving desired outcomes, and whether assumptions made in the planning process are valid.

Monitoring and evaluation are learning tools that form the backbone of adaptive management. With these tools, information is collected and compiled to serve as reference points for the future; new scientific understanding and technology, changes in law and policy and resource conditions, growing concerns, trends and changing societal values are incorporated into forest/grassland planning; and the scientific validity and appropriateness of assumptions used in the development of forest and grassland plans is evaluated. In short, they breathe life into a static document—the LRMP—to make it dynamic, relevant and useful.

Several kinds of activities can be referred to as "monitoring." Programmatic monitoring tracks and evaluates trends of ecological, social, or economic outcomes. Project implementation monitoring monitors compliance with LRMP standards and guidelines. Effectiveness monitoring evaluates how effective our management actions are at achieving desired outcomes. Validation monitoring verifies assumptions and models used in LRMP implementation. Monitoring may also address issues for large geographic areas of which a forest or grassland is a part. These types of monitoring are addressed in LRMPs.

Two other types of "monitoring": (1) tracking or development of administrative reports (plans for protection of historic sites, interpretive plans, plans to inventory a particular resource, or conservation strategies) and (2) tracking specific program outputs (such as miles of trail maintained, recreation visitor days, cubic feet of timber harvested, or acres of prescribed burn accomplished) are not appropriate for inclusion in the Monitoring Chapter of the LRMP. Tracking of outputs can be referenced using general terms in the LRMP and may be included in the annual monitoring plan or annual monitoring and evaluation report, as they are an important measure of how we use funds and are important to our publics.

As a forest or grassland plans and implements its monitoring and evaluation program, there are several important guidelines to consider. Monitoring should:

- Be purposeful and conducted to answer specific questions.
- Be done at the appropriate spatial and temporal scale to answer the question.
- Be done in collaboration with others (e.g., agencies, interested publics, researchers, and non-governmental organizations) to share the workload (including obtaining data from other sources), gain expertise, and build credibility and trust.
- Use the best available science and established protocols to collect and evaluate the data.
- Use modern information management techniques and tools.
- Apply stringent selection criteria so that a monitoring activity is only conducted if it is feasible, realistic and affordable.
- Emphasize evaluation as much as the collection of the data.

Monitoring and evaluation are conducted at several scales and for many purposes, each of which has different objectives and requirements. Monitoring requirements and tasks are developed to be responsive to the objectives and scale of the plan, program, or project to be monitored.

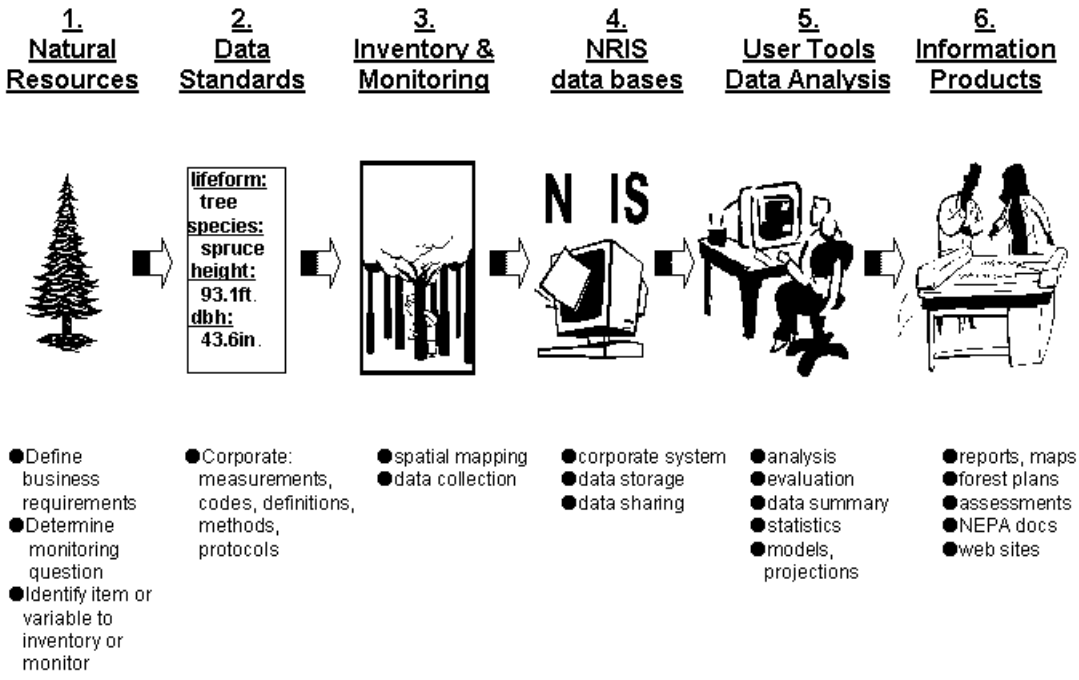
Monitoring and evaluation are separate, sequential activities required by NFMA regulations to determine how well objectives have been met and how closely management standards and guidelines have been applied. Monitoring generally includes the collection of data and information, either by observation or measurement. Evaluation is the analysis of the data and

information collected during the monitoring phase. The evaluation results are used to answer the monitoring questions, determine the need to revise or amend management plans or how they are implemented, and form a basis for adaptively managing the national grasslands and forests. Monitoring and evaluation keep the Revised Land and Resource Management Plan up-to-date and responsive to changing issues by verifying the effectiveness of management plan standards and guidelines and anticipated program and project effects on resources, and providing information for amendments to the management plan.

This chapter provides programmatic direction for monitoring and evaluating management plan implementation. Monitoring provides the Forest Supervisor with the information necessary to determine whether the Revised Management Plan is sufficient to guide management of the National Grasslands and Forests for the subsequent year or whether modification of the plan is needed.

Information Management

Monitoring and evaluation involves more than just collecting data. They encompass the full range of information management steps shown in the figure below.



Once the purpose or reason for monitoring has been determined (such as to answer a particular monitoring question), careful thought needs to go into identifying what feature or variable needs to be measured, as well as how it will be measured (protocol). If no protocols exist to acquire the needed information, research could be consulted to assist in protocol development.

After it is determined how information will be gathered, data collection begins. If data have been collected by others and can be obtained from other sources, then the Forest/Grassland can be spared the expense and effort of collecting them. Once data are obtained and have been edited to satisfy quality standards, the data need to be stored in a corporate electronic database, such as

NRIS or GIS. The data is then analyzed and interpreted.

The interpreted information is evaluated by the ID Team to answer the monitoring question and give it meaning in the context of the LRMP. A variety of analytical tools and evaluation procedures are available to interpret the data. The results are reported to the Forest/Grassland Leadership Team to consider and act on as well as documented in the annual monitoring and evaluation report. Monitoring data, evaluation results and the annual report should be accessible to the public electronically, preferably via the Internet.

Reasons for Monitoring (Monitoring Drivers)

The National Forest Management Act (NFMA) requires national forests and grasslands to do specific monitoring tasks. The level and intensity of any additional monitoring is dependent on available staffing, funding and forest or grassland priorities.

Following is a list of reasons (monitoring drivers) why certain items are included in a LRMP:

- Legal and regulatory requirements
- Forest Service Manual direction
- Tracking forest/grassland desired conditions, goals and objectives
- Validation of models/assumptions
- Tracking agency expectations
- Tracking public expectations/issues
- Tracking LRMP standards and guidelines
- Contributions to broad-scale monitoring
- Court rulings

Legal drivers include regulations at 36 CFR 219 that describe NFMA monitoring requirements. Some of these requirements provide guidance for developing the monitoring program while others include specific compliance requirements. The following regulations specify the minimum requirements for monitoring.

> ***36 CFR 219.7(f)*** A program of monitoring and evaluation shall be conducted that includes consideration of the effects of National Forest management on land, resources, and communities adjacent to or near the National Forest being planned and the effects upon National Forest management of activities on nearby lands managed by other Federal or other government agencies or under the jurisdiction of local governments.
>
> ***36 CFR 219.11 (d)*** Monitoring and evaluation requirements that will provide a basis for a periodic determination and evaluation of the effects of management practices.
>
> ***36 CFR 219.12 (k)*** Monitoring requirements identified in the LRMP shall provide for:
>
> 1. A quantitative estimate of performance comparing outputs and services with those projected by the LRMP.
> 2. Documentation of the measured prescriptions and effects, including significant changes in productivity of the land.
> 3. Documentation of costs associated with carrying out the planned management

prescriptions as compared with costs estimated in the LRMP.

4. A description of the following monitoring activities:
    - The actions, effects, or resources to be measured and the frequency of measurements.
    - Expected precision and reliability of the monitoring process.
    - The time when evaluations will be reported.
5. A determination of compliance with the following standards:
    - Lands are adequately restocked as specified in the LRMP.
    - Lands identified as not suited for timber production are examined at least every 10 years to determine if they have become suited; and that, if determined suited, such lands are returned to timber production.
    - Maximum size limits for harvest areas are evaluated to determine whether such size limits should be continued.
    - Destructive insects and disease organisms do not increase to potentially damaging levels following management activities.

36 CFR 219.19 (a) (6) Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with state fish and wildlife agencies, to the extent possible.

36 CFR 219.21 (g) Forest planning shall evaluate the potential effects of vehicle use off roads and, on the basis of the requirements of 36 CFR 295…, classify areas and trails of National Forest System lands as to whether or not off-road vehicle use may be permitted.

Definitions

Monitoring Questions: Specific monitoring questions are developed to ensure that monitoring and evaluation address information essential to measuring LRMP accomplishment and effectiveness. These questions help identify issues of concern and reveal how they are changing. The evaluation process (discussed below) determines whether the observed changes are consistent with LRMP desired future conditions, goals, objectives and what adjustments may be needed.

Monitoring Items: A monitoring item, or data element, is a quantitative or qualitative parameter that can be measured or estimated. One or more monitoring items are selected for the purpose of answering a monitoring question. A particular monitoring item may be used to answer more than one monitoring question. Potential monitoring items are listed in the LRMP as part of the accompanying table of monitoring questions. These are the thought to be the best items needed to answer the questions, but they are subject to change as the monitoring strategy is implemented. Any changes to the list of potential monitoring items will be reflected in the Monitoring Guide or Annual Monitoring Work Plan that accompany this LRMP. Each monitoring item has an associated unit of measure, such as acre, mile, etc. Examples of monitoring items with their associated unit of measure include acres and location of soils improved or number of degraded water bodies restored on National Forest System land. Details on the units of measure are shown in the Monitoring Guide.

Monitoring Methods: Monitoring methods are developed in the Monitoring Guide, and may change based on changes in technology, staffing, budgets and issues. Only standardized, protocols will be used in collecting monitoring item data. Protocols will be peer reviewed as needed.

Precision/Reliability: The precision and reliability with which each Forest/Grassland program or activity is monitored depends on the particular program or activity to be monitored. Two classes of precision and reliability are recognized:

Class A: These methods are generally well accepted for modeling or measuring the resource or condition. They produce repeatable results and are often statistically valid. Reliability, precision and accuracy are very good. The cost of conducting these measurements is higher than other methods. These methods are often quantitative in nature.

Class B: These methods are based on project records, communications, on-site ocular estimates, or less formal measurements like pace transects, informal visitor surveys, air photo interpretation and other similar types of assessments. Reliability, accuracy and precision are good, but usually less than Class A. Class B methods are often qualitative in nature, but still provide valuable information on the status of resource conditions.

Scale: Scale describes the level of analysis with respect to land size. This measure is important in describing effects dealing with habitat heterogeneity and viability issues; as well as, describing cumulative effects of management actions. Examples include: 6^{th} order hydrologic code, geographic area, administrative unit, or landscape (grassland-wide).

Frequency: Frequency describes the timing of monitoring and evaluation efforts over time. Examples include: annually, every five years, or every ten years.

Monitoring Priorities

After monitoring questions are developed, a screening process sorts the more significant questions from the less significant to ensure efficient use of limited resources—time, money and personnel. The priority of a question may affect the intensity or extent of associated monitoring activities. Following is a list of questions used in the screening process with a brief explanation or example:

1. **Is there a high degree of uncertainty associated with management assumptions?** *Examples:* (1) a new way of doing something where there is limited experience with the new technique; (2) actions taken in response to an unprecedented situation; (3) a lack of data for a particular resource response to a management action.
2. **Is there a high degree of disparity between existing and desired conditions?** *Examples:* (1) a particular habitat component is at a much lower level than desired; (2) the amount of use of a particular resource or use at a particular location is much higher than desired.
3. **Are proposed management activities likely to affect resources of concern?** There may be other forces affecting a resource much more significantly than anything the Forest Service does. Also, there may be portions of the landscape where no management activities are planned. An efficient monitoring strategy will focus on those circumstances where management activities are expected to have a discernable outcome.

4. **What are the consequences of not knowing resource conditions?** *Examples:* (1) if a species is at risk, consequences could be high, whether or not management activities are likely to affect it; (2) if a relationship with cooperators or local government is at risk due to a management activity, consequences could be high (in this case, a *human* resource).
5. **Will monitoring respond to a key issue?** Key issues identified through scoping may warrant monitoring *even if* they are (1) well understood, (2) the existing condition is good and (3) management activities will have little impact. Monitoring may be necessary for educational and/or accountability purposes.
6. **In addition to the above, can the question be cost effectively answered?** If the cost of answering the question is especially high in regard to benefits, or if an adequate monitoring method cannot be developed, the resource in question may be more appropriately studied by another entity, such as Forest Service research or private educational institutions.

Research Contributions

Research needs are identified during the development of LRMPs. Any additional research needs are identified during monitoring and evaluation of the plan as it is implemented and in the annual monitoring and evaluation reports. The Regional Forester evaluates any research needs for inclusion in the Regional research program proposal, which is used by Forest Service Research and Development as input for determining priorities for research funding at the regional and national levels.

Monitoring Guide

The Monitoring Guide (currently being developed) provides the specific methodologies, protocols and administrative information associated with each monitoring item described in a LRMP. The guide is flexible and may be changed as new methodologies and techniques for monitoring are developed and corporately approved. While the guide uses information in the LRMP, it is not part of the LRMP; therefore, it may be changed without amending the LRMP.

Specific information for each monitoring item in the Monitoring Guide should include the following:

1. Resource or condition being monitored
2. Monitoring question
3. Monitoring Driver
4. Cooperators
5. Monitoring Items (Information/Indicators)

   A. Metadata of data collection

      - Scale
      - Unit of measure
      - Precision and reliability (This must also be in the LRMP per 36 CFR 219.12(k)(4)(ii))
      - Quality Assurance / Quality Control

A. Metadata, cont.
   - Methods (i.e., standard, approved protocols)
   - Frequency of measurement
   - Who collected? When collected?
   - Reporting period (This must also be in the LRMP per 36 CFR 219.12(k)(4)(iii))
   - Information management (description of how data will be stored and made accessible)

6. Responsibility
7. Cost
8. Evaluation Process

Annual Monitoring Work Plan

An annual monitoring plan of operations, with a list of monitoring items, is prepared each year by October 1. Methods and protocols for each monitoring item are derived from the Monitoring Guide.

Monitoring items are selected through interdisciplinary team coordination, budget constraints and forest and or grassland leadership direction. Monitoring drivers and priority considerations will help in the selection process.

The Forest/Grassland interdisciplinary team (ID Team) reviews the previous years' monitoring and evaluation results to determine if methodology and protocols in the Monitoring Guide are effective and efficient; if not, changes may be made to the Monitoring Guide.

A strategy for involving the public and other agencies in our monitoring activities should be considered each year. This may be accomplished through partnerships with interest groups, volunteer groups, other federal, state and local agencies, and universities. Monitoring information trips for the public could also be scheduled to demonstrate monitoring methods. The public is informed about LRMP monitoring through news releases and the Internet.

The monitoring plan includes direction for preparing the current year's annual monitoring and evaluation report and lays the framework for information required for five- and 10-year evaluation reports. Results of this plan will show priority and budget trends that guide future priorities and budgets.

The following is an example of annual monitoring plan items that will be monitored in FYxx according to direction in the Monitoring Guide (currently under development):

Activity	Monitoring Guide Page Reference	Responsible Person
What is the increase/decrease in noxious weeds?	--	District through Forest/Grassland Range Group Leader
Reforestation: Five years after regeneration harvest, are lands adequately restocked?	--	District through Forest Silviculturist

Each Forest/Grassland ID Team member coordinates the data collection for his or her respective resource area. The data is then interpreted and contributes to the annual monitoring and evaluation report prepared by the team the following fiscal year.

Evaluation Process

The Forest/Grassland ID Team evaluates the data and information collected through monitoring. Successful adaptive management depends on collectively evaluating the effectiveness of management activities in moving the Forest or Grassland toward desired conditions. The "desired condition" (or other driver) that prompted the development of a monitoring question is typically associated with one or more monitoring items. Whereas the desired condition may be conceptual or visionary in nature, the monitoring items are generally a measurable aspect of the desired condition.

Evaluation is the process of transforming data into information—a value-added process. It is a process of synthesis that brings together value, judgment and reason with monitoring information to answer the question, "So what?" and perhaps, "Why?"

Evaluation requires context*:* A sense of the history of the place or the circumstances (temporal and spatial context) are important to the evaluation of management activities.

Evaluation requires base line or reference information: Evaluation will describe movement from a known point (base line or reference condition) either toward or away from a desired condition. The desired conditions may or may not ever be fully achieved, but it is important to know if management activities are heading in the right direction.

Evaluation produces information that is used to infer outcomes and trends: Conclusions will be drawn from an interpretation of evidence.

The evaluation process will be documented: Evaluation may occur through a variety of means such as facilitated group interactions, scaled survey instruments, or through computer assisted technology (e.g., statistical or analytical tools or internet forums). The processes used will be described in the annual monitoring and evaluation report.

Evaluation results are documented in an annual monitoring and evaluation report: The responsible official (i.e., the Forest/Grassland Supervisor) uses this report as a tool to initiate change.

Annual Forest/Grassland Monitoring and Evaluation Report

The annual monitoring and evaluation report is a Management Attainment Report (MAR) requirement and an output target for forests and grasslands. Besides fulfilling these requirements, these reports serve several purposes, including:

- Documenting monitoring and evaluation accomplishments
- Providing an accountability tool for monitoring and evaluation expenditures
- Providing an assessment of the current state of the forest or grassland
- Providing adaptive management feedback to responsible officials of any needed changes to the LRMP or adjustments to management actions
- Describing to the public how their public lands are being managed

The monitoring and evaluation report is based on monitoring data and information gathered the previous fiscal year. It evaluates LRMP implementation and provides an overview of resource conditions and trends as they relate to indicators and criteria for sustainability with specific attention on the effects of management on ecological system structure and function. The following items are included in the report:

1. Key findings, what has changed, what the Forest or Grassland Supervisor is committing to do about them (signed and dated)
2. Chapter 1. Setting the Context. An overview of past, present and desired conditions is presented which may be summarized from broad scale assessments, projects, programs, policy and law. Organize by the Montreal criteria of sustainability where practicable. These seven criteria are: conservation of biological diversity; maintenance of productive capacity of ecosystems; maintenance of forest ecosystem health and vitality; conservation and maintenance of soil and water resources; maintenance of forest contribution to global carbon cycles; maintenance and enhancement of long-term socioeconomic benefits to meet the needs of society; and legal, institutional and economic framework for conservation and sustainable management.
3. Chapter 2. Monitoring Results. The monitoring results are described, organized by GPRA goals where practicable. These goals are: ecosystem health; multiple benefits to people; scientific and technical assistance; and effective public service.
4. Chapter 3. Evaluation and Action Plan. This is a synthesis of results, interpreted to draw conclusions about whether or not we are moving toward the forest or grassland goals and desired conditions.
5. Appendix.

Monitoring items reported on in any given year are determined by the reporting frequency detailed in the chart of monitoring questions in the LRMP.

MONITORING STRATEGY

The monitoring strategy contains all the relevant Land & Resource Management Plan monitoring called for by the monitoring drivers. The available monitoring budget will in all likelihood require a significantly smaller monitoring program in any given year than the table below presents. It is the monitoring items not the monitoring questions that are the major cost factor. The monitoring item initiates the data collection and a single monitoring item may answer several monitoring questions. Cooperators can greatly expand the annual monitoring program and stretch a Forest or Grassland's available monitoring budget many fold.

In almost all cases, it will be necessary for the Forest/Grassland Leadership Team in conjunction with the Monitoring ID team to prioritize what will be monitored in any given year based on the monitoring drivers, monitoring priorities, the accomplishments of the previous year's monitoring, and the urgency of a monitoring question.

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Effectiveness Monitoring						
Goal 1.a Objective 2, 3	**Riparian 1:** To what extent are perennial streams in proper functioning condition and riparian areas and wooded draws regenerating?	Likely to affect.	Miles & location of perennial streams not meeting, making measurable progress towards, or meeting proper functioning condition. Percent of riparian areas and wooded draws that are regenerating or making measurable progress towards regeneration.	A	Geographic	Five years
Notes: Livestock grazing, mining, timber harvesting and other management activities can affect riparian area recovery and condition. The monitoring items address the physical characteristics of drainages and watersheds and whether shrubs and trees are regenerating as evidenced by stand replacement.						
Goal 1.a Objective 1	**Soil 1:** To what extent have soils eroded or disturbed by Forest Service management or permitted activities been restored?	Likely to affect.	Acres & location of soils eroded, disturbed, or restored by Forest Service management or permitted activities.	B	Geographic	Five years
Notes: Livestock grazing, mining, timber harvesting and other ground-disturbing activities can affect soil condition.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Goal 1.a Objective 1	**Watershed 1:** To what extent has water quality condition on watersheds containing National Forest System lands been restored, maintained or improved?	Likely to affect.	Sixth level watersheds in Condition Class I, II, & III	A	Geographic	Five years
Notes: Livestock grazing, mining, timber harvesting or ground disturbing activities can affect watershed condition.						
Goal 1.a Objective 1	**Watershed 2:** To what extent have water bodies on National Forest System lands that have been degraded by Forest Service permitted or management actions been restored?	Likely to affect.	Number of degraded versus total water bodies on National Forest System lands.	B	Geographic	Five years
Notes: Livestock grazing, mining, timber harvesting or ground disturbing activities can affect water body condition.						
Goal 1.a Objective 4	**Watershed 3:** To what extent have instream flows been assured to provide adequate water for fisheries and other riverine flora and fauna in streams and rivers with high resource values?	Great consequences	Name and location of streams & rivers having high resource values and the extent instream flows are maintained or improved. Incidents of damaging low stream flows.	A	Geographic	Five years
Notes: Fisheries and the ecosystem supporting them can be destroyed if water is not available.						
Goal 1.a Objective 5	**Watershed 4:** To what extent have aquifers been protected from contamination from abandoned wells?	Likely to affect.	Number of abandoned wells properly plugged vs. number not properly plugged, incidents of aquifer cross contamination.	B	Administrative unit wide	Annually
Notes:It is important to prevent aquifer contamination from Forest Service management actions.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2, 4, & 6	**MIS 1:** What is the potential habitat capability for each management indicator species?	High condition disparity; Viability, Great consequences; Key issue	Acres and distribution of potential habitat	A	Administrative unit wide	Ten years
Notes: Selected management indicator species include sage grouse, plains sharp-tailed grouse, and black-tailed prairie dog. Determining and identifying potential habitat for each management indicator species is a regulatory requirement under NFMA.						
Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2, 4, & 6	**MIS 2:** What is the current habitat suitability for each management indicator species?	High condition disparity; MIS for key issue (grassland vegetation conditions)	Current condition and trend of key habitats for each Management Indicator Species; Habitat suitability evaluation ratings	A	Administrative unit wide	Five years
Notes: Evaluating the current condition and trend of key habitats for each management indicator species is a regulatory requirement under NFMA						
Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2, 4, & 6	**MIS 3:** What are the long-term population trends for each management indicator species and the relationships between long-term population trends and the effects of management activities on NFS lands?	High condition disparity; Viability, Great consequences; Key issue	Long-term population trends; Habitat suitability evaluation ratings	A	Administrative unit wide	Five years
Notes: Determining long-term populations trends for each management indicator species is a regulatory requirement under NFMA. The relationships between long-term trend and changes in habitat quality and quantity as a result of management activities also need to be evaluated. Monitoring of MIS populations and habitat is a high priority.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objective 2	**T&E 1:** To what extent are NFS lands and their management contributing to the recovery and viability of black-footed ferrets?	Key issue (recovery and viability); Great consequences	Number of ferrets released; Survival, Dispersal and reproduction statistics; Population trend; Habitat suitability/capability evaluation ratings. (See also T&E: under Implementation Monitoring)	A	Geographic areas: Wall Southwest; Fall River Southeast; Broken Hills; Cellers Rosecran	Annually
Notes: The black-footed ferret is endangered. A recovery plan has been prepared and the Forest Service is implementing recovery actions identified in the plan on the National Grasslands. National Grasslands can play a significant role in the recovery of this species.						
Migratory Bird Treaty Act; Bald and Golden Eagle Protection Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objective 2	**T&E 2:** To what extent are NFS lands and their management contributing to the recovery and viability of bald eagle?	Key issue (Recovery and viability); Great consequences	Number of nesting attempts; Statistics on nest success; Number of roost sites; Habitat suitability/capability evaluation ratings (See also T&E: under Implementation Monitoring)	A	Administrative unit wide	Annually
Notes: The bald eagle is a threatened species that uses isolated trees, pine forests and riparian woodlands primarily for roosting. As populations recover, an increasing number of eagle pairs are being observed in the planning area and future successful nesting is anticipated on some of the national grasslands and forests. Wintering and migrating bald eagles are also seen hunting over prairie dog colonies. A recovery plan has been prepared. Conservation measures on the national grasslands and forests primarily consist of managing for regeneration of woodlands, reducing disturbances and developments in bald eagle habitat, and expanding prairie dog populations.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objective 2	**T&E 3:** To what extent are NFS lands and their management contributing to the recovery and viability of mountain plover?	Key issue (recovery and viability); Great consequences	Populations; Distribution; Acres of habitat improvement; Reintroductions; Survival, Dispersal and reproduction statistics; Habitat suitability/capability evaluation ratings. (See also T&E: under Implementation Monitoring)	A	Administrative unit wide	Annually
Notes: Mountain plover is proposed as a threatened species for protection under ESA. It occurs on the Thunder Basin National Grassland and potential habitat may occur on the Oglala and Buffalo Gap National Grasslands. A recovery plan has not been prepared for the species but interim conservation measures have been developed through consultation with U.S. Fish and Wildlife Service. Nesting and brooding habitat for this species consists primarily of prairie dog colonies and heavily grazed or recently burned grasslands. Conservation measures primarily involve expanding and maintaining prairie dog populations, livestock grazing management, prescribed burning and managing disturbances and development in nesting and brooding habitat.						
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(5 & 6); Goal 1.b Objective 2, 3, 4, 7, 8 & 9	**Viability 1:** To what extent are National Forest System lands and their management contributing to the viability of sensitive plant and animal species that are commonly found in grassland and sagebrush habitats?	Key issue (viability); Great consequences	Populations; Distribution; Reintroductions; Transplants; Survival, Dispersal and reproduction statistics; Acres of habitat improvement; Grassland plant composition and vegetation structure accomplishments; habitat suitability evaluation ratings for MIS	A	Administrative unit wide	Five years
Notes: Some of the species that could be influenced by management activities and land uses in these habitats include: Barr's milkvetch, Dakota buckwheat, Tawny crescent butterfly, Regal fritillary butterfly, Greater prairie chicken, Sage grouse, Long-billed curlew, Upland sandpiper and Swift fox. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(5 & 6); Goal 1.b Objective 2, 3, 4, 7, 8 & 9	**Viability 2:**To what extent are National Forest System lands and their management contributing to the viability of sensitive plant and animal species that are commonly found in riparian and wetland habitats?	Key issue (viability); Great consequences	Populations; Distribution; Reintroductions; Transplants; Survival, Dispersal and reproduction statistics; Acres of habitat improvement; Reintroductions; Transplants, Survival and reproduction statistics; Groundwater levels; Riparian and woody regeneration accomplishments; Wetlands vegetation/habitat management accomplishments; Water management accomplishments	A	Administrative unit wide	Five years
Notes: Some of the species that could be influenced by management activities and land uses in these habitats include: American bittern, Trumpeter swan, Yellow-billed cuckoo and Loggerhead shrike. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(5 & 6); Goal 1.b Objective 2, 3, 4, 7, 8 & 9	**Viability 3:** To what extent are National Forest System lands and their management contributing to the viability of sensitive plant and animal species that are commonly found in forested habitats?	Key issue (viability); Great consequences	Populations; Distribution; Acres of habitat improvement; Snag statistics; Forest vegetation/habitat management accomplishments; habitat suitability evaluation ratings for MIS	A	Administrative unit wide	Five years
Notes: Some of the species that could be influenced by management activities and land uses in these habitats include: Western burrowing owl, Ferruginous hawk, and Black-tailed prairie dog. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objective 2, 3, 4, 7, 8 & 9	**Viability 4:** To what extent are National Forest System lands and their management contributing to the viability of sensitive animal species that are heavily dependent on prairie dog colony habitat?	Key issue (viability); Great consequences	Populations; Distribution; Reintroductions; Survival, Dispersal and reproduction statistics; Prairie dog colony statistics; habitat suitability evaluation ratings for MIS	A	Administrative unit wide	Five years
Notes: Some of the species that could be influenced by management activities and land uses in these habitats include: Western burrowing owl, Ferruginous hawk, and Black-tailed prairie dog. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(5 & 6); Goal 1.b Objective 2, 3, 4, 7, 8 & 9	**Viability 5:** To what extent are National Forest System lands and their management contributing to the viability of sensitive plant and animal species that are commonly found in special habitats like caves, cliffs, buttes, blowouts, and barren habitats?	Key issue (viability); Great consequences	Populations; Distribution; Reintroductions; Transplants; Survival, Dispersal and reproduction statistics; Vegetation/habitat management accomplishments	A	Administrative unit wide	Five years
Notes: Some of the sensitive species that could be influenced by management activities and land uses in these habitats include: Dakota buckwheat, Barr's milkvetch and Bighorn sheep. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						
USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(5	**Viability 6:**To what extent are National Forest System Lands and their management contributing to the viability of sensitive plant and animal species that are found in aquatic	Key Issue (Viability); Great Consequences	Populations: Relative Abundance; Distribution; In-stream Flow	A	Administrative Unit wide	5 Years

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
& 6); Goal 1.b Objectives 2, 3, 4, 7, 8 & 9	habitats?					
Notes: Some of the species that could be influenced by management activities or land uses include: flathead chub and northern leopard frog. Monitoring of populations and habitats of those sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						
36 CFR 219.20; Management Areas 3.58 & 3.51	**Wildlife 1:** Is habitat effectiveness on designated big game ranges being maintained or enhanced?	Recreational and Economic issue and Cooperative program with State Wildlife Agencies	Habitat effectiveness evaluations, population numbers, and population trends.	A	MA 3.68	Five years
Notes: Big game viewing and hunting are popular recreational activities on these lands and both contribute to the economic diversity of local and state economies. Management of designated big game ranges on NFS lands can help meet big game objectives established by state wildlife agencies. Land uses and developments on these lands can have significant effects on big game habitat.						
Legal 36 CFR 219.7(f); Goal 1.c Objective 5, Goal 4.b Public & Organizational Relations Objectives 2	**Community Relations 1:** To what extent are noxious weeds, invasive species, and animal damage spreading from National Forest System lands to other ownerships or from lands managed by other government agencies to National Forest System lands?	Key issue;	Acres of noxious weeds spreading to or from other ownerships; Acres of prairie dogs spreading to or from other ownerships; Instances of insect infestations spreading to or from other ownerships.	B	Geographic	Five years
Notes: When unwanted plants and animals spread from NFS lands to other lands this places an economic hardship on the landowner to control the spread which can be a key issue with affected land owners.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Legal 36 CFR 219.12(k)5(iv); Goal 1c Objective 5	**Damage Control 1:** To what extent are destructive insect and disease outbreaks prevented following management activities? (See also Community 3)	Key issue; Great consequences	Acres & number of outbreaks. Distance to and age of nearest management activity.	A	Geographic	Five years
Notes: Destructive insect and disease outbreaks can cause a great deal of property & resource damage. Prevention promotes healthy ecosystems.						
Goal 1.c Objective 5, Goal 4.b Public & Organizational Relations Objectives 2	**Damage Control 2:** To what extent are noxious weeds, invasive species, and animal damage expanding or being reduced?	Likely to affect; Great consequences; key issue.	Species, location, and acres of noxious weeds, invasive species, and animal damage.	A	Geographic	Five years
Notes: Management activities can spread or control noxious weeds, early detection is the most economical and sure way of controlling outbreaks, noxious weed control is a key issue.						
Goal 1.c Objective 1; Goal 2.c Wildlife, Fish, & Plant Use Objective 2	**Vegetation 1:** To what extent are rangeland vegetation structure objectives being met?	Likely to affect; Great consequences.	Location & percent of rangeland area meeting, Making measurable progress towards, or Not meeting desired vegetation structure	A	Geographic	Five years
Notes: The mosaic of vegetation structure on rangelands helps determine the diversity of native plants and animals occurring in an area. Vegetation structure and its diversity is largely determined by the frequency, intensity, timing and duration of grazing by livestock, wildlife and other factors such as fire, annual weather patterns, and plant species composition. (Benkobi et al, 2000; Benkobi, 1999)						
Goal 1.c Objective 1; Goal 2.c Wildlife, Fish, & Plant Use Objective 2	**Vegetation 2:** To what extent are rangeland vegetation composition objectives being met?	Likely to affect; Great consequences.	Location & percent of rangelands meeting, Making measurable progress towards, or Not meeting desired vegetation composition.	A	Geographic	Five years

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Notes: Plant species composition on rangelands is largely determined by soils productivity, weather, fire and the frequency, intensity, timing and duration of grazing by livestock and wildlife..						
Goal 1.c Objective 1; Goal 2.c Wildlife, Fish, & Plant Use Objective 2	**Vegetation 3:** To what extent are desired vegetation conditions in forested areas being met?	Likely to affect; Great consequences.	Location & percent of forested lands meeting, Making measurable progress towards, or Not meeting desired structural stages	A	Geographic area: Cellar Rosecrans; Broken Hills; Osage Upton	Five years
Notes: The mosaic of structural stages in forests helps determine the diversity of native plants and animals occurring in an area. Fire and timber management largely determine the mix of structural stages.						
Goal 1.c Objective 1; Goal 2.c Wildlife, Fish, & Plant Use Objective 2	**Vegetation 4:** To what extent are desired vegetation conditions in wetlands being met?	Likely to affect; Great consequences.	Location & percent of wetlands meeting, Making measurable progress towards, or Not meeting desired structural stages	A	Administrative unit wide	Five years
Notes: The amount of development of shoreline and emergent vegetation around wetlands helps determine the suitability of these areas as habitat for a variety of wildlife species. The frequency, intensity, timing and duration of livestock grazing are key factors in determining the amount of shoreline and emergent vegetation in many constructed or natural wetlands.						
Goal 2.a Objective 1, 7	**Recreation 1:** To what extent are trails managed to meet regional standards and to minimize conflicts among users.	Great consequences	Location and miles of trails meeting and not meeting regional standards. Reports of conflicts among users.	B	District	Annually
Notes: An understanding of trail conditions is needed in order to obtain funding and schedule the work needed to bring trails up to standard. A trail in poor condition causes erosion and is a safety hazard.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Goal 2.a Objective 4 & 6	**Recreation 2:** Where does the demand for recreation opportunities warrant development of additional opportunities such as trails or campgrounds?	Great consequences	Customer survey and individual public contacts. Name of facility, location, and time existing use exceeds capacity.	B	District	Five years
Notes: An understanding of the demand for recreation opportunities is needed to efficiently use available funding to develop new recreation facilities or programs and satisfy public demand for recreation opportunities.						
Legal - National Historic Preservation Act; Goal 2.a Objectives 2, 3, & 4, Goal 2b Heritage Objectives 2 & 5, Goal 2c Geologic and Paleontologic Resources Objective 3 &Wildlife, Fish & Plant Use Objective 1, Goal 4a Objective 2	**Recreation 3:** To what extent are grassland and forest visitors informed of the recreation opportunities available to them; are they adequately guided to those recreation opportunities; and do they receive adequate interpretive information on National Register of Historic Places and other heritage sites, geologic, paleontologic, wildlife, plant, and recreation resources or opportunities?	Key issue	Customer survey and individual contacts with grassland and forest visitors and adjacent landowners.	B	District	Five years
Notes: People like to have directional signs to guide them to their destination. Private landowners appreciate it when visitors do not trespass on their land. Interpretive information further enhances the National Grassland or Forest experience.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
36 CFR 219.21 (g) 36 CFR 295.2 &.5 Goal 2.a & 4.a	**Travel and Access 1:** What are the effects of vehicle use off roads?	Key issue	Number and location of off-road vehicle caused incidents of erosion and new unauthorized roads. Acres of ineffective wildlife habitat due to off-road vehicle use.	B	District	Two years
Notes: NFMA requirement to assess the potential effects of vehicle use off roads prior to classifying areas and trails for off-road vehicle use.						
Legal - National Historic Preservation Act; Goal 2.b Heritage Objectives 2 & 5	**Heritage 1:** To what extent are National Register sites and districts being protected and preserved?	Great consequences	Condition of each site, incidents of vandalism.	B	Site or District	Five years
Notes: An understanding of site or district conditions is needed in order to obtain funding and schedule the work needed to bring these sites up to standard. Restoration is less expensive if acted upon as early as possible.						
Goal 2.b Heritage Objective 3	**Heritage 2:** To what extent are traditional cultural properties being protected?	Likely to affect	Condition of each site, incidents of vandalism or disruption of the use of traditional cultural properties.	B	Geographic	Five years
Notes: Management activities may affect the usefulness of traditional cultural properties						
Goal 2.b	**Special Interest Areas:** To what extent have the special features found Special Interest Areas been conserved or enhanced?	Great consequences	Condition of features / communities	B	Area specific	Five years

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Notes: An understanding of the condition and trend of the features or communities that lead to protecting Cellers, Cheyenne River Zoological, Alkali Divide, Buffalo Divide, Cow Creek Historic Rangeland, and Lance Geologic Special Interest Areas is needed so management action can be taken to preserve or enhance Special Interest Areas.						
Goal 2.b	**Research Natural Areas:** To what extent have the unique research features of Research Natural Areas been conserved or enhanced?	Great consequences	Condition of features / communities	B	Area specific	Five years
Notes: An understanding of the condition and trend of the features or communities that lead to protecting the Rock Creek and Wildlife Draw Research Natural Areas is needed so management action can be taken to preserve or enhance Research Natural Areas.						
Legal 36 CFR 219.7(f); Goal 2.c	**Community Relations 2:** What are the effects of National Forest System Management on adjacent communities?	Key issue; Easily/cost effectively answered	NFS related jobs and income; Community tourism receipts; Federal receipts, Federal revenue sharing with state and local governments.	B	County and community depending on data availability.	Annually
Notes: How NFS management affects local economies is an important public issue. With cooperation from state & local governments the information can be obtained at a relatively low cost.						
Goal 2.c Miscellaneous Products Objective 1	**Miscellaneous Products 1:** To what extent is the demand for miscellaneous products being met?	Key issue	Number & kind of miscellaneous permit applications or requests denied	B	District	Five years
Notes: Miscellaneous products are a key issue for the people who use them.						
Goal 2.c Scenery Objective 1	**Scenery 1:** To what extent have scenery management objectives been met?	Likely to affect	Acres and location of desired versus actual scenery integrity condition.	B	Geographic	Five years
Notes: Management activities can alter the scenic integrity of an area either positively or negatively. For many visitors the condition of the grassland or forest scenery is key to enjoying their experience.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Implementation Monitoring						
Endangered Species Act; Goal 4b Public and Organizational Relations Objective 2	**T&E:** Are actions identified in national recovery plans for threatened and endangered species being implemented where opportunities exist on national grasslands and forests?	Key issue (recovery and viability); Great consequences	Type of actions identified in recovery plans that FS is implementing and type of recovery plan actions that could be implemented on national grasslands and forests.	A	T&E recovery areas identified in recovery plans.	Annually
Notes: Recovery plans have been prepared for each of the threatened and endangered species occurring on the national grasslands and forests. The national recovery plans for the black-footed ferret have specific action items that could be applied to the national grasslands and forests in the planning area. These lands can play a significant role in the recovery of these species.						
Agency Expectations; Public Expectations & Issues. Goal 3 Objectives 1, 2, & 3	**Administration:** Are the action plans identified in the objectives being completed on schedule?	Likely to affect.	Percent compliance; narrative	B	Administrative unit wide	Annually
Notes: These are the administrative activities such as conduct studies, obtain baseline inventories, complete action plans, or coordinate with outside groups. The administrative activities are necessary to set the stage for successful Land & Resource Management Plan implementation, and failure to conduct administrative activities would likely affect the ability to meet the goals, objectives, and desired future conditions established in the plan.						
Legal: 36 CFR 219.12 (k)	**Implementation Monitoring:** Have site-specific decisions implement the Land & Resource Management Plan direction?	Likely to affect.	Percent compliance; narrative; As a minimum review all timber sales; 2 AMPs per District; and 1% of other NEPA projects completed for compliance with Land & Resource Management Plan direction.	B	Administrative unit wide	Annually

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
Notes: The standards and guidelines provide mitigation to help meet the goals and objectives of the Land & Resource Management Plan. Failure to implement the standard and guidelines would likely affect the ability to meet the goals and objectives established in the Plan.						
Legal: 36 CFR 219.12 (k)1 & 3	**Outputs:** Are the projected annual outputs and services being met annually and at anticipated costs?	Key issue; Easily/cost effectively answered	See annual MAR report	B	Administrative unit wide	Annually
Notes: Many National Grassland & Forest Users are very interested in projected outputs and services and this is a key issue for them. MAR reporting is required of all National Forest & Grasslands.						
Validation Monitoring						
Endangered Species Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.20 Key Issue; Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2, 4, & 6	**Suggested Stocking Rates:** Are the suggested stocking rate guidelines (Appendix I) providing the desired levels of vegetation structure and quality habitat for management indicator species and species at risk?	Great consequences	Height and density of grassland and sagebrush understory vegetation after livestock grazing	A	Administrative unit-wide	Five years
Notes: As described in Appendix I, stocking rate guidelines for livestock grazing are used to help achieve desired vegetation objectives. These guidelines need to be validated in terms of their ability to provide the desired levels of vegetation structure and quality habitat for management indicator species and species at risk.						

Monitoring Driver	*Monitoring Question*	*Monitoring Priority*	*Potential Monitoring Items*	*Precision & Reliability*	*Scale*	*Frequency of Reporting*
36 CFR 219.19 and 219.20	**Wildlife:** How do residual cover levels measured in the fall relate to nesting cover levels the following spring?	Great consequences	Height and density of grassland and sagebrush understory vegetation in the fall and following spring	A	Administrative unit-wide	Five years
Notes: Visual obstruction readings (VOR) and stubble heights of residual cover are commonly made in the fall after livestock grazing, and this information is then used to predict the nesting cover suitability in the same area the following spring for prairie grouse and other ground-nesting birds. This monitoring is needed to assess the accuracy of these predictions.						
Endangered Species Act; Migratory Bird Treaty Act; 36 CFR 219.19; Goal 1.b. Objectives 2 & 4	**Wildlife:** Are oil and gas stipulations effective, inadequate, or excessive in protecting and conserving raptors, prairie grouse, mountain plover, black-footed ferrets, bighorn sheep, and other wildlife species and their habitats?	Key issue (viability and biological diversity); Legal issue; Great consequences	Documentation of Locations Where the Stipulations Were or Appeared to be Inadequate, Excessive, or Effective as it Relates to Displacement and Reproductive Success; Comparison of Displacement Rates and Reproductive Success in Undeveloped Areas and Impacted Areas.	B	Administrative unit-wide	Five years
Notes: Development, management activities and recreational activities can have significant impacts on fish and wildlife. Negative impacts to wildlife are avoided or lessened through the use of stipulations. Ineffective stipulations are modified to provide adequate protection. Stipulations demonstrated to be overly restrictive are modified to reduce impacts to oil and gas development.						
Legal 36 CFR 219.11 (d); Goal 1.b	**MIS:** Are the selected management indicator species and their response to management activities in habitats on local National Forest System lands adequately representing the management effects on other species in the associated response guilds and is the species membership identified for each response guild reasonably accurate and complete?	Key issue (viability); Legal issue; Great consequences	MIS population and reproduction statistics; Habitat use and availability statistics for MIS and associated species	A	Administrative unit-wide	Five years