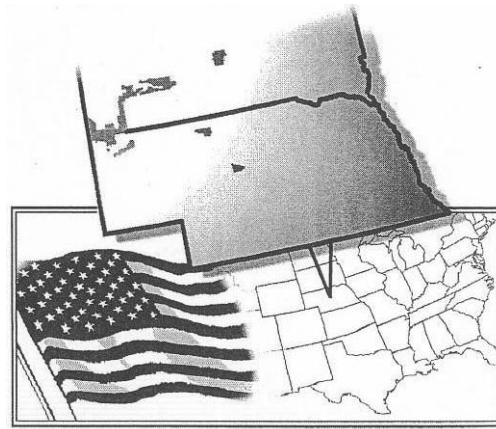
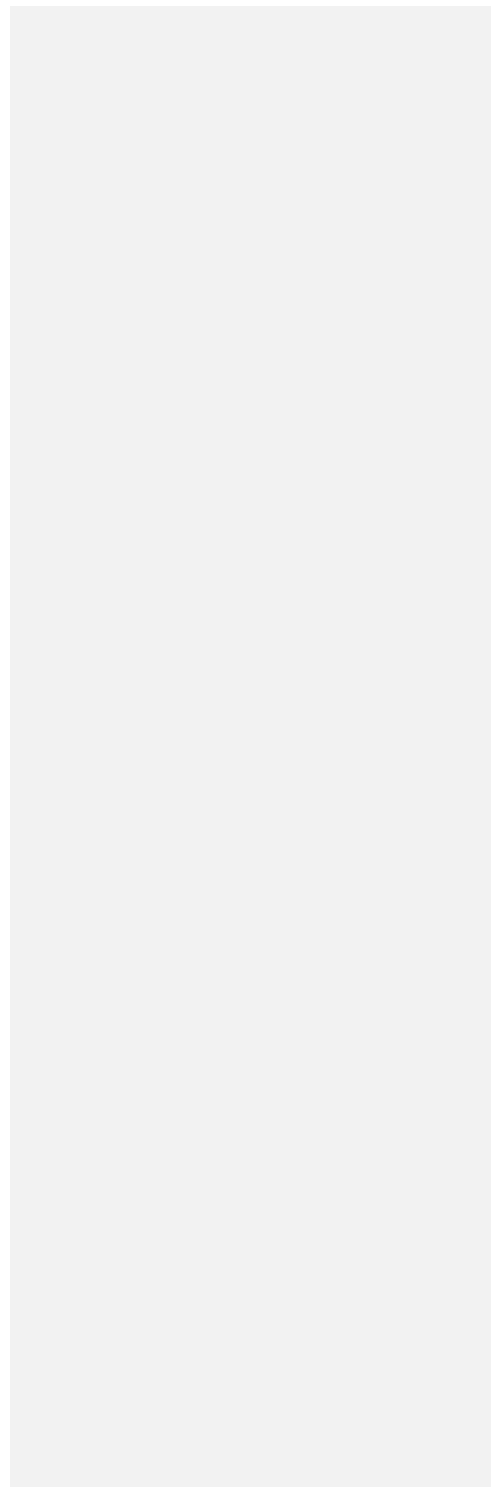


PREFACE

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Preface

Understanding the Revised Land and Resource Management Plan for the Nebraska National Forest

Revised land and resource management plans, often referred to as forest or grassland management plans, are prepared in accordance with the 1976 *National Forest Management Act* (NFMA), the 1969 *National Environmental Policy Act* (NEPA), and other laws and associated regulations.

This preface addresses management of units on the Nebraska National Forests and Grasslands. The revised management plan for the Nebraska National Forests and Grasslands will replace the current 1984 *Nebraska National Forest Land and Resource Management Plan* for specific national grasslands units, including the Buffalo Gap National Grassland, the Fort Pierre National Grassland, the Pine Ridge Ranger District (including the Oglala National Grassland), and the Bessey Ranger District (including the Samuel R. McKelvie National Forest).

PURPOSE OF THIS REVISED MANAGEMENT PLAN

This Revised Management Plan offers guidance for all resource management activities on the Nebraska National Forests and Grasslands. It suggests management standards and guidelines, it 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 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 Nebraska National Forests and Grasslands (six alternatives on the Buffalo Gap National Grassland: Fall River Ranger District only). 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 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.

Upon release of the final revised land and resource management plan for the Nebraska National Forests and Grasslands, 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 and Forest-wide Direction

This chapter contains direction that applies grassland-wide and forest-wide, unless more stringent or restrictive direction is found in Chapters 2 or 3. The grassland-wide and forest-wide direction includes national and regional goals, grassland-wide and forest-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-area~~Geographic Areas include management direction that is too specific to apply across an entire ~~N~~ational ~~G~~rassland or ~~N~~ational ~~F~~orest or several ~~N~~ational ~~G~~rasslands or ~~N~~ational ~~F~~orests. For example, desired vegetation conditions need to be tailored to the vegetation types, climate, and productivity of a specific area. The ~~geographic-area~~Geographic Area direction is applied to the area in addition to the grassland-wide and forest-wide direction in Chapter 1, and the ~~management-area~~Management Area direction in Chapter 3.

This chapter contains a brief section on each ~~geographic-area~~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-area~~Geographic Areas, including:

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

Chapter 3: Management Area Direction

~~Management area~~Management Areas are defined as parts of the ~~N~~ational ~~G~~rasslands and ~~N~~ational ~~F~~orests that are managed for a particular emphasis or theme. Each ~~management area~~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 and forest-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 Human Disturbance <-----> Most Human Disturbance More land use restrictions <-----> Fewer land use restrictions							

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

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 on ~~n~~ational ~~G~~rasslands and ~~N~~ational ~~F~~orests. 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 Nebraska National Forests and Grasslands with the information necessary to determine whether the revised management plan is sufficient to guide management of the ~~N~~ational ~~G~~rasslands and ~~N~~ational ~~F~~orests for the subsequent year or whether modification of the ~~P~~lan is needed. 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~~Focal 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 Nebraska National Forests ~~and Grasslands~~, 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 ~~R~~evised ~~M~~anagement ~~P~~lan. Site-specific project decisions also must be consistent with the final ~~R~~evised ~~M~~anagement ~~P~~lan, unless the ~~P~~lan 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 or forest-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/forest-wide, ~~M~~anagement ~~A~~rea and ~~G~~eographic ~~A~~rea direction. In addition, it must be decided if the project is in the public's interest in terms of grassland-wide ~~and~~ forest-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~~Management Area and ~~geographic area~~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~~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~~Management Area standards.
- Generally, it is during plan implementation, ~~—~~ when a project decision is made, ~~—~~ that the irrevocable 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~~ and ~~National Forest~~ 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 irrevocable commitments of resources, so they are not subject to environmental analyses and disclosure under NEPA procedures.

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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 land ownership adjustment plans (FSM5400).

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.

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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 Nebraska National Forests and Grasslands, including implementation of land and resource management plans. The Nebraska National Forests and Grasslands has committed to an intensive program of public involvement. This means that the door is always open and that National Grassland and National Forest 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 Nebraska National Forests and Grasslands 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

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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~~ensure 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~~made 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~~Q~~Q(f). Significant amendments are those that affect the long-term balance of goods and services on the Nebraska National Forests ~~s and Grasslands~~ or the biological "health" of the Nebraska National Forests ~~s and~~ Grasslands.

National grassland and ~~N~~National ~~F~~Forest personnel conduct the process and forward significant management plan amendments to the ~~r~~Regional ~~F~~Forester, the responsible official for significant amendments, for approval. The Nebraska National Forests and Grasslands 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 Nebraska National Forests and Grasslands are 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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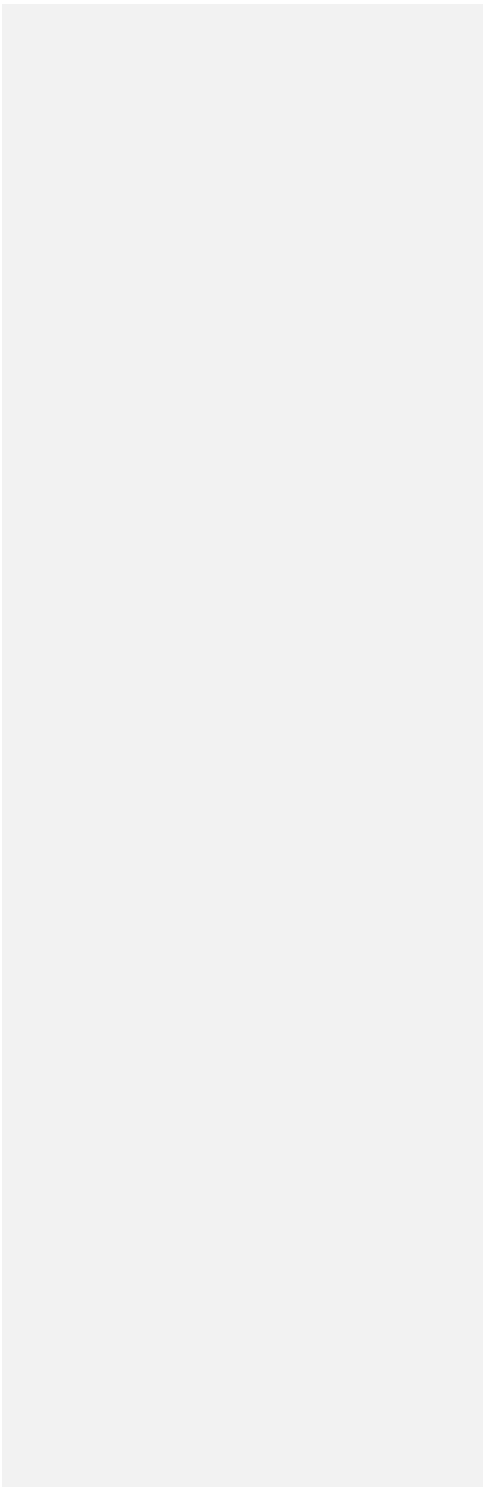
CHAPTER 1

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GRASSLAND-WIDE AND FOREST-WIDE DIRECTION

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CHAPTER 1 GRASSLAND-WIDE AND FOREST-WIDE DIRECTION (INCLUDES AMENDMENTS 1, 2, AND 3)

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CHAPTER 1 GRASSLAND-WIDE AND FOREST-WIDE DIRECTION **(INCLUDES AMENDMENTS 1, 2, AND 3)**

INTRODUCTION

This chapter contains direction that applies across all Nebraska National Forests s and Grasslands units (NNF). Its direction includes Regional goals, and NNF 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 are 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 may or may 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 Nation's 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, 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. Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability and potential partnerships to prioritize watershed improvement projects.
- 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 regeneration 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 (i.e., seismograph holes, water wells, etc.) to prevent cross contamination of aquifers.

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~~species~~focal 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~~focal species~~.
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~~species~~focal 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~~focal species~~.
8. Complete and initiate implementation of conservation strategies for globally rare plant species (G2-3 rankings) including Dakota buckwheat and 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, Dakota buckwheat, 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 Prevention of Significant Deterioration (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 and Forest trails to regional standards
2. Over the next 15 years, provide readily available information concerning recreation opportunities for developed, historic, and appropriate cultural sites.
3. Within 5 years, provide appropriate directional signing to key recreation sites and inform people about the public access routes to ~~N~~ational ~~G~~erasslands and ~~N~~ational ~~F~~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, develop and implement 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 ~~N~~ational ~~G~~erassland and ~~F~~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 ~~W~~Wilderness and protected areas to sustain a desired range of benefits and values.

Wilderness

Objective

- 1. Within 5 years of Congressional designation, develop ~~W~~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. In partnership with American Indian tribes and/or others, educate and interpret 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.

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Goal 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 Area direction and to implement all appropriate management plan direction.

Geologic and ~~Paleontologic~~Paleontological Resources

Objectives:

- 1. Within 15 years, inventory and evaluate 20 percent of high potential paleontological formations.
- 2. Within 15 years, develop and implement 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~~ NFS ~~IL~~ lands.

Scenery

Objective:

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

Special Uses

Objective:

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

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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 **available** scientific information ~~available~~ to deliver technical and community assistance and to support ecological, economic, and social sustainability.

~~3.~~ ***Goal 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, and restoration of ecosystems and sustainability of natural resources.
- 3. Assess potential habitat capability at the local level for ~~management indicator species~~**focal 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~~**focal 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.

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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. **Goal 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 ~~travelways~~ travel ways and areas, to meet land management objectives. Provide reasonable access for use of the ~~N~~ational ~~G~~erasslands and ~~N~~ational ~~F~~orests.
- 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~~ NFS lands and resources, while providing safe and efficient travel and minimizing adverse environmental effects.
- 4. Annually maintain at least 8 percent of the forest development transportation system roads.
- 5. Within 15 years, complete at least 10% of high priority facility reconstruction projects
- 6. Annually maintain at least 10% of buildings and other facilities to standards and code, ~~while maintaining. Annually maintain all buildings to~~ safety & health standards.
- 7. Where appropriate, encourage and authorize recreation opportunities for people with disabilities.

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

Unauthorized Uses

Objective:

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

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Public and Organizational Relations

Objectives:

1. Provide opportunities for federally recognized American Indian tribes to participate in planning and management of the ~~N~~ational ~~G~~rasslands and ~~N~~ational ~~F~~orests, especially where tribes have claimed special geographic, historical, or cultural interest.
2. Work in cooperation with federal, state, and county agencies, individuals, ~~A~~merican Indian tribes, 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, tribal colleges, 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.

STANDARDS AND GUIDELINES

This direction applies across the Nebraska National Forests ~~s~~ and ~~G~~rasslands units. 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 ~~and~~ ~~f~~orest objectives. Site-specific deviations from standards must be analyzed and documented in management plan amendments.

Guidelines are actions that should be followed to achieve Grassland or ~~F~~orest 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 ~~A~~ir Quality). **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-injections 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. Expedite permitting processes, where necessary, to implement the plans that are developed through this partnership. **Guideline**

(See [Appendix F](#) Geology and Minerals; Lease-able Minerals section to find air standards and guidelines related to mineral operations)

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. ~~(e)~~ 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 wetlands 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 chemicals and pathogenic pollutants where such pollutants will not reach surface or ground water. **Standard**

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

12. Apply chemicals using methods described in label instructions 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 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 facilities in these areas, then:

- Deposit no waste material (silt, sand, gravel, soil, slash, debris, chemical or other material) below ~~high water~~~~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 Appendix F~~ 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 Appendix F~~ 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~~~~NFS~~ land ponds or wells; and c) such use would 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 Section J. Non-native and Invasive Species, Noxious Weeds and Insect Management Invasive Plant Species section~~ for direction regarding revegetation; and the Infrastructure section for direction on facilities. Also see Appendix F 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, Administrative Sites and known National Register of Historic Places 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 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.**

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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~~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 apply to mineral operations~~See Section F. Fish, Wildlife, and Rare Plants and Section K. Recreation)

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 commercially produced water disposal wells with a special use permit with appropriate fees for special use. **Guideline**

(See the Special Uses section for other standards and guidelines that shall 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 [Appendix J Paleontology](#) ~~See Appendix J for details~~). **Standard**

2. Survey and post federal land boundaries where paleontological sites have Fossil Potential Classification sensitivity rankings of 3, 4 or 5. (See [Appendix J Paleontology](#) ~~See Appendix J for details~~). **Guideline**

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

BIOLOGICAL RESOURCES

F. Fish, Wildlife and Rare Plants

General

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

2. Modify livestock grazing practices as needed to reduce adverse impacts of drought on food and cover for prairie grouse and other wildlife. **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. (See Appendix B [Recommended Fence Specifications for Big Game Movement](#)) 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 any mowing outside developed sites until July 15 or later to protect ground-nesting birds, including their nests and broods. Project-level analyses will determine the earliest mowing date. **Guideline**

7. Manage vegetation so native forbs periodically complete their full reproductive cycle.

Guideline

8. Use the following criteria at the project-level to help determine where to manage for tall and dense nesting habitat in as large of blocks as possible 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 water 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-layer 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. A sharp-tailed ~~grouse ground~~ display ground is no longer considered active if it has been unoccupied during the last 2 breeding seasons. **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 vegetation objectives for the ~~geographic area~~**Geographic Area**) within 1.0 mile of active sharp-tailed grouse display grounds. (~~see Consult Appendix H. Habitat Descriptions~~ for a description of quality habitat for sharp-tailed grouse). **Guideline**

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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 1/8 mile of prairie dog colonies, or those portions of larger colonies, occupied or thought to be occupied by 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 1/8 mile of prairie dog colonies, or those portions of larger colonies, occupied or thought to be occupied by 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 shall be replaced within the year. This is based on the amount of suitable habitat available prior to prairie dog dispersal in the year of the poisoning or development. **Standard (Amendment 2)**~~

~~22.~~^{21.} For routine maintenance, access to oil and gas facilities in prairie dog colonies occupied or thought to be occupied by black-footed ferrets shall be limited to daylight hours. This does not apply to emergency repairs. **Guideline**

Sensitive Plant and Animal Species

~~23.~~^{22.} Do not authorize new facilities, roads, trails, fences, salting and mineral areas, or water developments in habitat occupied by sensitive plant species. **Guideline**

~~24.~~^{23.} 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 their populations. **Standard**

~~25-24~~. Identify sensitive plant habitats and rare plant communities as priorities for invasive plant monitoring and control. **Guideline.**

~~26-25~~. Do not authorize the use of invasive plant control methods that may negatively impact sensitive plant species. **Guideline**

~~27-26~~. As opportunities arise, design timing, intensity and frequency of mowing, burning and livestock grazing to maintain and/or increase populations of sensitive plant species and the health of rare plant communities. **Standard**

~~28-27~~. Do not authorize vegetation management and construction projects that would prevent recolonization of sensitive plant populations from adjacent populations. **- Standard**

~~29-28~~. Do not develop any additional springs and seeps where associated habitat for sensitive plant species would be degraded or lost. **Standard**

~~30-29~~. Design vegetation and pest management activities (e.g., prescribed burning, mowing, livestock grazing, or grasshopper spraying) 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**

~~31-30~~. 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**

~~32-31~~. 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**

~~33-32~~. Design and implement vegetation management and construction projects so they do not degrade habitat for plains topminnow and other clear-water stream species by increasing sediment load and turbidity. **Guideline**

Greater Prairie Chicken

~~34-33~~. To help reduce adverse impacts to breeding prairie chicken and their display grounds, prohibit construction of new 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 last two breeding seasons. This does not apply to pipelines, fences, windmills and underground utilities. **Standard**

~~35-34~~. To help reduce disturbances to breeding and nesting prairie chicken, prohibit the following activities within 1.0 mile of active display grounds from March 1 to June 15:

- Construction (e.g., roads, trails, water impoundments),
- Gravel mining operations,
- Drilling of water wells,
- Training of bird hunting dogs. **Standard**

~~36-35~~. To reduce disturbances to breeding and nesting prairie chicken, do not authorize the following activities within 1.0 mile of active display grounds from March 1 to June 15:

- Construction (e.g., pipelines, utilities, fencing),

- Permitted recreation events. **Guideline**

~~37.36.~~ Manage viewing activities on display grounds to reduce disturbances and adverse impacts to the birds. **Guideline**

~~38.37.~~ 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 30% of the area within 1.0 mile of active display grounds (consistent with vegetation objectives for the ~~geographic area~~ **Geographic Area**; see **Appendix H Habitat Descriptions**). ~~Consult Appendix H for a description of quality habitat for greater prairie chicken.~~ **Guideline**

~~39.38.~~ Do not plant trees (does not apply to shrubs such as American plum and western chokecherry) in prairie chicken habitat. **Guideline**

Burrowing Owls

~~40.39.~~ Do not spray grasshoppers within 0.25 miles of known burrowing owl nests. **Standard**

~~41.40.~~ To optimize habitat for burrowing owls, manage for active prairie dog colonies that are larger than 80 acres. **Guideline**

Black-tailed Prairie Dog

~~42. Restrict prairie dog shooting 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. Coordinate and consult with the appropriate wildlife agencies prior to implementation of restrictions. **Guideline** (Amendment 2)~~

~~43.41.~~ Prohibit activities that would alter water flow regimes and flood prairie dog burrows.

Standard

~~44.42.~~ 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

~~45.43.~~ 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**

~~For lands identified in the DM&E final environmental impact statement and only for project decisions on those lands, this standard is waived entirely to allow for construction, installation, and operation of the DM&E Railroad under a construction permit and an authorization. Site specific direction from the project mitigation plan, where it applies,~~

~~will be used instead. See Amendment 2003-01 for specific mitigation. (Amendment 1)~~
 46.44. 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**

47.45. Prohibit the use of M-44s (sodium cyanide) for predator control in occupied swift fox habitat on ~~National Forest System~~NFS lands. **Standard**

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~~48.46.~~ 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 ~~G~~eographic ~~A~~rea. **Guideline**

~~49.47.~~ Pursuant to the Swift Fox Conservation Strategy, identify population monitoring and habitat inventory methods; identify key habitats on ~~N~~ational ~~G~~erasslands and ~~F~~forests; and develop appropriate population and habitat management strategies. **Guideline**

~~50.48.~~ Pursuant to the Swift Fox Conservation Strategy, implement management activities for expanding the distribution of swift fox. **Guideline**

Raptors

~~51.49.~~ 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

~~For lands identified in the DM&E final environmental impact statement and only for project decisions on those lands, this standard is waived entirely to allow for construction, installation, and operation of the DM&E Railroad under a construction permit and an authorization. Site-specific direction from the project mitigation plan, where it applies, will be used instead. See Amendment 2003-01 for specific mitigation. (Amendment 1)~~

Commented [KB3]: Remove since project completed.

~~52-50.~~ 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 following table:

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

~~53-51.~~ 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. **Guideline**

G. Fire Suppression, Fuels Treatments, Prescribed Fire

Fire Suppression

1. 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. Develop an Appropriate Management Response (AMR) for each ~~management area~~Management Area outlined in the Fire Management Plan for Nebraska National Forests and Grasslands units. **Guideline**

3. 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 US Fish and Wildlife Service~~FWS~~ when threatened and endangered species~~TES~~ habitat is threatened or impacted by fire. **Guideline**

4. Encourage the use of wildland fire management strategies in W~~w~~ilderness A~~a~~reas, B~~b~~ackcountry R~~r~~ecreation N~~n~~on-motorized A~~a~~reas, S~~s~~pecial I~~i~~nterest A~~a~~reas, and R~~r~~esearch N~~n~~atural A~~a~~reas that minimize land and resource disturbance. **Guideline**

Fuel Treatment

5. Reduce the threat of wildfire to public and private developments by following guidelines in the National Fire Protection Association Publication 1144299, Standard for Reducing Structure Ignition Hazards from Wildland Fire~~Protection of Life and Property from Wildfire~~, and reduce the fuel load to acceptable levels. **Guideline**

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

Prescribed Fire

7. 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. Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations:

- a. Public health and safety risks occur in the immediate area,
- b. Damage to private and public facilities, such as cemeteries and residences.
- c. To respond to unwanted prairie dog colonization on adjoining agricultural lands.
~~(Amendment 2)~~**Standard**

To respond to situations where prairie dog colony acres are exceeding the maximum range of acres for the Geographic Area and where desired vegetation condition is not being achieved. (Oglala, Buffalo Gap, and Fort Pierre National Grasslands only). ~~(Amendment~~

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1. Maximum acreage limit exceeded:
 - a. When prairie dog colony acres in a **Geographic Area** exceed the maximum, rodenticide use may occur on up to 1/3 of the maximum range of acres (i.e., if the aggregate acres exceed 3%, reduce to about 2%). **Guideline** Poisoning will usually occur for 1 to 3 years, until the district ranger determines the acres of prairie dogs are at or below the maximum acreage. Colony reduction, due to exceeding acreage limits, may occur every year based on available funding. However, the district ranger should avoid rodenticide use for more than three to five consecutive years. The intent is not to apply rodenticide annually. **Guideline**
 - b. Acres that have been poisoned will not be used to calculate prairie dog acreage requirements until monitoring shows recolonization. **Standard**
 - c. Before, during and following poisoning to reduce acres, livestock will be removed for a period of 1 to 3 years or until the district ranger determines that desired prairie dog acreage requirements have been achieved. **Guideline**
2. To achieve desired vegetation condition:
 - a. The district ranger will use non-lethal methods before employing lethal methods to maintain the range of prairie dog acres and achieve desired vegetation conditions ~~(see Forest Plan Amendment 3, Supplement 1 – Implementation Plan)~~. **Guideline**
 - b. Manage livestock grazing to maintain prairie dog habitat to meet desired vegetation conditions and minimize the potential for soil loss. This management may include annual modifications to livestock grazing and other tools ~~(see Forest Plan Amendment 3, Supplement 1 – Implementation Plan)~~. Long-term modifications to livestock grazing will be addressed in the range allotment management planning (RAMP) process. **Guideline**
 - c. Adaptive management as described in Forest Plan Amendment 3, Supplement 1 – Implementation Plan will be used. This includes the suite of management tools listed in Table 5 in that supplement. The district ranger will be the decision-maker for the site-specific, on-the-ground actions. **Standard**
 - d. Before rodenticide use can occur, the minimum range of prairie dog acres for the Geographic Area must be achieved. Non-lethal methods can be used at any time ~~(see Forest Plan Amendment 3, Supplement 1 – Implementation Plan)~~. **Standard**
 - e. Rodenticide will be used to reduce prairie dog densities within a colony. In a colony in which prairie dog densities have been reduced but not eliminated, the treated acres will be used to calculate the minimum and maximum acreage requirements for the Geographic Area. **Standard**
 - f. If monitoring indicates that the existing condition of the plant community is below the desired condition and the SI is at or below 25%, poisoning could occur as determined by the district ranger ~~(see Forest Plan Amendment 3, Supplement 1 – Implementation Plan)~~. **Guideline**
 - g. Before, during and following poisoning to reduce acres, livestock will be removed for a period of 1 to 3 years or until the district ranger determines that desired vegetation conditions are met. **Guideline**

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| [\(See Forest Plan Amendment 3, Supplemental 1 – Implementation Plan\)](#)

1. Determine the appropriate response to complaints of unwanted colonization on adjoining agricultural lands. A suite of management tools will be considered based on site-specific evaluations. **Guideline**

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

3. Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to ~~December 31~~ January 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. **Standard**

I. Livestock Grazing

1. Allow bison grazing on the National 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 to ensure healthy livestock (including bison), such as requiring testing by the permittee for diseases (e.g., Brucellosis) and vaccinating for other diseases prior to placement on public lands. **Standard**

3. Adjust livestock management activities annually as needed to take into account the effect of natural processes, such as droughts, fires, floods, and 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 (~~s~~See Geographic Area desired conditions) and/or reproductive success of ~~M~~management ~~I~~indicator ~~S~~species and threatened, endangered, and sensitive species;
- Where increased fuel loads are desired for prescribed burning;
- Where rest is required for vegetative recovery after wildfire or prescribed burns.
- Where ungrazed areas are desired for monitoring vegetation structure or for research needs;
- Where ungrazed areas are desired for biological diversity. **Guideline**

6. When ~~allotment management plans~~AMPs are revised, adjust stocking levels to account for the variations in liveweight of livestock if needed to meet desired vegetative conditions. (~~s~~See Appendix C Determining Animal Unit Equivalent Based on Livestock Weight). **Guideline**

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

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

9. Prioritize and remove any fences or water developments that are not contributing to achieving desired conditions. **Guideline**

(See [Section Q](#), Infrastructure [Use and Management](#) for standards and guidelines relating to capital investments on lands with moderate to high mineral development potential)

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

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

2. Attempt to prevent the spread of undesirable non-native, invasive, or noxious plant species to the NNF, by including necessary provisions in contracts and permits designed to limit its lands and resources to exposure to these plants. **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 a control, ensure proper disposal of hay. **Guideline**

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

- Rate of species spread;
- Invasions within special ~~management area~~Management Areas, such as [Research Natural Areas](#) and Wildernesses, activity corridors, and high use areas;
- Probability of successful treatment(s) in meeting desired conditions. **Guideline**

5. Once appropriate consultation with state agencies has taken place, allow only certified noxious weed seed-free products for recreational animal feed or revegetation 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 revegetation efforts. To prevent soil erosion, non-native annuals or sterile perennial species may be used while native perennials are becoming established. **Guideline**

8. Where appropriate, control insect damage and diseases using integrated pest management techniques. Treatment activities will be based on potential risks to human health, wildlife and the value of and risks to 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 grasshopper problems ~~recur~~^{recur} and cannot be corrected through livestock grazing strategies, allow baiting with approved pesticides as a grasshopper control method. **Guideline**.

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

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 impacts by redirecting use, rehabilitating or hardening the site to minimize erosion and off-site movement of soil. **Guideline**

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 ~~N~~ational ~~G~~erassland and ~~F~~orest 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 outfitter/guide 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**~~

~~2.1.~~ Scenic Integrity Objectives for ~~management area~~Management Areas apply only to the area within the ~~M~~management ~~A~~area boundary. **Standard**

~~3.2.~~ Rehabilitate areas that do not meet the scenic integrity objectives specified for the ~~M~~management ~~A~~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~~Section P. Special Uses and ~~Section K.~~ Recreation)

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ADMINISTRATION

M. Land Ownership

General

1. 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):
 - Land with important or unique resources, such as water frontage, wetlands, floodplains 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 resource 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 are a high priority.
 - Important botanical, wildlife and fishery management areas. This includes lands supporting rare plant communities.
 - Lands with important value for outdoor recreational purposes.
 - Land 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 would reduce conflicts between Forest Service, tribal lands and private landownership objectives, especially when conflicts are adversely impacting ~~National Forest System~~NFS management. This includes reducing conflicts involving the management of prairie dog colonies along ~~National Forest System~~NFS lands.
 - Lands in Congressionally designated Wilderness and other ~~classified-designated~~ areas.
 - Lands that would correct maladjustments of land use as described in the Bankhead-Jones Farm Tenant Act.
 - Lands within or around existing blocks of public ownership of at least 2,000 acres.
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

Guideline

access and the effort to acquire such access is not cost-efficient or otherwise reasonable.

- Lands less than 2,000 acres which are 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, however, 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 Forest System~~NFS lands in the following ways:

- Require reciprocal grants, where needed, when granting rights-of-way easements across the forests or grasslands.
- 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.

Guideline

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 Accidental Disturbance of Human Remains. 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. **Standard**

6. Enhance and interpret significant heritage sites for the education and enjoyment of the public, while protecting the integrity of the sites. **Guideline**
7. Limit non-research oriented ground-disturbing activities on heritage districts and sites eligible for the National Register of Historic Places~~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 Forest Service designated 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. **Guideline**
6. Allow non-commercial collection of paleontological resources with authorization (permit or area designation). The maximum amount of collected petrified wood per 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 only be issued 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 ~~National Forest System~~NFS lands without a permit, providing the activity does not damage the resource and specimens are for personal, non-commercial uses (sSee 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 available information indicates that collection would not diminish sustainability of the products. **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 [Management Area](#) direction for more specific corridor direction). **Guideline**
 4. Ensure utility corridors are consistent between adjoining ~~National Forest System~~NFS 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 to minimize visual impacts. When these facilities leave existing corridors, they should be subordinate to the landscape (see Scenic Integrity in [Appendix G](#) 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. Disapprove land-use authorizations on NFS lands identified for disposal if such occupancy shall 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 ~~National Forest System~~NFS resources: (e.g., oil and gas, energy, minerals, livestock grazing, outfitting and guiding, etc.).
 - Land and land-use activities that benefit only private users, e.g., events, road permits, rights-of-way for private power lines, telephones, water lines, etc. **Guideline**
 11. Require a special-use road permit or easement for motorized access to private land where access for the general public is not available. **Guideline**
 12. Disapprove any special-use applications that can reasonably be met on private or other federal lands unless it is clearly in the public interest. **Guideline**
 13. Do not renew existing term agricultural permits that authorize hay harvesting or farming operations on ~~National Forest System~~NFS lands. **Standard**
- (See [Section D](#). Geology and Minerals, Energy and Minerals Related to Special Uses for standards and guidelines regarding mineral operations.)

Q. Infrastructure Use and Management

1. Do not restrict motorized vehicle use on existing roads and trails until a decision is made designating non-motorized areas and travelways, unless specifically prohibited in ~~M~~management ~~A~~area direction or existing orders. **Guideline**
2. Allow appropriate emergency services (i.e., law enforcement, fire suppression, medical, search and rescue) and administrative use on roads or areas where motorized use is restricted. **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. ~~Allow road maintenance without Roads Analysis for up to 5 years after approval of this plan.~~ **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 big game movement ([see Appendix B, Recommended Fence Specifications for Big Game Movement](#)) and access for recreation, fire protection, and mineral development. **Guideline**
7. As opportunities allow, install gates along all existing fences at intervals 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**
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**

CHAPTER 2

GEOGRAPHIC AREA DIRECTION

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CHAPTER 2 GEOGRAPHIC AREA DIRECTION
(INCLUDES AMENDMENTS 1, 2, AND 3)

INTRODUCTION

~~Geographic area~~Geographic Areas include management direction that is too specific to apply across all Nebraska National Forests and Grasslands units (NNF). For example, desired vegetation conditions need to be tailored to the vegetation types, climate, and productivity of a specific area. The Geographic Area direction found in this chapter complements the general Grassland and Forest-wide direction in Chapter 1 and the more specific Management Area direction in Chapter 3.

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

- Description of the physical setting and important features.
- Direction to achieve 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 ~~d~~Direction – Objectives, and Geographic Area ~~d~~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~~

GEOGRAPHIC AREAS

~~Geographic areas are delineated on the enclosed Alternative 3 map.~~ The Nebraska National Forest NNF and associated units contain 11 ~~geographic area~~Geographic Areas, as follows:

Bessey Ranger District

The Bessey Ranger District, which includes two units--the Bessey Unit of central Nebraska, and the Samuel R. McKelvie National Forest of north central Nebraska, is located in the sandhills of Nebraska, the largest grass-stabilized dune region in the Western Hemisphere. The Bessey Ranger District encompasses about 207,000 acres. The district office is located near Halsey, Nebraska along with the Charles E. Bessey Tree Nursery. Portions of the Bessey Ranger District include plantation stands of ponderosa pine and eastern redcedar. The 25,000 acres of hand-planted forests are distinguished as the largest plantation forest in United States. Two ~~geographic area~~Geographic Areas are included for the Bessey Ranger District:

- Bessey Unit
- Samuel R. McKelvie National Forest.

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Buffalo Gap National Grassland: Fall River Ranger District

The Fall River Ranger District encompasses about 322,000 acres of the 595,000-acre Buffalo Gap National Grassland of southwestern South Dakota. The district constitutes the western and southern reaches of the ~~N~~ational ~~G~~rassland. It extends from the Cheyenne River on the east to the Wyoming and Nebraska borders on the west and south, respectively. The district office is located in Hot Springs, South Dakota.

The Fall River Ranger District is divided into three distinct ~~geographic-area~~Geographic Areas:

- Fall River Northeast,
- Fall River Southeast,
- Fall River West.

Buffalo Gap National Grassland: Wall Ranger District

The Wall Ranger District encompasses about 273,000 acres of the 595,000-acre Buffalo Gap National Grassland of southwestern South Dakota. The district constitutes the northern and eastern reaches of the ~~N~~ational ~~G~~rassland. It extends east from the Cheyenne River through the White River Badlands, wrapping around Badlands National Park, to just south of Kadoka, South Dakota. The Wall Ranger District also shares common boundary with the Pine Ridge Indian Reservation and the Fall River Ranger District of the Buffalo Gap National Grassland. The district office is located in Wall, South Dakota, and is adjacent to the National Grassland Visitors Center, the only Forest Service visitor center in the country devoted entirely to interpreting the country's 20 ~~N~~ational ~~G~~rasslands.

The Wall Ranger District is divided into three distinct ~~geographic-area~~Geographic Areas:

- Wall North,
- Wall Southeast,
- Wall Southwest.

Fort Pierre National Grassland

The Fort Pierre National Grassland encompasses 116,000 acres of National Forest System (~~NFS~~) lands in central South Dakota beginning five miles south of Fort Pierre, ~~South Dakota~~ and extending southward to within five miles of I-90. This grassland is contained in one ~~geographic-area~~Geographic Area: the Fort Pierre Geographic Area. The Fort Pierre National Grassland shares a common boundary with the Lower Brule Indian Reservation on six miles of its northeastern boundary; and lies within two miles of the Missouri River on its northeastern corner. All of the drainages on the Fort Pierre National Grassland eventually flow to the Missouri River. ~~The National~~ Grassland adjoins no other ~~National Forest System~~~~NFS~~ lands and is some 75 miles from the nearest ~~National Forest System~~~~NFS~~ land on the Buffalo Gap National Grassland to the southwest. The Fort Pierre Ranger District's administrative office is located in ~~Fort~~ Pierre, South Dakota.

Pine Ridge Ranger District, Nebraska National Forest

The Pine Ridge Ranger District office ~~is located three miles south of~~in Chadron, Nebraska. The district manages both the Pine Ridge portion of the Nebraska National Forest, as well as the Oglala National Grassland. The Pine Ridge area includes about 50,500 acres of ~~National Forest System~~NFS lands in northwestern Nebraska. The Oglala National Grassland encompasses about 94,000 acres of ~~National Forest System~~NFS lands in Nebraska's northwest corner. The district is divided into two ~~geographic area~~Geographic Areas:

- Oglala National Grassland
- Pine Ridge Unit.

BESSEY GEOGRAPHIC AREA

Bessey Ranger District

Setting

The Bessey Geographic Area encompasses ~~about 90,170~~ 90,465 acres (~~ref. FS-383 Land Areas of the National Forest System 9/30/2008 and Middle Loop Land Exchange~~) of ~~National Forest System~~ NFS lands in central Nebraska's 12 million acre sandhills region. The Bessey Ranger District, Halsey, Nebraska, administers this ~~geographic area~~ Geographic Area.

The climate of the Bessey Geographic Area can be classified as semi-arid ~~c~~Continental. In general, the weather of the sandhills is highly variable. Precipitation arrives mostly from the Gulf of ~~Mexico~~ America, with 75 percent of it falling between April and September. Precipitation varies widely, from around 17 inches to 23 inches per year. Summer temperatures average from the 60s to the mid-70 degrees Fahrenheit, while average winter temperatures are near freezing at 32- degrees Fahrenheit. Still, summer temperatures can rise well above 100 degrees, while winter temperatures can fall below zero degrees. Spring blizzards are common. The wind tends to blow frequently.

The topography of the area is characterized by large, vegetated sand masses created by blowing sand as recently as 1500 years ago. A number of dune types are found in the sandhills. In the Bessey Geographic Area, dune types include crescentic-ridge and linear dune types. Dunes in the Nebraska sandhills can rise to more than 400 feet, can be as long as 20 miles, and can display slopes as steep as 25 percent. Elevation in the Bessey Geographic Area ranges from around 2,225 to 2,700 feet above sea level.

The rivers and streams of the Nebraska sandhills are unusual in several respects. Sandhills rivers have few tributaries. They seldom flood, despite low banks, and because the flow is derived from steady groundwater seepage, they flow at a nearly constant rate. Nearly all sandhills rivers rise within the sandhills. The Niobrara River, which begins in eastern Wyoming, being the one exception. Sandhills rivers are relatively low in dissolved solids, but do contain silica. Two important rivers are associated with the Bessey Geographic Area. The Middle Loup River ~~lies~~ just touches the northern boundary, while the Dismal River intermittently breaches the southern boundary.

Also of note is the High Plains Aquifer, which lies beneath the sandhills. Within the Bessey Geographic Area, this aquifer has a saturated thickness of more than 500 feet.

The dominant vegetation consists of several sandhills communities. They include 1) bunchgrass communities of little bluestem, junegrass, needleandthread, prairie sandreed and switchgrass, 2) sand muhly communities of sand muhly, sand bluestem, needleandthread, prairie sandreed and hairy grama, 3) blowout communities of blowout grass, prairie sandreed, sand muhly, ricegrass, sand lovegrass and the endangered species blowout penstemon. The Bessey Geographic Area also has a limited floodplain prairie and hardwood forest community. In addition, hand-planted plantation stands of jack pine, Austrian pine, Scotch pine, ponderosa pine and Eastern redcedar are found in this ~~geographic area~~ Geographic Area.

Desired Conditions

The desired condition is to perpetuate diverse and healthy sandhills prairie communities, representing both cool season and warm season species such as needleandthread, porcupinegrass, little bluestem, sand bluestem, prairie sandreed, blue grama, hairy grama and Indiangrass. Shrub thickets will be managed to perpetuate multiple layers and age classes of herbaceous plants and shrubs. Shrub species found in the thickets include chokecherry, snowberry, and American plum. Streams and riparian areas will maintain soil moisture to perpetuate riparian plant communities with strong root masses. Some of the plant species common in the riparian zones include prairie cordgrass, bulrushes, spikerushes, cottonwoods, and willows.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see [Appendix G eGlossary](#)), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

To provide habitat for viable populations of all wildlife species, a mixture of vegetation composition and structure will be provided. Herbaceous structure (grasses and forbs), especially, plays a very important role in determining habitat suitability for many grassland wildlife species.

A few small areas, where suitable soils provide habitat, will be maintained in low vegetation structure to support viable black-tailed prairie dog populations. Prairie dog colonies serve as important habitat for other species of wildlife, some of which have low region-wide populations.

Grasses and forbs of moderate height and density will provide adequate habitat for many birds, mammals and other classes of wildlife. Over a significant area high, dense, cover will be left after the grazing season for birds that require more cover and nest on the ground early in the spring, such as sharp-tailed grouse, prairie chickens, and some species of ducks.

Tall and dense grass cover also improves the hunting experience by acting as “holding cover” for sharp-tailed grouse and prairie chickens. Upland game birds find security in such cover and will be less apt to flush beyond shooting range. Upland bird hunting is an important and growing activity in this [geographic area](#) [Geographic Area](#). A significant percentage of the area should display these conditions, in which bird hunters will perceive that their efforts can be successful.

The tree plantations will be maintained for their recreational, aesthetic, wildlife and historic values. They will be managed to exhibit open park-like characteristics with multi-aged stands of regenerating ponderosa and jack pine where possible. Historic redcedar stands will be maintained with some areas being thinned to open up the canopy. Redcedar numbers will be reduced in open pine stands and where they are spreading into native grassland areas.

The Signal Hill [Research Natural Area \(RNA\)](#) will be managed to maintain the vegetation in a relatively undisturbed state for research values. Manipulation through grazing or prescribed fire may be used to meet management objectives.

Wildlife enclosures will be managed to maintain their wildlife and research values. Desired vegetation conditions are variable depending on the individual enclosure.

The prairie landscape desired condition is to maintain the open and scenic plains and vast prairie landscapes. Recreationists should perceive that they are visiting an expansive native prairie. In

the forest plantations, recreationists should perceive a natural forest setting. Small areas of cattle grazing impacts will exist but will be minimized. Visitors should have little trouble traveling designated roads and trails, except in extreme weather conditions, and should have no difficulty opening and closing gates.

Developed recreation areas including the Bessey Recreation Complex, Whitetail Campground and Natick Campground are to be maintained to provide a variety of services and experiences to visitors.

Timber stands around the administrative site, nursery, 4-H Camp and Bessey Recreation Complex will be managed to reduce fire hazard.

Important Attributes

- Part of the largest grass-stabilized dune region in the Western Hemisphere
- Part of the largest hand-planted forest in the United States
- Habitat for blowout penstemon, an endangered plant species
- The Bessey Recreation Complex, with camping, horseback and picnic facilities, ~~and a swimming pool~~
- Scott Fire Tower, the only active fire tower on the Nebraska National Forest
- Charles E. Bessey Nursery, the nation's oldest federal tree nursery
- Hunting and wildlife viewing opportunities.

Management Area Prescription Allocation

Number	Prescription	Acres
2.1	Special Interest Areas	19,540,526
2.2	Research Natural Areas	5029
3.64	Special Plant and Animal Habitat	4099
6.1	Rangeland with Broad Resource Emphasis	69,480,601
		(ref- Middle- Loop-LX)
8.5	Nursery (Charles E. Bessey Nursery)	7065
8.6	Administrative Sites	150,145

Geographic Area Direction – Objectives

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~focal species and ~~T~~hreatened and ~~E~~ndangered Species (TES) habitat needs.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~N~~orthern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides opportunity for meeting vegetation structure objectives and providing for floristic diversity.

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Composition

- | Late Seral
30-50% | Late Intermediate Seral
30-50% | Early Intermediate Seral
1-20% | Early Seral
1-20% |
|----------------------|-----------------------------------|-----------------------------------|----------------------|
|----------------------|-----------------------------------|-----------------------------------|----------------------|

In the early seral stage the sands and choppy sands ecological type will be dominated by sand bluestem and little bluestem will be the codominant species. Prairie sandreed, hairy grama, switchgrass, sedges and sand lovegrass are also important grasses in the late seral stage on this ecological type. On the more productive dry valley ecological type blue grama will be the dominant species while sedges will be the codominant species. Prairie sandreed, sand bluestem, switchgrass, sand lovegrass, and little bluestem are also important grasses on dry valley sites in the early seral stage. **Objective.**

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- ### Structure

- ### Geographic Area Direction

below:

High	Moderate	Low
40 to 60%	40 to 60%	0 to 5%

High vegetation structure can be achieved on moderate and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderate to highly productive soils but dominated by short grass species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderate to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands dominated by short grass species will not achieve moderate structure regardless of grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Plantations

Within the next 15 years, reduce redcedar to create open pine stands in 20 percent of the plantations. **Objective**

Fire

Prescribe burn a minimum of 500-2,500 acres per decade. **Objective**

Rest

Rest 1-10 percent of the suitable rangeland each year. **Objective**

Infrastructure

1. Increase average pasture size over the decade by 15 percent. **Objective**
2. Allow no net increase in water developments. **Objective**

Wildlife, Fish and Rare Plants

1. ~~Management Indicator Species~~ Focal Species:

Greater Prairie Chicken

- Provide diverse and quality grassland habitat across the larger valleys and adjoining hills in this ~~geographic area~~ Geographic Area at levels that will help support stable to increasing populations of greater prairie chicken and other wildlife over the next 10 to 15 years. **Objective**
- Establish and maintain quality nesting, brooding and roosting habitat for greater prairie chicken (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for high structure over the next 10 to 15 years. **Objective**

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat at levels that will support stable to increasing populations of sharp-tailed grouse and other wildlife with similar habitat needs over the next 10 to 15 years. **Objective**
- Establish and maintain quality nesting, brooding and roosting habitat for sharp-tailed grouse (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for 40- 60% of the area in high structure grasslands over the next 10 to 15 years. **Objective**

2. Threatened, Endangered and Sensitive Species:

Blowout Penstemon (Endangered Species)

- Coordinate with appropriate state and federal agencies to provide a continued propagation source for blowout penstemon (re-establishment of a greenhouse facility may be critical to achieving recovery goals for this species). **Objective**
- Reintroduce populations in suitable habitat and in area of historic occurrence in the species range within the planning area. **Objective**
- Design and implement strategies to create or maintain suitable blowout penstemon habitat on ~~National Forest System~~NFS lands within the range of the species in the planning area. **Objective**

Recreation

1. Develop site management plans including vegetation plans for the Bessey Recreation Complex, Whitetail, and Natick Campgrounds within 10 years. **Objective**
2. Develop one additional group campground facility (Well site 25) within 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 Suggested Stocking Rates) to help develop and implement range management strategies for meeting desired vegetation objectives. **Standard**

Smooth Goosefoot

- Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~Geographic Area. Protect populations that are found in the ~~geographic area~~Geographic Area and maintain suitable habitat for these populations. **Standard**
- Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat. **Standard**
- Monitor off-road vehicles (ORV) use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Wildlife, Fish and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Greater Prairie Chicken

- Forty to sixty percent of this ~~geographic area~~Geographic Area is to be managed for high structure grasslands. A substantial amount of this should be located in the larger valleys and adjoining hills where it will optimize habitat for greater prairie chicken and associated species. **Guideline**
- Establish and maintain quality foraging habitat for greater prairie chicken and associated species by enhancing and/or maintaining a diversity of forb species. **Guideline**

Plains Sharp-tailed Grouse

- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining a diversity of forb species and regeneration of sandhill shrub thickets. **Guideline**

2. Threatened, Endangered and Sensitive Species:**Blowout Penstemon (Endangered Species)**

- To help meet national recovery plan objectives for blowout penstemon, cooperate with other agencies or organizations in transplanting blowout penstemon into suitable habitat with the objective of establishing at least two self-sustaining populations in this ~~geographic area~~ **Geographic Area**. **Standard**
- Identify suitable blowouts for future blowout penstemon transplants and manage disturbance processes in these areas to maintain suitable habitat. **Standard**
- Protect naturally occurring, introduced, and re-introduced populations and their habitats within the ~~geographic area~~ **Geographic Area**. **Standard**
- Conduct target surveys for additional naturally occurring populations within the range of distribution of the species in the ~~geographic area~~ **Geographic Area**. **Standard**
- Monitor transplanted blowout penstemon populations to assess success of reintroduction methods and efforts. **Standard**
- Monitor ORV use in sand dunes and implement travel management restriction if blowout penstemon populations are at risk. **Standard**
- As needed to help meet the recovery objectives identified in the national recovery plan for this species, create new blowouts as reintroduction habitat by applying appropriate disturbance processes. **Standard**
- Prioritize noxious weed control in blowouts occupied by blowout penstemon populations or in blowouts identified for future transplants. Restrict activities that contribute to invasive and non-native plant species into blowout penstemon habitat. **Standard**

Western Prairie Fringed Orchid (Threatened Species)

- In consultation and coordination with the U.S. Fish and Wildlife Service, evaluate opportunities for establishing ~~W~~estern ~~P~~rairie ~~F~~ringed ~~O~~rchid populations on Nebraska National Forests ~~s and Grasslands~~ units and implement if suitable habitat exists. **Standard**

Plantations

1. In the tree plantations, the desired condition is to maintain them for their recreational, aesthetic, wildlife and historic values by maintaining present stands for multi-age classes and promote regeneration of ponderosa pine and jack pine wherever possible. Stands should be managed to exhibit open park-like characteristics. **Guideline**
2. Historic redcedar stands will be maintained with some areas being thinned to open up the closed canopy. **Guideline**

McKELVIE GEOGRAPHIC AREA

Samuel R. McKelvie National Forest - Bessey Ranger District

Setting

The McKelvie Geographic Area encompasses ~~about 116,060~~ 116,079 acres (ref. FS-383 Land Areas of the National Forest System 9/30/2008) of National Forest System (NFS) lands in the north central portion of Nebraska's 12 million acre sandhills region. The Bessey Ranger District headquartered near Halsey, Nebraska administers this ~~geographic area~~ Geographic Area.

The climate of the McKelvie Geographic Area can be classified as semi-arid Continental. In general, the weather of the sandhills is highly variable. Precipitation arrives mostly from the Gulf of ~~Mexico~~ America, with 75 percent of it falling between April and September. Precipitation varies widely, from around 17 inches to 23 inches per year. Summer temperatures average from the 60s to the mid-70 degrees Fahrenheit, while average winter temperatures are near freezing at 32- degrees Fahrenheit. Still, summer temperatures can rise well above 100 degrees, while winter temperatures can fall below zero degrees. Spring blizzards are common. The wind tends to blow frequently.

The topography of the area is characterized by large, vegetated sand masses created by blowing sand as recently as 1500 years ago. A number of dune types are found in the sandhills. In the McKelvie Geographic Area, dune types include the crescentic-ridge, the moderate-relief sand sheet, the wide-spaced crescentic and the linear dune types. Dunes in the Nebraska sandhills can rise to more than 400 feet, can be as long as 20 miles and can display slopes as steep as 25 percent. Elevation in the McKelvie Geographic Area ranges from around 2,625 to 3,175 feet above sea level.

The rivers and streams of the Nebraska sandhills are unusual in several respects. Sandhills rivers have few tributaries. They seldom flood, despite low banks, and primarily because the flow is derived almost exclusively from steady groundwater seepage, they flow at a nearly constant rate. Nearly all sandhills rivers rise within the sandhills. The Niobrara River, which begins in eastern Wyoming, is the only exception. Sandhills rivers are relatively low in dissolved solids, but do contain silica. Two rivers of importance are associated with the McKelvie Geographic Area. The Niobrara River touches or crosses the northern boundary, while the Snake River touches the southern boundary. In addition, Merritt Reservoir, on the Snake River, lies adjacent to the McKelvie Geographic Area on the southeastern corner. A portion of the reservoir lies within the boundary of the forest and is managed through agreements with the Bureau of Reclamation and Nebraska Game and Parks Commission.

Also of note is the High Plains Aquifer, which lies beneath the sandhills. Within the McKelvie Geographic Area, this aquifer has a saturated thickness of more than 500 feet. The High Plains Aquifer feeds numerous wetlands and marshes.

The dominant vegetation consists of several sandhills plant communities. They include 1) bunchgrass communities of little bluestem, junegrass, needleandthread, prairie sandreed and switchgrass, 2) sand muhly communities of sand muhly, sand bluestem, needleandthread, prairie sandreed and hairy grama, 3) blowout communities of blowout grass, prairie sandreed, sand muhly, ricegrass, sand lovegrass and the blowout penstemon, a state and federally listed endangered species. In addition, approximately 2200 acres of the ~~geographic area~~ Geographic Area consists of hand-planted ponderosa pine stands.

Desired Conditions

The desired condition is to perpetuate diverse and healthy sandhills prairie communities, representing both cool season and warm season species such as needleandthread, porcupinegrass, little bluestem, sand bluestem, prairie sandreed, blue grama, hairy grama and Indiangrass. Shrub patches will be managed to perpetuate multiple layers and age classes of herbaceous plants and shrubs. Species included in the patches are chokecherry, snowberry, and American plum. Streams and riparian areas will maintain soil moisture to perpetuate riparian plant communities with strong root masses. Plant species include prairie cordgrass, bulrushes, spikerushes, cottonwoods, and willows.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see [Appendix G](#) [G](#)Glossary), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

To provide habitat for viable populations of all wildlife species, a mixture of vegetation composition and structure will be provided. Herbaceous structure (grasses and forbs), especially, plays a very important role in determining habitat suitability for various species.

If populations of prairie dogs become established in suitable habitats, these areas will be maintained in low structure to support viable black-tailed prairie dog populations. Prairie dog colonies serve as important habitat for other species of wildlife, some of which have low region-wide populations.

Grass of moderate height and density will provide adequate habitat for many birds, mammals and other classes of wildlife. Over a significant area, high, dense cover will be left after the grazing season for birds that require higher structure and nest on the ground early in the spring, such as sharp-tailed grouse, prairie chickens, and some species of ducks.

Tall, dense grass cover will also improve the hunting experience by acting as “hiding cover” for sharp-tailed grouse and prairie chickens. Game birds find security in such cover and will be less apt to flush beyond shooting range. Upland bird hunting is an important and growing activity in this ~~geographic area~~[Geographic Area](#). A significant percent of the area should display these conditions, in which bird hunters will perceive that their efforts can be successful.

The tree plantations will be maintained for their recreational, aesthetic, wildlife and historic values. They will be managed to exhibit open park-like characteristics with multi-aged stands of regenerating ponderosa and jack pine where possible. Historic redcedar stands will be maintained with some areas being thinned to open up the canopy. Redcedar numbers will be reduced in open pine stands and where they are spreading into native grasslands.

The Steer Creek Research Natural Area ([RNA](#)) will be managed to maintain the vegetation in a natural state. Grazing will continue in the area. Emphasis will be placed on management of the riparian corridor. Vegetation composition will be managed with an emphasis on late seral conditions and high structure.

The Steer Creek ~~special plant and animal area~~[RNA](#) will be managed to maintain the upland and riparian vegetation for native plant communities including sandhills prairie and riparian habitats. Vegetation composition will be managed with an emphasis on late seral conditions and high structure.

Wildlife exclosures will be managed to maintain their wildlife and research values. Desired vegetation conditions are variable depending on the individual exclosure.

The area around Merritt Reservoir will be managed to maintain healthy plant communities while managing for high recreational use near Merritt Reservoir. The reservoir is currently managed through a memorandum of understanding (MOU) with the Bureau of Reclamation and Nebraska Game and Parks Commission.

The landscape desired condition is to maintain open and scenic plains and vast prairie landscapes. Recreationists should perceive that they are visiting an expansive native prairie. In the forest plantations, recreationists should perceive a natural forest setting. Small areas of cattle grazing impacts will exist but will be minimized. Visitors should have little trouble traveling designated roads and trails, except in extreme weather conditions, and should have no difficulty opening and closing gates.

No new road construction will be authorized in the area north of County Road 5 and east of State Spur 16F.

Steer Creek campground will be maintained to provide a variety of recreation experiences and services to visitors.

Areas around the administrative site and Steer Creek Campground will be managed to reduce fire hazard.

Important Attributes

- Part of the largest grass-stabilized dune region in the Western Hemisphere
- Hand-planted timber stands
- Habitat for blowout penstemon, a federally listed endangered plant species
- Hunting and viewing opportunities for sharp-tailed grouse and waterfowl, numerous neotropical grassland birds
- Merritt Reservoir, adjoining the Forest, provides a significant sports fishery and recreational complex

Management Area Prescription Allocation

	Prescription	Acres	Acres
1 for Wilderness		14,800	
al Areas		1,600	
and Animal Habitat: Sharp-tailed Grouse		17,457	
and Animal Habitat: Creston Pit		150	
reation High Use		5,410	
h Broad Resource Emphasis		52,006	
	Prescription	Acres	
1 for Wilderness		14,800	
al Areas		1,600	
and Animal Habitat: Sharp-tailed Grouse		17,457	
and Animal Habitat: Creston Pit		150	
reation High Use		5,410	
h Broad Resource Emphasis		52,006	
	Number		

2.1	Special Interest Areas	2,850
2.2	Research Natural Areas	2,620
3.64	Special Plant and Animal Habitat	4,470
4.32	Dispersed Recreation High Use	1,110
6.1	Rangeland with Broad Resource Emphasis	104,870
8.6	Administrative Sites	20

<u>Number</u>	<u>Prescription</u>	<u>Acres</u>
<u>2.1</u>	<u>Special Interest Areas</u>	<u>2,924</u>
<u>2.2</u>	<u>Research Natural Areas</u>	<u>2,612</u>
<u>3.64</u>	<u>Special Plant and Animal Habitat</u>	<u>4,486</u>
<u>4.32</u>	<u>Dispersed Recreation High Use</u>	<u>1,109</u>
<u>6.1</u>	<u>Rangeland with Broad Resource Emphasis</u>	<u>104,621</u>
<u>8.6</u>	<u>Administrative Sites</u>	<u>20</u>

Geographic Area Direction - Objectives

Vegetation

This section deals with vegetation and its relationship to focal speciesMIS and TES habitat needs.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the Northern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative compositional and structural objectives for the McKelvie Geographic Area:

Composition

1. The desired plant species composition objective across the geographic-areaGeographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
30 to 50%	30 to 50%	1 to 20%	1 to 20%

In the late seral stage, on the more productive dry valley ecological type, switchgrass will be the dominant species while sand bluestem will be the codominant species. Little bluestem, prairie sandreed, needleandthread, blue grama, and sedges are also important species on dry valley sites in the early seral stage. The sands and choppy sands ecological type will be dominated by sand bluestem while switchgrass will be the codominant species. Sand lovegrass, sedges, little bluestem, prairie sandreed, and blue grama are also important species in the late seral stage of this ecological type.

In the late intermediate seral stage, on the more productive dry valley ecological type, little bluestem will be the dominant species while sedges will be the codominant species. Switchgrass, blue grama, sand bluestem, hairy grama, and needleandthread are also important grasses on dry valley sites in the late intermediate seral stage. The sands and choppy sands ecological type will be dominated by little bluestem while sand lovegrass will be the codominant species. Sand bluestem, sedges, prairie sandreed, hairy grama, and switchgrass, are also important grasses in the late intermediate seral stage of the sands and choppy sands ecological type.

In the early intermediate seral stage, on the more productive dry valley ecological type, sedges will be the dominant species while blue grama will be the codominant species. Little bluestem, switchgrass, prairie sandreed, sand bluestem, and hairy grama are also important grasses on dry valley sites in the early intermediate seral stage. The sands and choppy sands ecological type will be dominated by hairy grama while little bluestem will be the codominant species. Sand bluestem, sedges, prairie sandreed, switchgrass, and sand lovegrass, are also important species in the early intermediate seral stage of the sands and choppy sands ecological type.

In the early seral stage, on the more productive dry valley ecological type, blue grama will be the dominant species while sedges will be the codominant species. Prairie sandreed, sand bluestem, switchgrass, sand lovegrass, and little bluestem are also important grasses on dry valley sites in

the late seral stage. The sands and choppy sands ecological type will be dominated by sand bluestem while little bluestem will be the codominant species. Prairie sandreed, hairy grama, switchgrass, sedges and sand lovegrass are also important grasses in the early seral stage on this ecological type. **Objective**

Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

High	Moderate	Low
40 to 60%	40 to 60%	0 to 5%

High vegetation structure can be achieved on moderate and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderate to highly productive soils but dominated by short grass species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderate to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands dominated by short grass species in the late intermediate or late seral stage will not achieve moderate structure regardless of grazing levels.

Low productivity soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

Smooth Goosefoot

1. Prioritize and initiate target surveys for smooth goosefoot. **Objective**

Plantations

1. Within the life of the plan, remove encroaching redcedar in 20 percent of the pine plantations to maintain open pine stands. **Objective**

Fire

1. Prescribe burn a minimum of 500 to 2,500 acres per decade. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Infrastructure

1. Maintain average pasture size over the life of the plan. **Objective**

2. Allow no net increase in water developments. **Objective**

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Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Greater Prairie Chicken

- Provide diverse and quality grassland habitat across the larger valleys and adjoining hills in this ~~geographic area~~Geographic Area at levels that will help establish a viable population of at least 100 adult male prairie chicken over the next 10 to 15 years. **Objective**
- Establish and maintain quality nesting, brooding and roosting habitat for greater prairie chicken (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for high structure over the next 10 to 15 years. **Objective**

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat at levels that will support stable to increasing populations of sharp-tailed grouse and other wildlife with similar habitat needs over the next 10 to 15 years. **Objective**
- Establish and maintain quality nesting, brooding and roosting habitat for sharp-tailed grouse (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for 40- 60% of the area in high structure grasslands over the next 10 to 15 years. **Objective**

2. Threatened, Endangered and Sensitive Species:

Blowout Penstemon (Endangered Species)

- Coordinate with appropriate state and federal agencies to provide a continued propagation source for blowout penstemon. ~~(re-establishment of a greenhouse facility may be critical to achieving recovery goals for this species).~~ **Objective**
- Reintroduce populations in suitable habitat and in areas of historic occurrence in the species range within the planning area. **Objective**
- Design and implement strategies to create or maintain suitable blowout penstemon habitat on ~~National Forest System~~NFS lands within the range of the species in the planning area. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

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

Smooth Goosefoot

- Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~Geographic Area. Protect populations that are found in the ~~geographic area~~Geographic Area and maintain suitable habitat for these populations. **Standard**
- Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat.

Standard

- Monitor ORV use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Greater Prairie Chicken

- Forty to sixty percent of this ~~geographic area~~Geographic Area is to be managed for high structure. A substantial amount of this should be located in the larger valleys and adjoining hills where it would optimize habitat for greater prairie chicken and associated species. **Guideline**
- Establish and maintain quality foraging habitat for greater prairie chicken and associated species by enhancing and/or maintaining a diversity of forb species. **Guideline**

Plains Sharp-tailed Grouse

- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining a diversity of forb species and regeneration of sandhill shrub thickets. **Guideline**

2. Threatened, Endangered, and Sensitive Species:

Blowout Penstemon (Endangered Species)

- To help meet national recovery plan objectives for blowout penstemon, cooperate with other agencies or organizations in transplanting blowout penstemon into suitable habitat with the objective of establishing at least 2 populations in this ~~geographic area~~Geographic Area. **Standard**
- Identify suitable blowouts for future blowout penstemon transplants and manage disturbance processes in these areas to maintain suitable habitat. **Standard**
- Protect naturally occurring, introduced, and re-introduced populations and their habitats within the ~~geographic area~~Geographic Area. **Standard**
- Conduct target surveys for additional naturally occurring populations within the range of distribution of the species in the ~~geographic area~~Geographic Area. **Standard**
- Monitor transplanted blowout penstemon populations to assess success of reintroduction methods and efforts. **Standard**
- Monitor ORV use in sand dunes and implement travel management restriction if blowout penstemon populations are at risk. **Standard**
- As needed to help meet the recovery objectives identified in the national recovery plan for this species, create new blowouts as reintroduction habitat by applying appropriate disturbance processes. **Standard**
- Prioritize noxious weed control in blowouts occupied by blowout penstemon populations or in blowouts identified for future transplants. Restrict activities that contribute to invasive and non-native plant species into blowout penstemon habitat. **Standard**

Western Prairie Fringed Orchid (Threatened Species)

- In consultation and coordination with the U.S. Fish and Wildlife Service, evaluate opportunities for establishing Western Prairie Fringed Orchid populations on the Nebraska National Forests s and Grasslands and implement if suitable habitat exists. **Standard**

Plantations

1. In the tree plantations, the desired condition is to maintain them for their recreational, aesthetic, wildlife and historic values by maintaining present stands for multi-age classes and promoting regeneration of ponderosa pine and jack pine wherever possible. Stands should be managed to exhibit open park-like characteristics. **Guideline**
2. Historic redcedar stands will be maintained with some areas being thinned to open up the closed canopy. **Guideline**

FALL RIVER NORTHEAST GEOGRAPHIC AREA

Buffalo Gap National Grassland - Fall River Ranger District

Setting

The Fall River Northeast Geographic Area includes ~~about 91,908~~ 91,423 acres (~~ref. Cole Draw Land Exchange 2005 and Sanders Land Exchange 2004~~) of ~~National Forest System~~ NFS lands on the northeastern portion of the Fall River Ranger District. The Wall Ranger District of the Buffalo Gap National Grassland borders this area on the east.

The climate of the Fall River Northeast Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from -40 degrees below zero Fahrenheit in the winter to more than 110-degrees Fahrenheit in the summer. Precipitation levels average a little above 16 inches per year with the majority falling as rain from about May through July.

The topography of this area is a blend of rolling hills and plains, rugged badlands formations, and Cheyenne River breaks. The major distinguishing landmarks and features include, from north to south, Rapid Creek, Railroad Buttes, Red Shirt Canyon and the Chalk Hills. Drainages flow primarily to the east into the Cheyenne River, which forms the eastern boundary of the Fall River Ranger District and is a significant feature in this ~~geographic area~~ Geographic Area. Elevations range from about 2,450 feet above sea level in the northwestern corner of the district along the Cheyenne River to 3,100 feet above sea level in the Red Shirt Canyon area.

The primary tributaries of the Cheyenne River in this ~~geographic area~~ Geographic Area include, from north to south, Rapid Creek, Spring Creek, Battle Creek and French Creek. All of these streams originate in the interior of the Black Hills more than 50 miles from their confluence with the Cheyenne River.

The dominant vegetation types include: western wheatgrass in the uplands with green ash, American elm, snowberry, and chokecherry, in the draws. Cottonwood trees are common along the Cheyenne River, but also appear, to a lesser extent, along the major tributary streams. Rocky Mountain juniper also provides a significant woody component on many of the north-facing slopes.

Currently, there are two developed recreation facilities in this ~~geographic area~~ Geographic Area. They are the Railroad Buttes Off-highway Vehicle (OHV) Area and French Creek Campground. The primary dispersed recreational opportunities within this ~~geographic area~~ Geographic Area include big game hunting, upland game hunting, waterfowl hunting, wildlife viewing, rockhounding, mountain biking, hiking, fishing, and camping.

Desired Condition

The desired condition is perpetuate diverse and healthy mixed grass communities, representing both cool season and warm season species such as western wheatgrass, green needlegrass, needleandthread grass, little bluestem, threadleaf sedge, prairie sandreed, sideoats grama, buffalo grass, and blue grama. Hardwood draws will be managed to perpetuate multiple layers and age classes of herbaceous plants, shrubs and trees. Species included in the draws are green ash,

American elm, chokecherry and snowberry. Streams and riparian areas will maintain soil

moisture to perpetuate riparian plant communities with strong root masses. Plant species include prairie cordgrass, bulrushes, spikerushes, inland saltgrass, cottonwoods, and willows.

The landscape desired condition is to maintain open, scenic plains and vast prairie landscapes. The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see [Appendix G eGlossary](#)), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

The desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide primarily moderate to high structure levels. Upland grassland habitat associated with sharp-tailed grouse will be managed to provide sufficient residual cover to meet nesting, brooding, and hiding cover requirements. Woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat. Although small and isolated, prairie dog colonies will maintain some low structure grassland habitat scattered throughout this ~~geographic area~~[Geographic Area](#).

The desired recreation condition includes the development of a picnic area and trailhead at the Railroad Buttes OHV Area, and the development of trailheads and trails for the Red Shirt ~~Recommended for Wilderness A~~area. The Red Shirt ~~Recommended for Wilderness area, which is being recommended for Wilderness designation,~~ will be managed to protect its rugged, unroaded character, and motorized travel will be restricted. Dispersed recreation activities will continue to be emphasized across this ~~geographic area~~[Geographic Area](#).

Important Attributes

- Significant fossil resources from the Tertiary Period.
- Significant gemstone and agate beds.
- Railroad Buttes ~~Off Highway Vehicle (OHV)~~[OHV](#) Motorized Recreation Area.
- Scenic Red Shirt Canyon.
- Picturesque Rapid Creek and Cheyenne River Valleys.
- French Creek Campground & Trailhead
- Populations of Barr’s milkvetch.

Management Area Prescription Allocation

Number	Prescription	Acres
1.2	Recommended for Wilderness	14,970800
3.64	Special Plant and Animal Habitat: Sharp-tailed Grouse	175,969457
	Special Plant and Animal Habitat: Creston Pit	150
4.32	Dispersed Recreation High Use	5,40710
6.1	Rangeland with Broad Resource Emphasis	52,00650,512

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(ref. Sanders Land Exchange 2004)

Geographic Area Direction - Objectives

Vegetation

This section deals with vegetation and its relationship to focal speciesMIS and TES habitat needs. The focus in the Fall River Northeast Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the Northern Great Plains. The grassland ecosystem will have a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative compositional and structural objectives for the Fall River Northeast Geographic Area:

Composition

- 1. The desired plant species composition objective across the geographic areaGeographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
20 to 40%	40 to 60%	5 to 15%	5 to 15%

In the late seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent tall grasses. On clayey, silty, and thin upland range sites western wheatgrass, green needlegrass, porcupine grass, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grasses. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In the late intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent short grasses. The dominant grass species in the late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, porcupine grass, blue grama, and sedges. The mix of grasses making up the codominance in late intermediate seral stages will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In the early intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses and to a lesser extent mid grasses. Dominant grass species in the early intermediate seral stage should be blue grama, buffalo grass, western wheatgrass, needleandthread, and sedges. The mix of grasses making up the codominance in early intermediate seral stages will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In the early seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses with little if any presence of mid grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama and buffalograss on all range sites. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. The early seral stage should be emphasized on the less

productive claypan soil types, in and around prairie dog towns, and in isolated areas of high livestock use. **Objective**

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Structure

2. Manage the ~~geographic area~~Geographic Area to meet the vegetation structure objectives identified below:

High	Moderate	Low
25 to 45%	45 to 65%	1 to 20%

High vegetation structure can be achieved on moderate and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderate to highly productive soils but dominated by short-statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderate to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~Geographic Area receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in early intermediate or early seral stages will not achieve moderate structure under even light grazing levels.

Low productivity soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Smooth Goosefoot

1. Prioritize and initiate target surveys for smooth goosefoot. **Objective**

Fire

1. Prescribe burn a minimum of 1,500 acres per decade to achieve one or more of the following desired condition objectives:

- Promote vegetative diversity,
- Improve wildlife habitat,
- Stimulate riparian/woody draw regeneration,
- Control or reduce invasive plants/noxious weeds,
- Improve plant vigor and health, and/or
- Reduce fuel loading. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

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Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across this ~~geographic area~~Geographic Area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing

sharp-tailed grouse populations (long-term trends) and viable populations of other wildlife species with similar habitat needs. **Objective**

- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse ([see Appendix H Habitat Descriptions](#)) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**
- Establish and maintain quality winter foraging habitat for sharp-tailed grouse and associated wildlife 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. **Objective**

Black-tailed Prairie Dog

- Apply adaptive management strategies to provide objectives for 1,000 minimum and 2,700 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H. Animal Damage Control for management direction. **Objective**
- Increase black-tailed prairie dog populations over the next 10- to 15-years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the Geographic Area over the next 10- to 15-years. **Objective**

Black-tailed Prairie Dog (Amendment 3)

- Apply adaptive management strategies to provide objectives for 1,000 minimum and 2,700 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H. Animal Damage Control for management direction. **Objective**
- Increase black-tailed prairie dog populations over the next 10 to 15 years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the geographic area over the next 10 to 15 years. **Objective**

2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub-(Candidate Species)

- In cooperation with other conservation agencies and organizations, continue inventories as needed in the Cheyenne River and selected tributaries to establish baseline population and distribution information so that appropriate population trend and habitat objectives can be established for these drainages. **Objective**
- In cooperation with other conservation agencies and organizations, assess the potential impacts of the construction of additional small impoundments in upper watersheds on hydrologic flow and patterns on downstream sturgeon chub habitat. **Objective**

3. Special Plant and Wildlife (3.64) Area: Special Wetland/Aquatic Habitat (Creston Pit). The Creston Pit Area is a special wetland/aquatic habitat area in this ~~geographic area~~[Geographic Area](#). The area will be managed to enhance and maintain the habitat for waterfowl and shorebirds as follows:

- Provide diverse and quality wetland/aquatic habitat in this special ~~M~~[management Area](#) at levels that help support stable to increasing populations of waterfowl and other wildlife with similar habitat needs. **Objective**

4. Enhance warm-water fisheries in suitable water impoundments. **Objective**

Recreation

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Railroad Buttes Off-Highway Vehicles (OHV) Recreation Area (4.32)

- 1. Develop a trailhead, parking, and picnic area for this area. **Objective**

Red Shirt Recommended for Wilderness Area (1.2)

- 2. Within the life of the plan develop trailheads near the French Creek Campground/Agate Beds and near the Red Shirt Bridge off of Highway #40. **Objective**
- 3. Within the life of the plan develop hiking/horseback trails in the area to accommodate public use and need. **Objective**

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Geographic Area Direction – Standards and Guidelines

Vegetation

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

Smooth Goosefoot

- Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~Geographic Area. Protect populations that are found in the ~~geographic area~~Geographic Area and maintain suitable habitat for these populations. **Standard**
- Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat. **Standard**
- Monitor ORV use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives. **Guideline**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- 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,
 - Proximity to sharp-tailed grouse display grounds,
 - Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**

~~Black-tailed Prairie Dog~~ **(Amendment 3)**

- ~~Refer to Chapter 1 (Sections F and/or H) for standards and guidelines.~~

2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- To assist in maintaining the current quantity and quality of aquatic habitat for this species, do not authorize land uses or developments that would measurably and cumulatively further degrade sturgeon chub habitat, including reducing downstream flows. **Guideline**
- Conduct project-level biological evaluations assessing potential downstream risks to this species from proposed projects that may have the potential to significantly alter sturgeon chub habitat or reduce downstream flows. This includes sand and gravel dredging and small impoundment construction in upper watersheds. **Guideline**

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3. Special Plant and Wildlife (3.64) Areas: Sharp-tailed Grouse. These areas will be managed to emphasize high structure for sharp-tailed grouse habitat. **Guideline**

- 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,
 - Proximity to wetland/aquatic habitat. **Guideline**
- This area may be grazed or burned periodically to meet management objectives. **Guideline**

Recreation

Railroad Buttes Off-Highway Vehicles (OHV) Recreation Area (4.32)

1. Prohibit target shooting within this area. **Standard**
2. This area will be open to motorized travel. However, some areas shall have travel restrictions (~~s~~Seasonal ~~c~~Closures, ~~a~~Area ~~c~~Closures, and/or designated routes) to mitigate impacts to sensitive areas. These areas could include archeological sites, paleontological sites, wetlands, critical wildlife and plant areas, and areas with high visual sensitivity (along County Road ~~160~~th ~~Ave.~~). **Standard**

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FALL RIVER SOUTHEAST GEOGRAPHIC AREA

Buffalo Gap National Grassland - Fall River Ranger District

Setting

The Fall River Southeast Geographic Area encompasses ~~about 111,621~~ 111,590 acres (~~ref- Cortney Creek Land Exchange 2008~~) of ~~National Forest System(NFS)~~ lands on the central portion of Fall River Ranger District. The Pine Ridge Sioux Indian Reservation borders this area on the east.

The climate of the Fall River Southeast Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from –40 degrees below zero Fahrenheit in the winter to more than 110-degrees Fahrenheit in the summer. Precipitation levels average around 16 inches per year with the majority falling as rain from about May through July.

The topography of this area is a blend of gently rolling hills and semi-flat plains. Distinguishing features include, from north to south, the Jim Wilson and First Black Canyons, Limestone Butte and Lone Butte. Drainages generally flow to the west into the Cheyenne River or southeast into the White River. Elevations range from about 2,900 feet above sea level along the Cheyenne River in the northern portion of this ~~geographic-area~~Geographic Area to about 3,530 feet above sea level atop Limestone Butte in the central portion of this ~~geographic-area~~Geographic Area.

The primary tributaries flowing into the Cheyenne River are Horsehead Creek and Hay Canyon Creek and the primary tributary flowing into White River is Blacktail Creek.

Dominant vegetation includes western wheatgrass in the uplands and some chokecherry, snowberry, green ash, willow, and cottonwood in the draws.

Currently, the only developed recreational facility within this ~~geographic-area~~Geographic Area is the Pioneer Picnic Area. The primary dispersed recreational opportunities within this ~~geographic-area~~Geographic Area include big game hunting, upland game hunting, waterfowl hunting, wildlife viewing, rockhounding, mountain biking, hiking, fishing, and camping.

Desired Conditions

The desired condition is to perpetuate diverse and healthy mixed grass and short grass communities, representing both cool season and warm season species such as western wheatgrass, green needlegrass, needleandthread grass, little bluestem, threadleaf sedge, prairie sandreed, sideoats grama, buffalo grass, and blue grama. Hardwood draws will be managed to perpetuate multiple layers and age classes of herbaceous plants, shrubs and trees. Species in the draws are green ash, American elm, chokecherry and snowberry. Streams and riparian areas will maintain soil moisture to perpetuate riparian plant communities with strong root masses. Plant species include prairie cordgrass, bulrushes, spikerushes, inland saltgrass, cottonwood, and willows.

The landscape desired condition is to maintain open, scenic plains and vast prairie landscapes. Streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC- see [Appendix G Glossary](#)), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

The desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide a mixture of grassland structure levels. Upland grassland habitat associated with sharp-tailed grouse will be managed to provide sufficient residual cover to meet nesting, brooding, and hiding cover requirements. Woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will be managed to emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat. Grassland structure will be managed to promote prairie dog expansion within the proposed ferret reintroduction area (see [Chapter 3: Management Area 3.63](#)). Prairie dog colonies outside the ferret reintroduction area and scattered throughout the ~~geographic area~~[Geographic Area](#) will maintain some low structure grassland habitat.

The desired recreation condition includes an interpretive trail around the wetlands at the Pioneer Picnic Area. Dispersed recreation activities will continue to be emphasized in this ~~geographic-~~[Geographic Area](#).

Important Attributes

- Semi-precious rock and agate beds
- Pioneer Picnic Area
- Vast, rolling plains and open landscape
- Limestone Butte wetland area
- Limited populations of Barr’s milkvetch

Management Area Prescription Allocation

Number	Prescription	Acres
3.63 3.63	Black-footed Ferret Reintroduction Habitat (ref. Cortney Creek Land Exchange 2008)	25,300 25,913 40
3.64	Special Plant and Wildlife Habitat: Sharp-tailed Grouse	26,190 25,534 26,828
3.64	Special Plant and Wildlife Habitat: Limestone (ref. Cortney Creek Land Exchange 2008) Special Plant and Wildlife Habitat: Limestone- Butte Reservoir Area	260
6.1	Rangeland with Broad Resource Emphasis	59,860 58,132

Geographic Area Direction - Objectives

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Vegetation

This section deals with vegetation and its relationship to MIS-focal species and TES habitat needs. The focus in the Fall River Southeast Geographic Area is on grass and grass-like ~~life~~ plants

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the Northern Great Plains. The grassland ecosystem will feature a shifting mosaic of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Fall River Southeast Geographic Area:

Composition

1. The desired plant species composition objective across the Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
20 to 30%	40 to 60%	15 to 25%	1 to 10%

In the late seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent tall grasses. On clayey, silty, and thin upland range sites western wheatgrass, green needlegrass, porcupinegrass, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In the late intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent short grasses. The dominant grass species in the late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, porcupine grass, blue grama, and sedges. The mix of grasses making up the codominance in the late intermediate seral stages will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In the early intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses and to a lesser extent mid grasses. Dominant grass species in the early intermediate seral stage should be blue grama, buffalo grass, western wheatgrass, needleandthread, and sedges. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In the early seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses with little if any presence of mid grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama and buffalograss on all range sites. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. Early seral stage should be emphasized on less productive claypan soil types, in and around prairie dog towns, and in isolated areas of high livestock use.

Objective

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Structure

2. Manage the ~~geographic area~~Geographic Area to meet the vegetation structure objectives identified below:

High	Moderate	Low
15 to 35%	40 to 60%	15 to 35%

High vegetation structure can be achieved on moderate and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderate to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderate to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~Geographic Area receiving light to moderate levels of livestock use should be in late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in early intermediate or early seral stages will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Fire

1. Prescribe burn a minimum of 1,500 acres per decade to achieve one or more of the following desired condition objectives:

- Promote vegetative diversity,
- Improve wildlife habitat,
- Stimulate riparian/woody draw regeneration,
- Control or reduce invasive plants/noxious weeds,
- Improve plant vigor and health, and/or
- Reduce fuel loading. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across this ~~geographic area~~Geographic Area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing sharp-tailed grouse populations (long-term trends) and viable populations of other wildlife species with similar habitat needs. **Objective**

- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse ([see](#) Appendix H [Habitat Descriptions](#)) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**
- Establish and maintain quality winter foraging habitat for sharp-tailed grouse and associated wildlife by enhancing and/or maintaining diverse forb species in grassland communities and regenerating shrub patches and the shrub component of wooded draws and riparian habitats. **Objective**

Black-tailed Prairie Dog

- Increase black-tailed prairie dog populations over the next 10 to 15 years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the ~~geographic area~~[Geographic Area](#) over the next 10 to 15 years. **Objective**
- Develop a prairie dog colony complex in the northeastern part of this ~~geographic area~~[Geographic Area](#) over the next 10 to 15 years. This area has been designated as [Management Area](#) 3.63 (see Chapter 3). **Objective**

2. Special Plant and Wildlife (3.64) Area: Special Wetland/Aquatic Habitat (Limestone Butte). The Limestone Butte Reservoir area is a special wetland/aquatic habitat area in this ~~geographic area~~[Geographic Area](#). The area will be managed to enhance and maintain the habitat for waterfowl and shorebirds as follows:

- Provide diverse and quality wetland/aquatic habitat in this special ~~M~~[management area](#) at levels that help support stable to increasing populations of waterfowl and other wildlife with similar habitat needs. **Objective**

Recreation

1. Within the life of the plan develop an interpretive trail at the Pioneer Picnic Area. **Objective**
2. Within the life of the plan develop an interpretive sign and/or display for the Limestone Butte Special Wetland/Aquatic Area. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

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

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives. **Guideline**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~[Focal Species](#):

Plains Sharp-tailed Grouse

- 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,

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- Proximity to sharp-tailed grouse display grounds,
- Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**

Black-tailed Prairie Dog

- Refer to Chapter 1 (Sections F and H) and Chapter 3 (Management Area 3.63) for standards and guidelines.

2. Threatened, Endangered, and Sensitive Species:

Mountain Plover (Sensitive Species, ~~Proposed Species~~)

- 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**
- In cooperation with the U.S. Fish and Wildlife Service and the state wildlife agency, evaluate the desirability and feasibility of trying to establish a nesting population with reintroduced birds. **Standard**

(The following mountain plover direction will apply if plover are eventually found or established in this ~~geographic area~~ **Geographic Area**.)

- 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**

~~For lands identified in the DM&E final environmental impact statement and only for project decisions on those lands, this standard is waived entirely to allow for construction, installation, and operation of the DM&E Railroad under a construction permit and an authorization. Site specific direction from the project mitigation plan, where it applies, will be used instead. See Amendment 2003-01 for specific mitigation. (Amendment 1)~~

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- 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**
- 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),
 - Reclamation,
 - Drilling of water wells,
 - Prescribed burning. **Standard**
- 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),
 - 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**

~~For lands identified in the DM&E final environmental impact statement and only for project decisions on those lands, this standard is waived entirely to allow for construction, installation, and operation of the DM&E Railroad under a construction permit and an authorization. Site specific direction from the project mitigation plan, where it applies, will be used instead. See Amendment 2003-01 for specific mitigation. (Amendment 1)~~

- 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

- Vegetation management projects in suitable mountain plover habitat will be designed to maintain or improve mountain plover habitat. **Standard**
- 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 expected to be used as hunting perches by raptors. **Guideline**
- Use the following criteria at the project level to help determine where to use prescribed burning and high livestock grazing intensities ([see Appendix I Suggested Stocking Rates](#)) 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**

Swift Fox (Sensitive Species)

- This ~~geographic area~~[Geographic Area](#) is near an area on the Buffalo Gap National Grassland that supports swift fox, and there's a high probability that this area is occasionally used by swift fox. USDA predator (primarily coyote) control activities to reduce livestock losses will be limited in this area to methods that do not pose a significant and direct mortality risk to swift fox. **Standard**
3. Special Plant and Wildlife (3.64) Areas: Sharp-tailed Grouse. Vegetation in these areas will be managed to emphasize high structure for sharp-tailed grouse habitat. This area may be grazed or burned periodically to meet management objectives. **Guideline**
 4. 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,
 - Proximity to wetland/aquatic habitat. **Guideline**
 5. Enhance warm-water fisheries in suitable water impoundments. **Guideline**

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FALL RIVER WEST GEOGRAPHIC AREA

Buffalo Gap National Grassland - Fall River Ranger District

Setting

The Fall River West Geographic Area encompasses about ~~119,749~~ 119,856 acres (~~ref. Hunter Land Exchange 2003~~) of ~~NFS~~ National Forest System lands on the southwestern portion of the Fall River Ranger District. The Oglala National Grassland borders this area on the south.

The climate of the Fall River West Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from in excess of 40-degrees below zero Fahrenheit in the winter to more than 110-degrees above zero Fahrenheit in the summer. Precipitation levels average around 14 to 15 inches per year with the majority falling as rain from about May through July.

The topography of this ~~geographic area~~ Geographic Area is a blend of rolling hills, plateaus, and flat bottomlands that drain into the Cheyenne River and its' tributaries. Soils are generally thin. The southern portion of this area includes exposed clays and hardpan. Distinguishing features include, from north to south, the Cheyenne River and the former Black Hills Army Ordnance Depot.

Drainages generally flow north into the Cheyenne River. Elevations range from about 3,600 feet above sea level along the northern stretches of the Cheyenne River in this ~~geographic area~~ Geographic Area to about 4,200 feet above sea level south of the former Black Hills Army Ordnance Depot - the highest point on the Fall River Ranger District.

Primary tributaries flowing into the Cheyenne River in this ~~geographic area~~ Geographic Area include, from north to south: Moss Agate Creek, Dry Creek, Fiddle Creek, Cottonwood Creek, Coal Creek, Alkali Creek, Indian Creek and Hat Creek.

The dominant vegetation includes western wheatgrass in the uplands, with scattered cottonwood and chokecherry communities. A few ponderosa pine can be found along the escarpment of Fiddle Creek.

A significant sagebrush community lies north of the Black Hills Army Ordnance Depot. Scattered greasewood communities can be found along creek bottoms throughout the ~~geographic area~~ Geographic Area.

Currently, there are no developed recreational facilities within this ~~geographic area~~ Geographic Area. The primary dispersed recreational opportunities within this ~~geographic area~~ Geographic Area include big game hunting, upland game hunting, waterfowl hunting, wildlife viewing, mountain biking, hiking, fishing, and camping.

Desired Conditions

The desired condition is to perpetuate diverse and healthy mixed grass and short grass communities, representing both cool season and warm season species such as western wheatgrass, green needlegrass, needleandthread, little bluestem, threadleaf sedge, prairie sandreed, sideoats grama, buffalo grass, and blue grama. Hardwood draws will be managed to perpetuate multiple layers and age classes of herbaceous plants, shrubs, and trees. Species in the

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draws are green ash, American elm, chokecherry and snowberry. Streams and riparian areas will

maintain soil moisture to perpetuate riparian plant communities with strong root masses. Plant species include prairie cordgrass, bulrushes, spikerushes, inland saltgrass, cottonwood, and willows.

The desired landscape condition is to maintain open, scenic plains and vast prairie landscapes. The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see [Appendix G gGlossary](#)), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.-

Desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide a mixture of grassland structure levels. Sagebrush habitat associated with sage grouse will be managed to provide an abundance of residual herbaceous cover for nesting. Grassland structure associated with swift fox will be managed to provide moderate to low grassland structure levels. Woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will be managed to emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat. Prairie dog colonies scattered throughout the ~~geographic-~~
~~area~~[Geographic Area](#) will be managed to maintain low structure to encourage prairie dog expansion.

The desired recreation condition includes the development of interpretive signs and/or displays for the Special Interest Areas and the Crowe Dam Special [Plant and Wildlife Habitat](#)
~~Wetland/Aquatic~~ Area. Dispersed recreation activities will continue to be emphasized in this ~~geographic area~~[Geographic Area](#).

Important Attributes

- Swift fox population (Forest Service listed sensitive species)
- Significant marine fossil resources from the Late Cretaceous Period
- Site of the former Black Hills Army Ordnance Depot
- Sagebrush/greasewood communities, providing habitat for sage grouse and big game
- Hunttable populations of pronghorn

Management Area Prescription Allocation

Number	Prescription	Acres
2.1	Special Interest Area	2,27560
3.64	Special Plant and Wildlife Habitat: Sage Grouse	45,760489
	Special Plant and Wildlife Habitat: Swift Fox	9,54012,175
		(ref. Hunter Land Exchange2003)
	Special Plant and Wildlife Habitat: Crowe Dam	250
6.1	Rangeland with Broad Resource Emphasis	61,940
		59,41258,745
		(ref. Hunter Land

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Geographic Area Direction - Objectives

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~-focal species and TES habitat needs. The focus in the Fall River West Geographic Area is on grass and grass like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~N~~orthern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Fall River West Geographic Area:

Composition

1. The desired plant species composition objective across the ~~geographic area~~Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
10 to 30%	50 to 70%	10 to 20%	1 to 10%

Grasslands: In the late seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent tall grasses. On clayey, silty, and thin upland range sites western wheatgrass, green needlegrass, porcupine grass, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In the late intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent short grasses. The dominant grass species in the late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, porcupine grass, blue grama, and sedges. The mix of grasses making up the codominance in the late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In the early intermediate seral, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses and to a lesser extent mid grasses. The dominant grass species in the early intermediate seral stage should be blue grama, buffalo grass, western wheatgrass, needleandthread, and sedges. The mix of grasses making up the codominance in the early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In the early seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses with little if any presence of mid grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama and buffalograss on all range sites. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. The early seral stage should be emphasized on the less productive claypan soil types, in and around prairie dog towns, and in isolated areas of high livestock use.

Sagebrush Stands: The understory of big sagebrush stands in late seral stage is dominated by mid grasses such as western wheatgrass, green needlegrass, and needleandthread with short grasses, especially blue grama and buffalograss, being a minor part of the understory component.

The understory of big sagebrush stands in the late intermediate seral stage is dominated by western wheatgrass, with blue grama and buffalograss being the two codominant species.

The dominant native plant species in the understory of big sagebrush stands in early intermediate seral stage are blue grama and buffalo grass while western wheatgrass is a lesser component of the understory.

The dominant native plant species in the understory of big sagebrush stands in early seral stage are buffalograss and blue grama. There are also several annual forbs as well as broom snakeweed, and plains cactus making up the understory of the sagebrush communities in early seral stage. **Objective**

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Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

High	Moderate	Low
10 to 30%	50 to 70%	10 to 30%

High vegetation structure can be achieved on moderate and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderate to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderate to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~**Geographic Area** receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in the early intermediate or early seral stage will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

Fire

1. Prescribe burn a minimum of 1,500 acres per decade to achieve one or more of the following desired condition objectives:

- Promote vegetative diversity,
- Improve wildlife habitat,
- Stimulate riparian/woody draw regeneration,
- Control or reduce invasive plants/noxious weeds,
- Improve plant vigor and health, and/or
- Reduce fuel loading. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish and Rare Plants

~~1. Management Indicator Species:~~

Sage Grouse

- Provide habitat conditions that, in combination with sagebrush habitat on adjoining lands, helps support stable to increasing sage grouse populations (long-term trends) in the western part of this geographic area. **Objective**
- Establish and maintain quality nesting and brooding habitat for sage grouse (Appendix H, Habitat Descriptions) and associated wildlife across most of the sagebrush habitat in this geographic area within 10 to 15 years. **Objective**

~~1. Focal Species:~~

Black-tailed Prairie Dog

- Increase black-tailed prairie dog populations across the ~~geographic area~~Geographic Area over the next 10 to 15 years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the ~~geographic area~~Geographic Area over the next 10 to 15 years. **Objective**
- Apply adaptive management strategies to provide objectives for 1,000 minimum and 3,600 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H, Animal Damage Control for management direction. **Objective** ~~(Amendment 3)~~

2. Special Plant and Wildlife (3.64) Area: Special Wetland/Aquatic Habitat (Crowe Dam). Crowe Dam area is a special wetland/aquatic habitat area in this ~~geographic area~~Geographic Area. The area will be managed to maintain and enhance habitat for waterfowl and shorebirds as follows:

- Provide diverse and quality wetland/aquatic habitat at levels that help support stable to increasing populations of waterfowl and other wildlife with similar habitat needs. **Objective**

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Recreation

1. Within the life of the plan develop interpretive media for Special Interest Areas in this Geographic Area and the Crowe Dam Special Wetland/Aquatic Area. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use existing monitoring information and stocking rate guidelines for livestock grazing (see Appendix I [Suggested Stocking Rates](#)) to help design and implement range management strategies to meet desired vegetation objectives. **Standard**

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives. **Guideline**

Wildlife, Fish and Rare Plants

~~1. Management Indicator Species:~~

Sage Grouse

- 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**
- To 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**
- 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. **Guideline**
- 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**

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- Pastures will be managed for sage grouse/big sagebrush only if they contain 5% or more canopy cover of big sagebrush. **Guideline**
- 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**
- 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.**
- Manage display ground viewing activities to reduce disturbances and adverse impacts to birds on display grounds. **Guideline**
- 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 sagebrush) 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**
- In big sagebrush and sage grouse 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 the canopy cover of sagebrush averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the sagebrush stands in the wintering habitat. Big sagebrush within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed. **Guideline**
- 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**
- Maintain or increase the size of big sagebrush patches in sage grouse habitat. **Guideline**
- When conducting vegetation management projects, maintain small openings within sagebrush and greasewood stands at a ratio of no more than 25% openings and at least 75% shrub canopy (e.g., 1 acre of opening for every 3 acres of shrub within the discrete stand). **Standard**
- At the onset of drought, evaluate the need to adjust land uses to reduce impacts on sage grouse nesting and brooding habitat. **Standard**
- 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**

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1. Focal Species:

Black-tailed Prairie Dog

- Refer to Chapter 1 (Sections F and H) for standards and guidelines.

2. Threatened, Endangered and Sensitive Species:

Mountain Plover ~~(Candidate Species)~~

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

(The following mountain plover direction will apply if plover are eventually found or established in this ~~geographic area~~ **Geographic Area.**)

- 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**
- 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**
- 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**
- 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**

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- 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**
- 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**
- 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**
- Vegetation management projects in suitable mountain plover habitat will be designed to maintain or improve mountain plover habitat. **Standard**
- 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 expected to be used as hunting perches by raptors. **Guideline**
- Use the following criteria at the project level to help determine where to use prescribed burning and high livestock grazing intensities ([see Appendix I Suggested Stocking Rates](#)) 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**

Swift Fox (Sensitive Species)

- This ~~geographic area~~ **Geographic Area** supports swift fox. USDA predator (primarily coyote) control activities to reduce livestock losses will be limited in this area to methods that do not pose a significant and direct mortality risk to swift fox. **Standard**
- Special Plant and Wildlife (3.64) Areas: Swift Fox. This area will be managed to emphasize moderate to low structure for swift fox habitat. **Guideline**

3. Special Plant and Wildlife (3.64) Area: Special Wetland/Aquatic Habitat (Crowe Dam). The Crowe Dam area is a special wetland/aquatic habitat area in this ~~geographic area~~Geographic Area. Vegetation in this area will be managed to enhance and maintain the habitat for waterfowl and shorebirds as follows:

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- Establish and maintain quality nesting and brooding habitat on adjacent upland grasslands for waterfowl and associated wildlife within 10 years. A substantial amount of this acreage should be located where it would optimize habitat for waterfowl 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.
 - Proximity to wetland/aquatic habitat.
 - Area may be grazed or burned periodically to meet management objectives.
- Guideline**

WALL NORTH GEOGRAPHIC AREA

Buffalo Gap National Grassland - Wall Ranger District

Setting

The Wall North Geographic Area includes approximately 69,600 acres of ~~National Forest-System~~NFS lands in the northern portions of the Wall Ranger District.

The climate of the Wall North Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from minus 20 degrees below zero Fahrenheit in the winter to more than 100 degrees Fahrenheit in the summer. Precipitation levels average 16.5 inches per year with the majority falling as rain from about April to July.

The topography of the area consists of typical rolling grasslands, above the "Wall" badlands landscape feature. The "Wall" is more than 40 miles in length, beginning near Wall, South Dakota, and tapering out south of Kadoka, South Dakota. This landscape features drops vertically an average of about 600 feet. The major distinguishing landmarks and features include the Upper Bad River Drainage to the northeast, and the Wall, which typically provides the southern boundary.

Drainages flow primarily to the north and east into the Cheyenne River and Bad River. Elevations range from approximately 2,400 feet above sea level at the east end of the ~~geographic-area~~Geographic Area to 3,300 feet near the Pinnacles Ranger Station at Badlands National Park.

Upland grassland is the primary vegetation/habitat type covering about 92% of the ~~geographic-area~~Geographic Area. The soils are the most productive in the ~~geographic-area~~Geographic Area, providing a range of forage production annually from 1,200 to 2,200 pounds per acre. Over 55 percent of this upland grassland habitat consists of highly productive range sites and nearly 20 percent are minimally productive range sites. The native vegetation is dominated by mid grasses and a variety of forbs. This mixed grass prairie is made up of cool-season and warm-season plants that provide diverse habitat for a variety of wildlife species and forage for livestock. The principle grass species are western wheatgrass, green needlegrass, needleandthread, sideoats grama, blue grama, buffalograss, little bluestem, and big bluestem.

The balance of the ~~geographic-area~~Geographic Area is comprised of a variety of vegetation/habitat types: Badlands (1%) are barren, highly eroded lands with little or no vegetation. Badlands provide unique habitat for some plants and animals that are suited to open, barren soils. Juniper breaks (2%) are a unique habitat type that occurs primarily along the Cheyenne River. These areas have moderate to dense cover of juniper with an understory of sideoats grama and little bluestem.

This habitat type provides critical hiding cover and thermal cover for a number of wildlife species. Prairie dog colonies (2%) are a unique component of upland grasslands and provide habitat for a number of TES species. Prairie dog colonies are fairly small and scattered across this ~~geographic-area~~Geographic Area. Although the woody draw/riparian woodland habitat (1%) comprises a very small portion of the ~~geographic-area~~Geographic Area, this habitat type is critical for many wildlife species. The woody draw/riparian woodlands provide the highest diversity of both plant and animal life in the ~~geographic-area~~Geographic Area. Principle woody species include green ash, chokecherry, buffaloberry, snowberry, cottonwood, and willow. Primary creeks and drainages include Little Buffalo Creek, the South Fork of the Bad River,

Whitewater Creek, Crooked Creek, Sage Creek, Big Buffalo

Creek and Cottonwood Creek. Wetland/aquatic habitats are unusual in this ~~geographic-~~Geographic Area (1%) and the majority are constructed water impoundments that have improved waterfowl production. A number of these impoundments have been developed into warm-water fisheries and provide additional recreational experiences. The sagebrush habitat type (<1%) is very limited and found along several of the major floodplain areas scattered throughout this ~~geographic-area~~Geographic Area.

Currently, the only developed recreational facility within this ~~geographic-area~~Geographic Area is the National Grasslands Visitor Center. The primary dispersed recreational opportunities within this ~~geographic-area~~Geographic Area include big game hunting, upland game hunting, waterfowl hunting, wildlife viewing, mountain biking, hiking, fishing, and camping

Desired Conditions

The desired landscape condition is to maintain the vast and scenic nature of open rolling prairie landscapes.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see Appendix G ~~g~~Glossary), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

Grazing management and prescribed fire will be used as tools to enhance grass and forb diversity, stimulate woody plant regeneration and reduce invasive or noxious weeds. R

Recreational opportunities will continue to emphasize dispersed recreation activities on the majority of the ~~geographic-area~~Geographic Area. However, public interest has indicated a need to develop a primitive campground south of Wall, South Dakota.

The desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide primarily high to moderate structure levels. Upland grassland habitat will be managed to provide sufficient residual cover for those wildlife species requiring higher grassland structure levels. Woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will be managed to emphasize healthy shoreline and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat. Although small and isolated, prairie dog colonies will be managed to maintain low structure grassland habitat scattered throughout this ~~geographic-area~~Geographic Area.

Important Attributes

- National Grasslands Visitor Center
- Best sharp-tailed grouse habitat on the Wall Ranger District
- Abundant bird watching opportunities
- Numerous scenic viewpoints highlighting vast rolling grasslands and badlands
- High-quality woody draw/riparian wildlife habitat

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Management Area Prescription Allocation

Number	Prescription	Acres
2.2	Research Natural Areas	1,0310
6.1	Rangeland with Broad Resource Emphasis	68,50067,592

Geographic Area Direction -- Objectives

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~-focal species and TES habitat needs. The focus in the Wall North Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~N~~orthern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative compositional and structural objectives for the Wall North Geographic Area:

Composition

1. The desired plant species composition objective across the ~~geographic area~~Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
20 to 40%	30 to 50%	10 to 30%	1 to 20%

In late seral stage, the more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent tall grasses, the moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses, while the less productive thin claypan and claypan range sites should be comprised of mid grasses and short grasses. On clayey and silty range sites western wheatgrass, green needlegrass, needleandthread, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. The dense clay range sites are comprised of mainly western wheatgrass and green needlegrass to a lesser extent. On shallow clay range sites, found primarily on the slopes, western wheatgrass, and green needlegrass occur in amounts approximately equal to big bluestem, little bluestem, and sideoats grama. Western wheatgrass, blue grama, and buffalograss should dominate the less productive thin claypan and claypan range sites. The mix of grasses making up the codominance on all range sites in late seral stage will fluctuate according to precipitation and/or grazing intensities. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In late intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent short grasses and tall grasses, the moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses and to a lesser extent mid grasses. The dominant grass species on clayey and silty range sites in the late intermediate seral stage should be western

wheatgrass with the codominance made up of needleandthread, blue grama, and sedges. The dense clay range sites are comprised of mainly western wheatgrass. On shallow clay range sites little bluestem, western wheatgrass, and sideoats grama are the dominant species while blue grama and sedges become more abundant. Blue grama, buffalograss and to a lesser extent western wheatgrass will dominate the less productive thin claypan and claypan range sites. The mix of grasses making up the codominance on all range sites in late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In early intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses and to a lesser extent mid grasses, the moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. The dominant grass species on clayey and silty range sites in early intermediate seral stage should be blue grama, buffalograss, western wheatgrass, needleandthread, and sedges. The dense clay range sites are comprised of mainly western wheatgrass and an increasing number of forbs. On shallow clay range sites blue grama and threadleaf sedge dominate the site while little bluestem is the remaining mid grass component. Less productive thin claypan and claypan range sites will be dominated by annual grasses and cactus. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In early seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses with little if any presence of mid grasses, the moderately productive soils (dense clay and shallow clay range sites) should be comprised of short grasses with little presence of mid grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama, buffalograss and annual grasses on all range sites. The mix of grasses making up the codominance in early seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. **Objective**

Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

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

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~**Geographic Area** receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass

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species in the early

intermediate or early seral stages will probably not achieve moderate structure under even light grazing levels.

Low productivity soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

Smooth Goosefoot

- 1. Prioritize and initiate target surveys for smooth goosefoot. **Objective**

Fire

- 1. Prescribe burn a minimum of 500 acres per decade to achieve the following desired condition objectives:

- Promote vegetative diversity.
- Improve wildlife habitat.
- Stimulate riparian/woody draw regeneration.
- Control or reduce invasive plants/noxious weeds. **Objective**

Rest

- 1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish and Rare Plants

- 1. ~~Management Indicator~~ Species Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across the ~~geographic area~~ 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**
- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**

~~Black-tailed Prairie Dog~~ (Amendment 3)

- Apply adaptive management strategies to provide objectives for 1,000 minimum and 2,100 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H. Animal Damage Control for management direction. **Objective**
- Increase black-tailed prairie dog populations over the next 10-to 15-years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the ~~geographic area~~ Geographic Area over the next 10- to 15-years. **Objective**

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2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- In cooperation with other conservation agencies and organizations, conduct inventories as needed in the Cheyenne and White Rivers and tributaries to establish baseline population and distribution information so that appropriate population trend objectives can be established. **Objective**
- In cooperation with other conservation agencies and organizations, assess the potential impacts of the construction of additional small impoundments in upper watersheds on hydrologic flow and patterns on downstream sturgeon chub habitat. **Objective**

Recreation

1. Develop primitive campground southwest of Wall near Badlands National Park. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

1. Use current monitoring information and stocking rate guidelines for livestock grazing (see Appendix I [Suggested Stocking Rates](#)) to help design and implement vegetation management strategies for meeting desired vegetation objectives. **Standard**

Smooth Goosefoot

1. Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~ [Geographic Area](#). Protect populations that are found in the ~~geographic area~~ [Geographic Area](#) and maintain suitable habitat for these populations.

Standard

2. Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat.

Standard

3. Monitor ORV use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Livestock Grazing

1. Continue to emphasize combining pastures and allotments to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation).

Guideline

2. In areas where sharp-tailed grouse and waterfowl production are emphasized, utilize light to moderate stocking levels on allotments with large pastures to achieve a mosaic of vegetation structure that provides high structure intermittently across the allotment. Utilize skim or rest on allotments with small pastures that fail to provide sufficient high cover levels. **Guideline**

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation). **Guideline**

Wildlife, Fish and Rare Plants1. ~~Management Indicator Species~~**Focal Species:****Plains Sharp-tailed Grouse**

- A range of 35 to 45% of the acres is prescribed for high structure grasslands in this ~~geographic area~~**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,
 - Proximity to sharp-tailed grouse display grounds,
 - Proximity to shrub habitats and private croplands. **Guideline**
- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining diverse forb species and promoting regeneration of shrub patches and the shrub component of wooded draws and riparian habitats.

Guideline**Black-tailed Prairie Dog (Amendment 3)**

- Refer to Chapter 1 (Sections F and/or H) for standards and guidelines.

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2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- To assist in maintaining the current quantity and quality of aquatic habitat for this species, do not authorize land uses or developments that would measurably and cumulatively further degrade sturgeon chub habitat, including reducing downstream flows. **Guideline**
- Conduct project-level biological evaluations assessing potential downstream risks to this species from proposed projects that may have the potential to significantly alter sturgeon chub habitat or reduce downstream flows. This includes sand and gravel dredging and small impoundment construction in upper watersheds. **Guideline**

WALL SOUTHEAST GEOGRAPHIC AREA

Buffalo Gap National Grassland - Wall Ranger District

Setting

The Wall Southeast Geographic Area includes approximately 94,300 acres ~~of National Forest System~~NFS lands in the southeastern and parts of the north central portions of the Wall Ranger District.

The climate of the Wall Southeast Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from minus 20 degrees below zero Fahrenheit in the winter to more than 100 degrees Fahrenheit in the summer. Precipitation levels average 16.5 inches per year with the majority falling as rain from about April to July.

The topography of the area consists of badlands features and flat clay hardpan with sparse vegetation, generally located below the "Wall" badlands landscape feature. The "Wall" is more than 40 miles in length, beginning near Wall, South Dakota, and tapering out south of Kadoka, South Dakota. This landscape feature drops vertically an average of about 600 feet. The major distinguishing landmarks and features include the "Wall," and the badlands overflow drainages, which are typically narrow and deep. Drainages flow primarily to the south and east into the White River, or the north and east into the Cheyenne River. Elevations range from approximately 2,200 feet above sea level along the White River to 2,600 feet above sea level at the top of the "Wall."

Upland grassland is the primary vegetation/habitat type covering about 81% of the ~~geographic area~~Geographic Area. The soils are moderately productive in this ~~geographic area~~Geographic Area, providing a range of forage production annually from 800 to 1,600 pounds per acre. Over 60 percent of the upland grassland habitat consists of highly productive range sites and nearly 25 percent consists of minimally productive range sites. Native vegetation is dominated by mid grasses and short grasses with a variety of forbs. This mixed grass prairie is made up of cool-season and warm-season plants that provide diverse habitat for a variety of wildlife species and forage for livestock. The principle grass species are western wheatgrass, green needlegrass, needleandthread, sideoats grama, blue grama, buffalograss, little bluestem, and big bluestem. The next largest vegetation/habitat type is badlands, which comprises about 13% of the ~~geographic area~~Geographic Area. Badlands are barren, highly eroded lands with little or no vegetation. Badlands provide unique habitat for some plants and animals that are suited to open, barren soils.

Prairie dog colonies (2%) are a unique component of the upland grasslands and provide habitat for a number of TES species. Prairie dog colonies are fairly small and scattered across this ~~geographic area~~Geographic Area. The sagebrush habitat type (2%) is limited and found along several of the major floodplain areas scattered throughout this ~~geographic area~~Geographic Area. This habitat type is dominated by silver sagebrush with a variety of interspersed grass species. Although the woody draw/riparian woodland habitat (1%) comprises a very small portion of the ~~geographic area~~Geographic Area, it is critical for many wildlife species. The woody draw/riparian woodlands provide the highest diversity of both plant and animal life in the ~~geographic area~~Geographic Area. Principle woody species include green ash, chokecherry, buffaloberry, snowberry, cottonwood, and willow. The primary creeks and

drainages flowing toward White River include Fifteen Creek, Cut Creek, Rake Creek, and Sixteen Mile Creek. White River flows along the south boundary of this ~~geographic-area~~Geographic Area. Wetland/aquatic habitat is unusual in this ~~geographic-area~~Geographic Area (1%). Most are constructed water impoundments that provide significant benefits for waterfowl production. Ducks Unlimited, in partnership with the Forest Service, has constructed three wetland impoundments within this ~~geographic-area~~Geographic Area to improve habitat for waterfowl. Kadoka Lake is the second largest wetland specifically managed for waterfowl production in western South Dakota. A number of these impoundments have been developed into warm-water fisheries and provide additional recreational experiences.

Currently, the only developed recreational facility within this ~~geographic-area~~Geographic Area is the ~~fourteen-mile-long~~fourteen-mile-long Prairie Bike Trail. The primary dispersed recreational opportunities within this ~~geographic-area~~Geographic Area include big game hunting, upland game hunting, waterfowl hunting, rockhounding, wildlife viewing, mountain biking, hiking, fishing, and camping.

Desired Conditions

The desired landscape condition is to maintain the open and scenic nature of the rolling prairie landscapes and intermingled badlands.

Streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC- see Appendix G ~~g~~Glossary), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

Grazing management and prescribed fire will be used as tools to enhance grass and forb diversity, stimulate woody plant regeneration, and reduce invasive or noxious weeds.

Recreational opportunities will continue to emphasize dispersed recreation activities on the majority of the ~~geographic-area~~Geographic Area. Rake Creek area will be managed to protect its rugged, unroaded character and motorized travel is restricted. Based on public interest, the development of a trailhead and trails in the Rake Creek ~~b~~Backcountry ~~n~~Nonmotorized ~~a~~Area is desired, as is a ~~w~~Watchable ~~w~~Wildlife interpretive trail around Kadoka Lake.

The desired condition for upland grassland is to perpetuate diverse and healthy mixed grass communities that provide a mosaic grassland structure levels. Woody draws/riparian woodlands will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Principle woody species include green ash, chokecherry, buffaloberry, snowberry, cottonwood, and willow. Wetlands/aquatic areas will emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat. Special ~~P~~Plant and ~~W~~Wildlife ~~H~~Habitat ~~A~~Areas around Kadoka Lake and Weta Dam will provide high grassland structure levels for waterfowl nesting. Prairie dog colonies will be managed to maintain low structure grassland habitat in ~~M~~Management ~~A~~Area 3.63 Black-footed Ferret Reintroduction Habitat within this ~~geographic-area~~Geographic Area.

Important Attributes

- Kadoka Lake wetland and waterfowl production area
- Abundant agate/rock beds
- Scenic badlands terrain
- ~~Fourteen-mile-long~~Fourteen-mile-long Prairie Bike Trail
- Rake Creek backcountry nonmotorized recreation area

Management Area Prescription Allocation

Number	Prescription	Acres
1.31	Backcountry Recreation Nonmotorized	12,071 30
3.63	Black-footed Ferret Reintroduction Habitat	3,916 5,130 0 3,283
3.64	Special Plant and Wildlife Habitat	1,460 182
6.1	Rangeland with Broad Resource Emphasis	77,561 76,170 81,300 78,012

See Appendix A FEIS—Maps, Proposed change to management area prescription 3.63 Black-footed ferret Reintroduction Habitat. (Amendment 2)

Geographic Area Direction -- Objectives

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~focal species and TES habitat needs. The focus in the Wall Southeast Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~n~~Northern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass-like species across a majority of the Geographic Area. This mix provides suitable ~~opportunity~~opportunities to meet vegetation structure objectives and provide for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Wall Southeast Geographic Area:

Composition

1. The desired plant species composition objective across the ~~geographic area~~Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
20 to 40%	30 to 50%	10 to 30%	1 to 20%

In late seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent tall grasses, ~~the~~The moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses, while the less productive thin claypan and claypan range sites should be comprised of mid grasses and short grasses. On clayey and silty range sites western wheatgrass, green needlegrass, needleandthread, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. The dense clay range sites are comprised of mainly western wheatgrass and green needlegrass to a lesser extent. On shallow clay range sites, found primarily on the slopes, western wheatgrass, and green needlegrass occur in amounts

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approximately equal to big bluestem, little bluestem, and sideoats grama. Western wheatgrass, blue grama, and buffalograss should dominate the less productive thin claypan and claypan range sites. The mix of grasses making up the codominance on all range sites in late seral stage will fluctuate according to precipitation and/or grazing intensities. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In late intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent short grasses and tall grasses. The moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses and to a lesser extent mid grasses. The dominant grass species on clayey and silty range sites in late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, blue grama, and sedges. Dense clay range sites are comprised mainly of western wheatgrass. On shallow clay range sites little bluestem, western wheatgrass, and sideoats grama are the dominant species while blue grama and sedges become more abundant. Blue grama, buffalograss and to a lesser extent western wheatgrass will dominate the less productive thin claypan and claypan range sites. The mix of grasses making up the codominance on all range sites in late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In early intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses and to a lesser extent mid grasses, the moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. The dominant grass species on clayey and silty range sites in the early intermediate seral stage should be blue grama, buffalograss, western wheatgrass, needleandthread, and sedges. Dense clay range sites are comprised mainly of western wheatgrass and an increasing number of forbs. On shallow clay range sites blue grama and threadleaf sedge dominate the sites, while little bluestem is the remaining mid grass component. Less productive thin claypan and claypan range sites will be dominated by annual grasses and cactus. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In early seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses with few, if any, mid grasses. The moderately productive soils (dense clay and shallow clay range sites) should be comprised of short grasses with few mid grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama, buffalograss and annual grasses on all range sites. The mix of grasses making up the codominance in early seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses.

Objective

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Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

High	Moderate	Low
30 to 40%	35 to 45%	20 to 30%

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic-area~~Geographic Area receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in the early intermediate or early seral stages will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. Objective

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Smooth Goosefoot

1. Prioritize and initiate target surveys for smooth goosefoot. **Objective**

Fire

1. Prescribe burn a minimum of 500 acres per decade to achieve the following desired condition objectives:

- Promote vegetative diversity
- Improve wildlife habitat
- Stimulate riparian/woody draw regeneration
- Control or reduce invasive plants/noxious weeds. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across the ~~geographic-area~~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**
- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**

Black-tailed Prairie Dog (Amendment 3)

- Apply adaptive management strategies to provide objectives for 1,000 minimum and 2,700 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H. Animal Damage Control for management direction. **Objective**
- Increase black-tailed prairie dog populations over the next 10-to 15 years. **Objective**
- Maintain or expand the current distribution of black-tailed prairie dogs across the ~~geographic-~~
~~area~~ **Geographic Area** over the next 10 to 15 years. **Objective**

2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- In cooperation with other conservation agencies and organizations, conduct inventories as needed in the Cheyenne and White Rivers and ~~their~~ tributaries to establish baseline population and distribution information so that appropriate population trend objectives can be established. **Objective**
- In cooperation with other conservation agencies and organizations, assess the potential impacts of the construction of additional small impoundments in upper watersheds on hydrologic flow and patterns on downstream sturgeon chub habitat. **Objective**

3. Kadoka Lake and Weta Dam are special wetland/aquatic habitat areas in this ~~geographic-~~
~~area~~ **Geographic Area** (3.64 Special Plant and Wildlife Habitat Management Area). These areas will be managed to enhance and maintain their special plant and wildlife habitat for waterfowl and shorebirds as follows:

- Provide diverse and quality wetland/aquatic habitat in these special ~~M~~management ~~A~~areas at levels that help support stable to increasing populations of waterfowl and other associated wildlife with similar habitat needs. **Objective**
- Establish and maintain quality nesting and brooding habitat on adjacent upland grasslands for waterfowl and associated wildlife within 10 years. **Objective**

Recreation

1. Develop trailhead and hiking/horseback trails for the Rake Creek ~~B~~backcountry ~~N~~nonmotorized ~~A~~area. **Objective**
2. Develop ~~w~~Watchable ~~w~~Wildlife interpretive trail around Kadoka Lake. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

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

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Smooth Goosefoot

1. Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~Geographic Area. Protect populations that are found in the ~~geographic area~~Geographic Area and maintain suitable habitat for these populations.

Standard

2. Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat.

Standard

3. Monitor ORV use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Livestock Grazing

1. Continue to emphasize combining pastures and allotments to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation).

Guideline

2. In areas where sharp-tailed grouse and waterfowl production to are emphasized, utilize light to moderate stocking levels on allotments with large pastures to achieve a mosaic of vegetation structure that provides high structure intermittently across the allotment. Utilize skim or rest on allotments with small pastures that fail to provide sufficient high cover levels. **Guideline**

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation). **Guideline**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- A range of 30 to 40% of the acres is prescribed for high structure grasslands in this ~~geographic area~~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 moderately to highly productive soils and range sites,
 - Proximity to sharp-tailed grouse display grounds,
 - Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**
- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining diverse forb species and regenerating shrub patches and the shrub component of wooded draws and riparian habitats. **Guideline**

Black-tailed Prairie Dog (Amendment 3)

- Refer to Chapter 1 (Sections F and ~~or H~~) for standards and guidelines.

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2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- To assist in maintaining the current quantity and quality of aquatic habitat for this species, do not authorize land uses or developments that would measurably and cumulatively further degrade sturgeon chub habitat, including reducing downstream flows. **Guideline**
- Conduct project-level biological evaluations assessing potential downstream risks to this species from proposed projects that may have the potential to significantly alter sturgeon chub habitat or reduce downstream flows. This includes sand and gravel dredging and small impoundment construction in upper watersheds. **Guideline**

3. Kadoka Lake and Weta Dam are special wetland/aquatic habitat areas in this ~~geographic area~~**Geographic Area**. Collectively, these areas will be managed to maintain 500-600 acres of high structure grassland vegetation to enhance their special habitat for waterfowl and shorebirds. **Guideline**

WALL SOUTHWEST GEOGRAPHIC AREA

Buffalo Gap National Grassland - Wall Ranger District

Setting

The Wall Southwest Geographic Area includes ~~approximately 102,500~~ 102,580 acres (~~ref. Cole-Drew Land Exchange 2008~~) of National Forest System lands in the southwestern and south central portions of the Wall Ranger District.

The climate of the Wall Southeast Geographic Area can be classified as semi-arid Continental. Local weather can be highly variable and unpredictable. Temperatures can range from 20 degrees below zero Fahrenheit in the winter to more than 100 degrees Fahrenheit in the summer. Precipitation levels average 16.5 inches per year with the majority falling as rain from about April to July.

The topography of the area can be divided into two distinct areas. The flat-bottomed Conata Basin includes small inclusions of badlands features, and the "Wall," a steep badlands escarpment that rises 800 feet to the north. The Indian Creek ~~Recommended for Wilderness~~ area consists of very steep juniper breaks with large intermingled badland formations, located toward the western portion of this ~~geographic area~~ Geographic Area. Major distinguishing features include the extensive prairie dog complex of Conata Basin and the rugged, fossil-rich badlands and juniper breaks of the Indian Creek ~~Recommended for Wilderness area-country~~. Drainages flow primarily to the northwest into the Cheyenne River, or southeast toward White River. Elevations range from approximately 2,200 feet above sea level along White River to about 2,600 feet above sea level at the top of the "Wall."

Upland grassland is the primary vegetation/habitat type covering nearly 63% of the ~~geographic area~~ Geographic Area. The soils are moderately productive on this ~~geographic area~~ Geographic Area, providing a range of forage production annually from 1,000 to 1,800 pounds per acre. Nearly 60 percent of the upland grassland habitat consists of highly productive range sites and only 6 percent consists of minimally productive range sites. Native vegetation is dominated by mid grasses and short grasses with a variety of forbs. This mixed grass prairie is made up of cool-season and warm-season plants that provide diverse habitat for a variety of wildlife species and forage for livestock. Principle grass species are western wheatgrass, green needlegrass, needleandthread, sideoats grama, blue grama, buffalograss, little bluestem, and big bluestem. The next largest habitat type in the ~~geographic area~~ Geographic Area is badlands (22%). Badlands are barren, highly eroded lands with little or no vegetation. Badlands provide unique habitat for some plants and animals that are suited to open, barren soils.

This ~~geographic area~~ Geographic Area contains one of the largest complexes of prairie dog colonies on public lands and comprises nearly 9% of the ~~geographic area~~ Geographic Area. There are over 75 individual colonies varying in size from a few acres to over one thousand acres. The vegetation is dominated by a mixture of short grasses and forbs. Prairie dog colonies are a unique component of the upland grasslands and provide habitat for a number of ~~threatened and endangered species (TES)~~ species. Currently (2000), this ~~geographic area~~ Geographic Area hosts one of the world's most successful black-footed ferret reintroduction programs. ~~Over 140 adult ferrets, many of which were born in the wild, are repopulating the area's prairie dog~~

~~colonies:~~

The balance of the ~~geographic area~~Geographic Area is comprised of a variety of vegetation/habitat types,

including the sagebrush habitat type (3%), which is found along several of the major floodplain areas scattered throughout this ~~geographic area~~ Geographic Area. This habitat type is dominated by silver sagebrush with a variety of interspersed grass species. Juniper breaks (1%) are a unique habitat type that occurs primarily along the Cheyenne River west of Scenic, South Dakota. This habitat type provides critical hiding cover and thermal cover for a number of wildlife species. The woody draw/riparian woodlands habitat type (1%) provides the highest diversity of both plant and animal life in the ~~geographic area~~ Geographic Area.

The primary creeks and drainages flowing northward toward the Cheyenne River include Spring Draw, Indian Creek, Little Corral Draw, Big Corral Draw, Nevis Draw and Bear Creek. The Cheyenne River ~~also flows through~~ makes up the western boundary of this ~~geographic area~~ Geographic Area. Primary creeks and drainages flowing southward toward ~~the~~ White River include Cain Creek and Big Hollow Creek. Wetland/aquatic habitat is unusual in this ~~geographic area~~ Geographic Area (1%). Most are constructed water impoundments that significantly benefit waterfowl production.

Currently, there are no developed recreational facilities within this ~~geographic area~~ Geographic Area. Motorized travel has been restricted in the Indian Creek Recommended for Wilderness area since 1984. The primary dispersed recreational opportunities within this ~~geographic area~~ Geographic Area include big game hunting, upland game hunting, waterfowl hunting, rockhounding, wildlife viewing, mountain biking, hiking, fishing, and camping.

Desired Conditions

The desired landscape condition is to maintain the undeveloped character and scenic integrity of the grasslands, intermingled prairie dog colonies, and rugged badlands.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see Appendix G Glossary), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

Grazing management and prescribed fire will be used as tools to enhance the grass and forb vegetative diversity, stimulate woody plant regeneration and reduce invasive or noxious weeds. Recreational opportunities will continue to emphasize dispersed recreation activities on the majority of the ~~geographic area~~ Geographic Area. Indian Creek Recommended for Wilderness area will be managed to protect its rugged, unroaded character and is Recommended for Wilderness designation. Based upon public interest, a primitive campground/trailhead and trails in the Indian Creek ~~proposed wilderness~~ Recommended for Wilderness area are desired.

The desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide a mixture of grassland structure levels. Grassland structure will be managed to promote prairie dog expansion, primarily adjacent to Badlands National Park and the core ferret reintroduction areas. Higher structure levels will be maintained adjacent to private lands to discourage prairie dog encroachment.

The woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat.

Important Attributes

- Significant Cretaceous Period and Oligocene Epoch fossil resources
- Agate/rock beds
- The world’s most successful black-footed ferret recovery program
- Vast black-tailed prairie dog complex
- Wilderness quality badlands backcountry

Management Area Prescription Allocation

Number	Prescription	Acres
1.2/2.1	Recommended for Wilderness/ Special Interest Areas	27,600 667
3.63	Black-footed Ferret Reintroduction Habitat	73,590 75,648
6.1	Rangeland with Broad Resource Emphasis	2,690 2,770 3,285 (ref. Cole Draw Land Exchange 2008)

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Geographic Area Direction -- Objective

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~~~focal species~~ and TES habitat needs. The focus in the Wall Southwest Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~N~~orthern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Wall Southwest Geographic Area:

Composition

1. The desired plant species composition objective across the ~~geographic area~~Geographic Area is as follows:

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

In late seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent tall grasses. Moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses, while the less productive thin claypan and claypan range sites should be comprised of mid grasses and short grasses. On

clayey and silty range sites western wheatgrass, green needlegrass, needleandthread, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. Dense clay range sites are comprised mainly of western wheatgrass and green needlegrass to a lesser extent. On shallow clay range sites, found primarily on the slopes, western wheatgrass, and green needlegrass occur in amounts approximately equal to big

bluestem, little bluestem, and sideoats grama. Western wheatgrass, blue grama, and buffalograss should dominate the less productive thin claypan and claypan range site. The mix of grasses making up the codominance on all range sites in late seral stage will fluctuate according to precipitation and/or grazing intensities. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In late intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of mid grasses and to a lesser extent short grasses and tall grasses. Moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses and to a lesser extent mid grasses. The dominant grass species on clayey and silty range sites in late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, blue grama, and sedges. Dense clay range sites are comprised mainly of western wheatgrass. On shallow clay range sites little bluestem, western wheatgrass, and sideoats grama are the dominant species while blue grama and sedges become more abundant. Blue grama, buffalograss and to a lesser extent western wheatgrass will dominate the less productive thin claypan and claypan range sites. The mix of grasses making up the codominance on all range sites in late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In early intermediate seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses and to a lesser extent mid grasses. Moderately productive soils (dense clay and shallow clay range sites) should be comprised of mid grasses and short grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. The dominant grass species on clayey and silty range sites in early intermediate seral stage should be blue grama, buffalograss, western wheatgrass, needleandthread, and sedges. The dense clay range sites are comprised of mainly western wheatgrass and an increasing number of forbs. On shallow clay range sites, blue grama and threadleaf sedge dominate while little bluestem is the remaining mid grass component. Less productive thin claypan and claypan range sites will be dominated by annual grasses and cactus. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In early seral stage, more productive soils (clayey and silty range sites) should be comprised mainly of short grasses with little if any presence of mid grasses. Moderately productive soils (dense clay and shallow clay range sites) should be comprised of short grasses with little presence of mid grasses, while the less productive thin claypan and claypan range sites should be comprised of short grasses. Early seral stage will be dominated by sedges, short grasses such as blue grama, buffalograss, and annual grasses on all range sites. The mix of grasses making up the codominance in early seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses.

Objective

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Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:
- | | | |
|-----------|-----------|-----------|
| High | Moderate | Low |
| 25 to 35% | 35 to 45% | 25 to 35% |

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic-area~~Geographic Area receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in the early intermediate or early seral stage will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. Objective

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Smooth Goosefoot

1. Prioritize and initiate target surveys for smooth goosefoot. **Objective**

Fire

1. Prescribe burn a minimum of 500 acres per decade to achieve the following desired condition objectives:

- Promote vegetative diversity
- Improve wildlife habitat
- Stimulate riparian/woody draw regeneration
- Control or reduce invasive plants/noxious weeds. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Black-tailed Prairie Dog

- To help increase prairie dog populations and habitat for associated species, enhance and maintain three or more prairie dog colony complexes in this ~~geographic-area~~Geographic Area. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, shall be considered part of a complex.

Objective

2. Threatened, Endangered and Sensitive Species:

Sturgeon Chub

- In cooperation with other conservation agencies and organizations, conduct inventories as needed in the Cheyenne and White Rivers and their tributaries to establish baseline population and distribution information so that appropriate population trend objectives can be established. **Objective**
- In cooperation with other conservation agencies and organizations, assess the potential impacts of the construction of additional small impoundments in upper watersheds on hydrologic flow and patterns on downstream sturgeon chub habitat. **Objective**

Recreation

1. Develop primitive campground/trailhead and hiking/horseback trails in Indian Creek Recommended for Wilderness aArea.

Objective

Geographic Area Direction – Standards and Guidelines

Vegetation

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

Smooth Goosefoot

1. Conduct target surveys in priority areas to determine if smooth goosefoot or suitable habitat occurs in the ~~geographic area~~ Geographic Area. Protect populations that are found in the ~~geographic area~~ Geographic Area and maintain suitable habitat for these populations.

Standard

2. Prioritize control of noxious weeds in habitat occupied by smooth goosefoot. Restrict activities that contribute to invasive and non-native plant species into occupied habitat.

Standard

3. Monitor ORV use in occupied habitat and implement travel management restrictions if smooth goosefoot populations are at risk. **Standard**

Livestock Grazing

1. Continue to emphasize combining pastures and allotments to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation).

Guideline

2. In areas where sharp-tailed grouse and waterfowl production are emphasized, utilize light to moderate stocking levels on allotments with large pastures to achieve a mosaic of vegetation structure that provides high structure intermittently across the allotment. Utilize skim or rest on allotments with small pastures that fail to provide sufficient high cover levels. **Guideline**

Infrastructure

1. New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual

| quality, and recreation). **Guideline**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Black-tailed Prairie Dog

- Continue to emphasize an active landownership adjustment program in this ~~geographie-~~
~~area~~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. **Guideline**
- In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or re-establish past colonies in this ~~geographie-~~
~~area~~Geographic Area. **Guideline**
- Refer to Chapter 1 (~~s~~Sections F and H) and Chapter 3 (Management Area 3.63) for additional standards and guidelines.

2. Threatened, Endangered, and Sensitive Species:

Sturgeon Chub

- To assist in maintaining the current quantity and quality of aquatic habitat for this species, do not authorize land uses or developments that would measurably and cumulatively further degrade sturgeon chub habitat, including reducing downstream flows. **Guideline**
- Conduct project-level biological evaluations assessing potential downstream risks to this species from proposed projects that may have the potential to significantly alter sturgeon chub habitat or reduce downstream flows. This includes sand and gravel dredging and small impoundment construction in upper watersheds. **Guideline**

FORT PIERRE GEOGRAPHIC AREA
Fort Pierre National Grassland

Setting

The Fort Pierre Geographic Area includes about ~~116,080~~ 115,890 acres (~~ref. FS-383 Land Areas of the National Forest System 9/30/2008~~) of National Forest System NFS lands that are administered as Fort Pierre National Grassland. The office is in Fort Pierre, South Dakota.

The area’s climate is semi-arid Continental. Warm summers have frequent hot spells. Winters can be very cold; when arctic winds penetrate from the north. Average temperatures are 72 degrees Fahrenheit in summer and 19 degrees in winter. Average annual precipitation is about 18 inches, with most occurring between April and September. Blizzards and thunderstorms with hail occur seasonally.

The area is a gently rolling plain with few trees. Elevation ranges from about 1,550 to 2,238 feet above sea level. Drainages include Sand Creek, Timber Creek, Cedar Creek, Antelope Creek, Gray Blanket Creek, Stony Butte Creek, Porcupine Creek, and East Branch of War Creek. These intermittent streams flow mainly east and north to the Missouri River.

Upland mixed-grass prairie is the vegetation/habitat type over most of the national grassland. Western wheatgrass is the most prevalent grass species, growing on diverse sites. Green needlegrass and buffalograss also grow on the deep clays of ridge tops and flats. Side-oats grama, big bluestem, little bluestem, and blue grama grow on more shallow, sloping clays. Woody vegetation growing along drainages includes cottonwood, wild plum, willow, and western snowberry. Much flat or gently sloping private land in the area has been plowed to produce wheat, sunflowers, sorghum, corn, or alfalfa hay.

Fluctuations in Pprairie dog colonies can increase or reduce occupancy from hundreds to thousands of about 600 acres on the national grassland.

Over 150 ponds, ranging in size from less than an acre to over 20 acres, have been constructed in intermittent drainages. All provide waterfowl habitat. Some offer fishing for large-mouthed bass and panfish, such as bluegill, crappie or yellow perch.

There is currently (2026) one developed recreation site, Richland Dam, in this Geographic Area. There are no developed recreation sites in this geographic area.

Desired Conditions

The desired condition is to perpetuate diverse and healthy mixed-grass communities. This includes both cool-season and warm-season species, such as western wheatgrass, green needlegrass, buffalograss, side-oats grama, big bluestem, little bluestem, and blue grama. Hardwood draws will be managed to perpetuate multiple layers and age classes of herbaceous plants, shrubs, and trees. Cottonwood, wild plum, chokecherry, willow, and western snowberry will grow in suitable draws. Streams and riparian areas will maintain soil moisture to perpetuate riparian plant communities with strong root masses. Prairie cordgrass, bulrush, spikerush, and cattail will line suitable drainages. Streams and riparian areas should function properly or be in an upward trend.

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Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

To provide habitat for viable populations of all wildlife species, a mixture of vegetation composition and structure will be provided. Vegetation structure plays a very important role in determining habitat suitability for various species.

A relatively small percent of the area will be maintained in low composition and structure to support viable black-tailed prairie dog populations. Prairie dog colonies serve as important habitat for other species of wildlife, some of whose low region-wide populations are of concern.

Grass of moderate height and density will provide adequate habitat for many birds, mammals and other classes of wildlife. Over a significant area, high, dense cover will be left after the grazing season for birds that require more cover and nest on the ground early in the spring, such as sharp-tailed grouse, prairie chickens, and some species of ducks. Controlled livestock grazing will provide a variety of different grass structures for various wildlife species that depend on both tall and short grass structure.

Tall and dense grass cover also improves the hunting experience by acting as “holding cover” for sharp-tailed grouse and prairie chickens. Upland game birds find security in such cover and will be less apt to flush beyond shooting range. Upland bird hunting is an important and growing activity in this ~~geographic area~~**Geographic Area**. A significant percent of the area should display these conditions, in which bird hunters will perceive that their efforts can be successful.

The desired landscape condition is to maintain open, scenic plains. Recreationists should perceive that they are visiting an expansive native mixed-grass prairie. Small areas of excessive cattle grazing impacts will exist, such as around water sources, but will be minimized. During fair weather, visitors should have little trouble traveling designated roads and trails, and no difficulty opening and closing gates. A significant percent of the area should display the desired landscape conditions to provide recreationists an opportunity to view or hunt wildlife.

Important Attributes

- Nationally known sharp-tailed grouse and greater prairie chicken habitat and populations
- Abundant birdwatching opportunities in a natural setting
- Plentiful warm-water fishing opportunities in a grassland setting
- Abundant opportunities to view open, scenic mixed-tall grass prairie landscapes

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Management Area Prescription Allocation

Number	Prescription	Acres
2.2	Research Natural Areas (Mallard South)	1,030 30
3.64	Special Plant and Animal Habitats	89 8 ⁵ combined
	include:	
	Richland Wildlife Area	540
	Sheriff Dam area	120
	Mallard D.U. Dam	80
	Bower D. U. Dam	40 2
	Reservation Rd. Triangle	670 5
	Alkali West Exclosure Highway 83	53 2
	Triangle	
	Smith Dam Exclosure	4
	Reed Ranch Shelterbelt	5
	Cookstove Shelterbelt	2
6.1	Rangeland with Broad Resource	113,883
	Emphasis	

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Number	Prescription	Aeres
	Alkali West Exclosure	5
	Smith Dam Exclosure	4
	Reed Ranch Shelterbelt	5
	Cookstove Shelterbelt	2
6.1	Rangeland with Broad Resource-Emphasis	114,160

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Geographic Area Direction – Objectives

Vegetation

This section deals with vegetation and its relationship to ~~MIS~~-focal species and TES habitat needs. The focus in the Fort Pierre Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~N~~orthern Great Plains. The grassland ecosystem will feature a shifting mosaic of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Fort Pierre Geographic Area:

Composition

1. The desired plant species composition objective across the ~~geographic-area~~Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
20 to 40%	30 to 50%	10 to 30%	1 to 20%

In late seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent tall grasses. On clayey, silty, and thin upland soils western wheatgrass, green needlegrass, porcupinegrass, sideoats grama, and little bluestem are the primary mid grasses and big bluestem should make up the majority of the tall grass. Western wheatgrass, blue grama, and buffalograss should dominate the less productive claypan soil types. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In late intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of mid grasses and to a lesser extent short grasses. Less productive claypan soils should be comprised of short grasses and to a lesser extent mid grasses. The dominant grass species in late intermediate seral should be western wheatgrass with the codominance made up of needleandthread, porcupinegrass, blue grama, and sedges. The mix of grasses making up the codominance in late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In early intermediate seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses and to a lesser extent mid grasses. Less productive claypan soils should be comprised of short grasses. The dominant grass species in early_

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intermediate seral stage should be blue grama, buffalo grass, western wheatgrass, needleandthread, and sedges. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In early seral stage, more productive soils (clayey, silty, and thin upland soils) should be comprised mainly of short grasses with few, if any, mid grasses. Less productive claypan soils should be comprised of short grasses. The early seral stage will be dominated by sedges, clubmoss, and short grasses such as blue grama and buffalograss on all soil types. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. The early seral stage should be emphasized on less productive claypan soil types, in and around prairie dog towns, and in isolated areas of high livestock use. **Objective**

Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

High	Moderate	Low
30 to 50%	30 to 50%	10 to 30%

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short statured species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~**Geographic Area** receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in early intermediate or early seral stages will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Fire

- 1. Prescribe burn a minimum of 1,000-5,000 acres per decade. **Objective**

Infrastructure

- 1. Increase the average pasture size by 25 percent over the decade. **Objective**

Rest

- 1. Maintain at least 10 percent of the suitable rangeland in rest each year. **Objective**

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Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across this ~~geographic area~~Geographic Area at levels that, in combination with habitat on adjoining lands, help support stable to increasing sharp-tailed grouse populations (long-term trends) and viable populations of other wildlife species with similar habitat needs. **Objective**
 - Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (~~see~~Appendix H ~~Habitat Descriptions~~) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**

Greater Prairie Chicken

- Provide diverse and quality grassland habitat across the ~~geographic area~~Geographic Area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing prairie chicken populations (long-term trends) across this national grassland. **Objective**
- Establish and maintain quality nesting and brooding habitat for prairie chickens (~~see~~Appendix H ~~Habitat Descriptions~~) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**

Black-tailed Prairie Dog

- To increase prairie dog populations and habitat for associated species, establish one or more prairie dog colony complexes in the northeast portion (Sand and Timber Creek drainages) of this ~~geographic area~~Geographic Area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private and tribal, may be considered part of a complex. **Objective**
- Apply adaptive management strategies to provide objectives for 1,000 minimum and 3,500 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H, Animal Damage Control for management direction. **Objective** (~~Amendment 3~~)

Recreation

~~1-~~ Within the life of the plan develop a trailhead facility and horse/hiking trail (Burnt Thigh) on the east half of the Fort Pierre National Grassland. **Objective**

1.

~~2- Continue with the current travel restrictions for recreation travel between the dates of September 1 and November 30 that requires motorized vehicles to stay within 30 feet of the designated roads on the Fort Pierre National Grassland. **Standard**~~

2. Provide for an interpretive site along highway 83 in conjunction with the new construction scheduled within the next five years. **Objective**

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Geographic Area Direction – Standards and Guidelines

Vegetation

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

Infrastructure

- 1. Allow no net decrease in the average pasture size. **Guideline**
- 2. Allow no net gain in the number of water developments, while maintaining or increasing the surface area covered by ponds providing brood habitat for waterfowl and fisheries. **Guideline**

Wildlife, Fish, and Rare Plants

- 1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- A range of 30-50% of this ~~geographic area~~Geographic Area is prescribed for high structure grasslands. 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 provide high-structure grasslands:
 - Presence of moderate to highly productive soils and range sites
 - Proximity to sharp-tailed grouse display grounds
 - Proximity to shrub habitats and private croplands. **Guideline**
- Establish and maintain quality winter foraging habitat for sharp-tailed grouse and associated wildlife by enhancing and/or maintaining diverse forb species in grassland communities and regenerating shrub patches and the shrub component of wooded draws and riparian habitats. **Guideline**

Greater Prairie Chicken

- A range of 30-50% of this ~~geographic area~~Geographic Area is prescribed for high structure grasslands. 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,
 - Proximity to prairie chicken display grounds,
 - Proximity to shrub habitats, private croplands and other prairie chicken habitats. **Guideline**
- Establish and maintain quality foraging habitat for greater prairie chicken and associated species by enhancing and/or maintaining a diversity of forb species in grassland communities and regeneration of shrubs in thickets and wooded draws. **Guideline**

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Black-tailed Prairie Dog

- Encourage land exchanges in the northeast portion of this ~~geographic-~~areaGeographic Area to reduce conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations in this area. Land exchanges may need to be completed in some locations before some of the following guidelines may be fully implemented.
Guideline
- Manage livestock grazing in the northeast portion of this ~~geographic-~~areaGeographic Area to encourage prairie dog colony expansion in interior areas and to slow expansion along property boundaries. The appropriate livestock grazing strategies for individual areas will be identified as site-specific management plans are revised. **Guideline**
- In cooperation and coordination with the state wildlife agency, restrict prairie dog shooting in the northeast part of this ~~geographic-area~~Geographic Area as needed to encourage prairie dog population expansion. **Guideline**
- In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or to re-establish past colonies in the northeast part of this ~~geographic-area~~Geographic Area. **Guideline**
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- Refer to Chapter I (Sections F and H) for additional standards and guidelines.

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OGLALA GEOGRAPHIC AREA

Oglala National Grassland - Pine Ridge Ranger District

Setting

The Oglala Geographic Area encompasses 94,174 acres of ~~National Forest System~~NFS lands in northwestern Nebraska. The Pine Ridge Ranger District of the Nebraska National Forests ~~and~~ Grasslands administers the Oglala Geographic Area. The district office is located ~~south of in~~ Chadron, Nebraska. Wyoming borders this area on the west and South Dakota on the north.

The climate of the Oglala Geographic Area can be classified as semi-arid Continental. Warm summers, cold winters, light precipitation, and frequent changes in the weather characterize the climate. Temperature extremes, as recorded at Fort Robinson (near Crawford, Nebraska), range from minus 37 degrees Fahrenheit to 110 degrees Fahrenheit. About 80 percent of precipitation falls between April and September. The average annual precipitation ranges from about 15 inches at Ardmore, South Dakota, located just north of this ~~geographic area~~Geographic Area, to about 18 inches near Crawford, Nebraska just south of the ~~geographic area~~Geographic Area. Blizzards generally occur several times each winter, while hail can accompany thunderstorms in the summer.

The topography of the area is a blend of rolling plains and badlands, including highly eroded benches, clay hardpan and bluffs. The major distinguishing landmarks include Toadstool Geologic Park, Roundtop, Wolf Butte and agate beds in the Sugarloaf Butte area.

Drainages flow primarily to the south and east on the southern portions of the ~~geographic area~~Geographic Area and to the north and east on the northern portions of the ~~geographic area~~Geographic Area. Elevations range from about 3,600 feet above sea level near Rock Bass Reservoir to about 4,700 feet above sea level at Eagle Eye Rock, about two miles south of ~~the~~ Hudson-Meng Bison Bonebed. The White River System drains the southern portions of this ~~geographic area~~Geographic Area, while the Cheyenne River ~~S~~system drains the northern portions. Primary tributaries in the southern portions of the ~~geographic area~~Geographic Area include Little Cottonwood, Big Cottonwood and Sand Creeks. Primary tributaries in the northern portions include Whitehead, Antelope, Indian, Hat and Squaw Creeks.

The upland grassland is the primary vegetation/habitat type of the ~~geographic area~~Geographic Area. Mid grasses dominate the native vegetation, but include short grasses and a variety of forbs. This mixed grass prairie is made up of cool-season and warm-season plants that provide diverse habitat for a variety of wildlife species and forage for livestock. The principle vegetative species are western wheatgrass, green needlegrass, buffalograss, blue grama, sideoats grama, and western snowberry. Other important habitat vegetation includes cottonwood, green ash, boxelder, silver buffaloberry, willow, and silver sage.

Badlands provide a unique habitat for some plants and animals that are suited to open, barren soils. Prairie dog colonies are a unique component of the upland grasslands and provide habitat for a number of ~~threatened and endangered~~TES species. Prairie dog colonies are fairly small and scattered across this ~~geographic area~~Geographic Area. Although the woody draw/riparian woodland habitat comprises a small portion of the ~~geographic area~~Geographic Area, this habitat type is critical for many wildlife species. The woody draw/riparian woodlands provide the highest diversity of both plant and animal life in the ~~geographic area~~Geographic Area. Principle

woody species include cottonwood, green ash, boxelder, silver buffaloberry, snowberry, willow and wildrose. The Roundtop area of the Oglala Geographic

Area consists of a ponderosa pine/grassland mix typical of the Pine Ridge ~~Geographie-~~
~~area~~Geographic Area. The primary creeks and drainages include Sand-~~Creek~~, Longbranch,
Whitehead, Hat-~~Creek~~, Antelope-~~Creek~~, Indian and Brush Creeks. Wetland/aquatic habitat is
unusual in this ~~geographie-area~~Geographic Area and much of it is located near constructed water
impoundments that provide waterfowl habitat and support warm-water fisheries. The sagebrush
habitat type is very limited and found along several of the major floodplain areas scattered
across this ~~geographie-area~~Geographic Area.

Two developed recreational facilities existing in the Oglala Geographic Area, and are the
Hudson-Meng Bison Bonebed and Toadstool Geological Park. The primary dispersed
recreational opportunities within this ~~geographie-area~~Geographic Area include big game
hunting, limited upland game and waterfowl hunting, wildlife viewing, mountain biking,
hiking, fishing, camping, and rock hounding.

Desired Condition

~~General:~~ The desired landscape condition is to maintain open, scenic plains and vast prairie
landscapes.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition
(PFC-see Appendix G gGlossary), which allows them to recover quickly from floods and support
diverse native plants and animals. Long-term soil productivity and properly functioning water
cycles are maintained. Properly functioning water cycles are characterized by high infiltration
rates, low soil compaction, and minimal overland flows.

Prescribed fire will be used as a management tool to enhance grass and forb vegetative diversity,
stimulate woody plant regeneration, and reduce invasive or noxious weeds. Range structures
(fences and water developments) will be used to manage livestock to meet vegetative goals and
objectives. Recreational opportunities will continue to emphasize dispersed recreation activities
on the majority of the ~~geographie-area~~Geographic Area.

~~Upland Grasslands:~~ ~~These upland~~Grassland areas will be managed to perpetuate diverse and
healthy mixed grass and forb communities, representing both cool and warm season species such
as western wheatgrass, green needlegrass, buffalograss, blue grama, big and little bluestem,
threadleaf sedge and forbs. Upland grassland habitat will be managed to provide sufficient
residual cover for those wildlife species requiring higher grassland structure levels.

~~Woody Draws:~~ ~~These~~Woody draws will be managed to perpetuate multiple layers and age
classes of vegetation including herbaceous plants, shrubs, and trees.

~~Streams and Riparian Areas:~~ ~~These~~Str-cams and riparian areas will be managed to maintain soil
moisture to perpetuate riparian plant communities with strong root masses, emphasize healthy
submergent and emergent vegetative cover along streams and shorelines while reducing
sediment levels to maintain high quality aquatic habitat. Plant species include sedges, rushes,
and willows.

~~Prairie Dog Colonies:~~ ~~These areas~~Prairie dog colonies will be managed to maintain and enhance
low structure grassland habitat as part of the 10 to 30 percent vegetative structure objective of
this ~~geographie-area~~Geographic Area. ~~(Amendment 2)~~

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Important Attributes

- Toadstool Geologic Park Campground, sod house, and badlands scenery
- Hudson-Meng Bison Bonebed archaeology site
- Sugarloaf Agate Beds
- Warbonnet Memorial
- Significant fossil resources, including a prehistoric trackway from the Oligocene Epoch
- Huitable and viewable populations of wildlife, including pronghorn, mule deer, wild turkey, and sharp-tailed grouse
- Sport fisheries in small reservoirs

Management Area Prescription Allocation

Number	Prescription	Acres
2.1	Special Interest Areas	2,077 40
5.12	General Forest and Rangeland: Range Vegetation Emphasis	2,00 02
6.1	Rangeland with Broad Resource Emphasis	90,354 400

Geographic Area Direction - Objectives

Vegetation

This section deals with vegetation and its relationship to ~~focal species~~MIS and TES habitat needs. The focus in the Oglala Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the ~~n~~Northern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetative structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Oglala Geographic Area:

Composition

1. The desired plant species composition objectives across the ~~geographic area~~Geographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
10 to 30%	50 to 70%	10 to 20%	1 to 10%

In the late seral stage, more productive soils (clayey, shallow clay, limy upland, and silty range sites) should be comprised mainly of mid grasses and to a lesser extent tall grasses, while the less productive claypan soils should be comprised of mid grasses and short grasses. On clayey and silty range sites western wheatgrass, green needlegrass, sideoats grama, and little bluestem are the primary mid grasses, and big bluestem should make up the majority of the tall grass. On shallow clay range sites, found primarily on the slopes of the river breaks, western wheatgrass,

ricegrass, and green needlegrass occur in amounts approximately equal to big bluestem, little bluestem, and sideoats grama. Leadplant should also be a common part of the grassland community on the above mentioned range sites in the late seral stage. Western wheatgrass, blue grama, and buffalograss should dominate the less productive claypan range site. Tall grasses such as big bluestem, switchgrass, and prairie sandreed should be expressed in the overflow or run-in sites.

In late intermediate seral stage, more productive soils (clayey, shallow clay, limy upland, and silty range sites) should be comprised mainly of mid grasses and to a lesser extent short grasses, while the less productive claypan soils should be comprised of short grasses and to a lesser extent mid grasses. The dominant grass species on clayey and silty range sites in late intermediate seral stage should be western wheatgrass with the codominance made up of needleandthread, blue grama, and sedges. On shallow clay range sites little bluestem, western wheatgrass, and sideoats grama are the dominant species while blue grama and sedges become more abundant. The mix of grasses making up the codominance on all range sites in late intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses, mainly western wheatgrass and green needlegrass.

In early intermediate seral stage, more productive soils (clayey, shallow clay, limy upland, and silty range sites) should be comprised mainly of short grasses and to a lesser extent mid grasses, while the less productive claypan soils should be comprised of short grasses. The dominant grass species on clayey and silty range sites in early intermediate seral stage should be blue grama, buffalograss, western wheatgrass, needleandthread, and sedges. On shallow clay range sites blue grama and threadleaf sedge dominate the site while little bluestem is the remaining mid grass component. The mix of grasses making up the codominance in early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities. Overflow sites will be made up of mid grasses and short grasses; mainly western wheatgrass, needleandthread, and blue grama.

In early seral stage, more productive soils (clayey, shallow clay, limy upland and silty range sites) should be comprised mainly of short grasses with little if any presence of mid grasses, while the less productive claypan soils should be comprised of short grasses. The early seral stage will be dominated by sedges, and short grasses such as blue grama and buffalograss on all range sites. Overflow sites will be dominated by short grasses and to a lesser extent mid grasses. The early seral stage should be emphasized on less productive claypan range sites, in and around prairie dog towns, and in isolated areas of high livestock use or other persistent disturbances.

Objective

Structure

2. Manage the ~~geographic area~~**Geographic Area** to meet the vegetation structure objectives identified below:

High	Moderate	Low
10 to 30%	50 to 70%	10 to 30%

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short stature species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~Geographic Area receiving light to moderate levels of livestock use should be in late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in early intermediate or early seral stage will not achieve moderate structure under even light grazing levels.

Minimally productive soils, prairie dog colonies, and grassland areas grazed by livestock at high intensities for an extended season of use provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Fire

1. Prescribe burn a minimum of 1,500 acres per decade to meet objectives based on the following:

- Promote vegetative diversity;
- Improve wildlife habitat;
- Convert exotic vegetation to native vegetation;
- Stimulate riparian/woody draw woody plant regeneration;
- Control or reduce invasive or noxious weeds;
- Stimulate grass and forb growth;
- Reduce fuel loading
- Reduce damaging insect populations. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Black-tailed Prairie Dog

- To help increase prairie dog populations and habitat for associated species, establish a prairie dog colony complex in the ~~geographic area~~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**
- Apply adaptive management strategies to provide objectives for 1,000 minimum and 2,800 maximum acres of active prairie dog colonies within the interior-colony management zones. If maximum acreage objective is exceeded, refer to Chapter 1, H. Animal Damage Control for management direction. **Objective** ~~(Amendment 3)~~

Plains Sharp-tailed Grouse

- Over the life of the plan provide diverse and quality grassland habitat across the ~~geographic area~~ **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**
- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H **Habitat Descriptions**) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**
- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated wildlife 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. **Objective**

Recreation

1. Construct the Prehistoric Prairies Discovery Center and associated trails. **Objective**

Geographic Area Direction – Standards and Guidelines

Vegetation

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

General Direction

1. For Management Area Direction 5.12 ~~on the ONG~~, apply the Pine Ridge Geographic Area wildlife management direction. **Guideline**

Riparian

1. Manage riparian areas to maximize riparian vegetation such as sedges, rushes, willows, cottonwoods and green ash. **Guideline**

Infrastructure

1. New structural range improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality and recreation). **Guideline**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~ **Focal Species**:

Black-tailed Prairie Dog

- Encourage land exchanges in this ~~geographic area~~ **Geographic Area** to reduce conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations. ~~Land exchanges may need to be completed in some locations before some of the following guidelines may be fully implemented.~~
Guideline

- Manage livestock grazing to encourage prairie dog colony expansion in interior areas and to slow expansion along property boundaries. ~~The appropriate livestock grazing strategies for individual areas will be identified as site-specific management plans are revised.~~ **Guideline**
- ~~The appropriate livestock grazing strategies for individual areas will be identified as site-specific management plans are revised.~~ **Standard**
- In cooperation and coordination with the state wildlife agency, restrict prairie dog shooting as needed to encourage prairie dog population expansion. **Guideline**
- In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or to re-establish past colonies in this area. **Guideline**
- Refer to Chapter 1, (Sections F and H) and Chapter 3, (Management Area 3.63) for additional standards and guidelines.

Plains Sharp-tailed Grouse

- A range of 10 to 30% of the acres is prescribed for high structure grasslands in this ~~geographic area~~ **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,
 - Proximity to sharp-tailed grouse display grounds,
 - Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**

2. Threatened, Endangered, and Sensitive Species

Mountain Plover (Sensitive Species, Candidate Species)

- Evaluate the effectiveness of large prescribed burns (a section or more in size) in attracting and inventorying mountain plover. Prescribed burns should be timed to provide large blackened areas in the spring. Large flats near prairie dog colonies in the northeast portion of this ~~geographic area~~ **Geographic Area** should be prioritized for burning. **Standard**
- In cooperation with the U.S. Fish and Wildlife Service and Nebraska Game and Parks Commission, evaluate the desirability and feasibility of trying to establish a nesting population with reintroduced birds. **Standard**
- 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**
- 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 or the poisoning or development. **Guideline**

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- 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).
 - Reclamation.
 - Drilling of water wells.
 - Prescribed burning. **Standard**
- 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).
 - 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**
- 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**
- Vegetation management projects in suitable mountain plover habitat will be designed to maintain or improve mountain plover habitat. **Standard**
- 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**
- Use the following criteria at the project level to help determine where to use prescribed burning and high livestock grazing intensities ([see Appendix I Suggested Stocking Rates](#)) 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**

Swift Fox (Sensitive Species, Candidate Species)

- The northeast portion of this ~~geographic area~~[Geographic Area](#) is near an area on the Buffalo Gap National Grassland that supports swift fox, and there's a high probability that swift fox also uses this part of the Oglala National Grassland. USDA predator (primarily coyote) control activities to reduce livestock losses will be limited in this area to methods that do not pose a significant and direct mortality risk to swift fox. This standard would also apply to any other areas in this ~~geographic area~~[Geographic Area](#) where swift fox are found in the future. **Standard**

PINE RIDGE GEOGRAPHIC AREA

Oglala National Grassland - Pine Ridge Ranger District

Setting

The Pine Ridge Geographic Area encompasses ~~about 50,529~~ 50,360 acres (~~ref. Middle Loop-Land Exchange~~) of ~~National Forest System~~ ~~NFS~~ lands in northwestern Nebraska. The Pine Ridge Ranger District of the Nebraska National Forests and Grasslands manages this ~~geographic area~~ Geographic Area. The district office is located ~~south of~~ in Chadron, Nebraska.

The climate of the Pine Ridge Geographic Area can be classified as semi-arid Continental. Warm summers, cold winters, light precipitation, and frequent changes in the weather characterize the climate. Temperature extremes, as recorded near Crawford, Nebraska, range from minus 37-degrees Fahrenheit to 110-degrees Fahrenheit. About 80 percent of precipitation falls between April and September, with annual averages in the 18-inch range.

The topography of the area is dominated by the Pine Ridge, an escarpment of sandstone bluffs that extends just beyond the border in Wyoming, through northwestern Nebraska, then into southwestern South Dakota. The Pine Ridge is characterized by extensive growth of ponderosa pine, with some small inclusions of quaking aspen. Major landmarks and significant areas along the Pine Ridge, west to east, include the Soldier Creek Wilderness, the Pine Ridge National Recreation Area, Coffee Grinder Butte, and Aristocrat Butte. Elevations range between about 3,440 feet above sea level at Bordeaux Creek to 4,600 feet above sea level in the Deadman Creek area.

Drainages flow mainly toward the north (except for South, Middle, and North Forks of Soldier Creek, which flow to the southeast) into the White River and include, west to east, Deadman-Creek, Cherry-Creek, White Clay-Creek, Saw Log-Creek, West Ash-Creek, East Ash-Creek, Indian-Creek, Cunningham-Creek, Dead Horse-Creek, Chadron-Creek, and Bordeaux Creeks.

Vegetation consists of a grass/forest mix dominated by ponderosa pine, cool-season and warm-season grasses, and a variety of forbs. This vegetative mix provides a diverse habitat for a variety of wildlife species and forage for livestock. Principle deciduous tree species are cottonwood, hackberry, boxelder and green ash. Other woody species that can be found locally abundant are snowberry, chokecherry and wild plum. Grass species include western wheatgrass, little bluestem, big bluestem, prairie sandreed, buffalograss and green needlegrass. Sedges include threadleaf and needleleaf sedges.

The ~~geographic area~~ Geographic Area is comprised of a variety of vegetation/habitat types; coniferous forests are dominated by ponderosa pine. Areas of open coniferous forest/grassland (savannah) also make- up this ~~geographic area~~ Geographic Area. Open grassland (parkland) areas are frequently found throughout the forested area. These vegetative mixes provide important loafing, hiding, escape and thermal cover for many wildlife species. The woody draw and riparian woodland habitats comprises a small portion of the ~~geographic area~~ Geographic Area but are considered critical for many wildlife species. The primary creeks and drainages include Bordeaux, Chadron, Dead Horse, Indian, Cunningham, East Ash and West Ash Creeks. Soldier Creek Wilderness includes the North, Middle, and South Forks of Soldier Creek. The wetland/aquatic habitat provides a cold-water brown and brook trout recreational fishery. The ~~geographic area~~ Geographic Area has several developed recreational facilities including Spotted Tail, Outrider, Roberts and Soldier Creek Trailheads. Numerous hiking, horseback riding and

mountain bike trails exist across the ~~geographic area~~Geographic Area. The primary dispersed recreational opportunities within this area include big game hunting, wildlife viewing, horseback riding, mountain biking, hiking, fishing and camping.

Desired Conditions

~~General:~~ The desired landscape condition is to maintain a mosaic of ponderosa pine and open mixed grass parklands.

The streams and riparian areas are in, or are trending towards, Properly Functioning Condition (PFC-see Appendix G ~~g~~Glossary), which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows.

Livestock management techniques such as proper stocking, season of use, grazing rotation systems as well as fencing and water developments will be used to manage livestock to meet vegetative goals and objectives. Recreational opportunities will continue to emphasize dispersed recreational activities.

~~Ponderosa Pine Forest/Parklands:~~ These ~~f~~forested/savannah areas will be managed to maintain or perpetuate a diversity of healthy and vigorous ponderosa pine forest, old growth stands of large old trees with open branches, intermingled standing dead and down trees, and mixed grass and forb communities providing a mosaic of varying grassland structure levels. Principle grass species include western wheatgrass, green needlegrass, little bluestem, needleandthread, blue grama, and big bluestem. Threadleaf sedge and a variety of forbs also exist. Ponderosa pine forests will be managed for healthy, sustainable yields, old growth communities, and standing and down snags across the forested areas.

~~Wooded Draw Areas:~~ These Wooded draw areas will be managed to perpetuate multiple layers and age classes of vegetation including forbs, shrubs, and trees. Principle woody species include cottonwood, green ash, hackberry, wild plum, chokecherry, and snowberry.

~~Streams and Riparian Areas:~~ These Stream and riparian areas will maintain soil moisture to perpetuate riparian plant communities with strong root masses, emphasize healthy submergent and emergent vegetative cover along streams while reducing sediment levels to maintain high quality aquatic habitat. Plant species include sedges, rushes, willows, green ash, cottonwood, boxelder, and hackberry.

Important Attributes

- The 7,800-acre Soldier Creek Wilderness
- The 6,600-acre Pine Ridge National Recreation Area
- Extensive and scenic native ponderosa pine forest stands with open prairie vistas
- Trout fisheries in forest-lined streams
- Over 80 miles of recreational trails for mountain bikers, hikers and horseback riders
- Significant populations of huntable and viewable wildlife, including wild turkey, mule and white-tailed deer, and elk

Management Area Prescription Allocation

Number	Prescription	Acres
1.1	Wilderness: Soldier Creek	7,818 00
1.31	Backcountry Recreation Nonmotorized	1,859 30
1.31a	Backcountry Recreation Nonmotorized: Pine Ridge National Recreation Area	6,610 540
2.1	Special Interest Areas	100 400
3.51	Bighorn Sheep	5,624 50
5.12	General Forest and Rangeland: Range Vegetation Emphasis	265,930 100
7.1	Residential/Forest Intermix	2,426 42 (ref. Middle Loop L.X)
8.6	Administrative Site	56 60

Geographic Area Direction - Objectives

Grassland Vegetation

This section deals with vegetation and its relationship to focal speciesMIS and TES habitat needs. The focus in the Pine Ridge Geographic Area is on grass and grass-like plants.

The resulting vegetation will have a mix of seral stages designed to approximate evolutionary development of the Northern Great Plains. The grassland ecosystem will feature a “shifting mosaic” of disturbance processes over space and time.

Composition objectives are based on a mix of grass and grass like species across a majority of the Geographic Area. This mix provides suitable opportunity for meeting vegetation structure objectives and providing for floristic diversity.

The following section describes the specific vegetative composition and structure objectives for the Pine Ridge Geographic Area:

1. Over the life of the plan, manage for 40-60% non-forested cover across the geographic areaGeographic Area.

Objective.

Composition

2. The desired plant species composition objectives across the geographic areaGeographic Area is as follows:

Late Seral	Late Intermediate Seral	Early Intermediate Seral	Early Seral
15 to 25%	40 to 70%	5 to 15%	1 to 20%

In late seral stage, more productive soils (silty and savannah range sites) should be comprised mainly of mid grasses and to a lesser extent tall grasses. On silty range sites western wheatgrass, green needlegrass, sideoats grama, and little bluestem are the primary mid grasses and big bluestem and prairie sandreed should make up the majority of the tall grasses. Savannah range sites should be made up of little bluestem, sideoats grama, green needlegrass, and slender wheatgrass for mid grass species and big bluestem, prairie sandreed, and sand bluestem will make up the tall grass species.

In late intermediate seral stage, more productive soils (silty and savannah range sites) should be comprised mainly of mid grasses and to a lesser extent short grasses and tall grasses. The

dominant grass species in late intermediate seral stage on silty range sites should be western wheatgrass with the codominance made up of needleandthread, blue grama, and sedges. The dominant grass species in late intermediate seral stage on savannah range sites should be little bluestem, prairie sandreed, slender wheatgrass, sideoats grama, and blue grama. The mix of grasses making up the codominance in late intermediate seral stages will fluctuate according to precipitation and/or grazing intensities.

In early intermediate seral stage, more productive soils (silty and savannah range sites) should be comprised mainly of short grasses and to a lesser extent mid grasses. The dominant grass species in early intermediate seral stage on silty range sites should be blue grama, buffalo grass, western wheatgrass, needleandthread, and sedges. The dominant grass species in early intermediate seral stage on savannah range sites should be little bluestem, prairie junegrass, prairie sandreed, blue grama, hairy grama, and plains muhly. The mix of grasses making up the codominance in the early intermediate seral stage will fluctuate according to precipitation and/or grazing intensities.

In early seral stage, savannah range sites will be dominated by broadleaf weeds such as annual ragweed, green sage, and lupine, sedges, and annual grasses like downy brome. Other species common to the early seral stage on savannah range sites are short stature grass species such as red threeawn, hairy grama, and blue grama. Silty range sites should be comprised mainly of short grasses with little, if any, presence of mid grasses. Sedges will dominate the early seral stage on silty range sites along with short grasses such as blue grama and buffalograss. The early seral stage should be emphasized on less productive saline upland range sites and in isolated areas of high livestock use or other persistent disturbances. **Objective**

Structure

3. Manage the ~~geographic area~~Geographic Area to meet the vegetation structure objectives identified below:

High	Moderate	Low
10 to 20%	65 to 85%	5 to 15%

High vegetation structure can be achieved on moderately and highly productive soils dominated by mid and/or tall grasses (late or late intermediate seral stage composition). Grasslands on moderately to highly productive soils but dominated by short stature species generally do not have the capability to provide high vegetation structure unless management is changed to increase the composition of mid to tall grass species over a period of years or decades.

Moderate structure can be achieved on moderately to highly productive soils dominated by mid and/or tall grasses depending on grazing use levels. Grasslands within this ~~geographic area~~Geographic Area receiving light to moderate levels of livestock use should be in the late or late intermediate seral stage to achieve moderate structure. Grasslands dominated by short grass species in early intermediate or early seral stage will not achieve moderate structure under even light grazing levels.

Minimally productive soils, and grassland areas grazed by livestock at high intensities for an extended season of use provide low structure. Low vegetation structure can result from a dominance of low stature plant species or from heavy utilization of mid and tall grasses. **Objective**

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Forest Vegetation

1. Manage for a 40-60% forest cover (silvicultural structural stages 2-5; see [Appendix G Glossary](#)) across the ~~geographic area~~ **Geographic Area**. **Objective**
2. Over the life of the plan, manage timber stands to do the following:
 - Improve forest health
 - Prevent potentially damaging forest pest populations
 - Reduce fuel loading and risk of catastrophic wildfire
 - Enhance wildlife and TES habitats
 - Provide ~~N~~ational **F**orest timber to support local economies
 - Limit ponderosa pine encroachment into rangelands
 - Improve riparian habitat
 - Enhance recreation experiences and visual quality **Objective**
3. Within 10 to 15 years, manage forest cover to achieve a 20-40 sq. ft. basal area on 10% of the forest cover. Manage to achieve silvicultural structural stages 4 and 5, with emphasis on structural stages 4a (mature open) and 5 (old growth/late successional). **Objective**
4. 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**
5. 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

Prescribed Fire

1. Prescribe burn a minimum of 1,000 acres per decade to achieve management objectives based on the following:
 - Promote vegetative diversity
 - Improve wildlife and TES habitats
 - Convert exotic vegetation to native vegetation
 - Stimulate riparian and woody draw woody plant regeneration
 - Control or reduce invasive or noxious weeds
 - Reduce fuel loadings and risk of catastrophic fire
 - Restore the ponderosa pine savannah ecosystem
 - Stimulate grass and forb growth
 - Reduce damaging insect populations. **Objective**

Rest

1. Rest 1-10 percent of the suitable rangeland each year. **Objective**

Wildlife, Fish, and Rare Plants

1. ~~Management Indicator Species~~Focal Species:

Plains Sharp-tailed Grouse

- Provide diverse and quality grassland habitat across the ~~geographic area~~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**
- Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse (see Appendix H Habitat Descriptions) and associated wildlife by meeting vegetation objectives for high structure within 10 years. **Objective**

Pygmy Nuthatch

- Conduct inventories to establish baseline population and distribution information. **Objective**

Riparian

1. Over the life of the plan, manage riparian areas to maximize riparian vegetation such as sedges, rushes, willows, cottonwoods, hackberry, boxelder, and green ash. **Objective**

Perennial Stream Fisheries

1. Maintain or enhance adequate stream-side vegetative cover to promote shading, cooler water temperatures and streambank undercutting for trout fisheries. **Objective**

Recreation

1. Acquire easements and develop partnerships with Nebraska Game and Parks Commission and others, to connect the Pine Ridge Trail from Chadron to Crawford. **Objective**
2. As demand dictates, construct or improve trails and trailheads. **Objective**

Special Designations

1. Within 5 years, revise management plans for the Pine Ridge National Recreation Area to emphasize recreation, aesthetics, and educational experiences consistent with the area and other plan direction. **Objective**

Geographic Area Direction – Standards and Guidelines**Grassland Vegetation**

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

2. New structural range improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality and recreation). **Guideline**

3. Emphasize livestock management principles such as, light and heavy grazing intensity techniques (see Appendix I [Suggested Stocking Rates](#)) season of use, number of animals, kind of livestock, and incorporate these principles into the grazing management system to achieve high and low vegetation structure objectives. **Guideline**

Forest Vegetation

1. Management activities should replicate biological processes found in the areas and strive to replicate natural vegetative patterns and patch size. **Guideline**

2. Opening (parkland) Management. The maximum size of openings created by even-aged management will be 40 acres, regardless of forest type, with the following exceptions:

- Where proposals for larger openings are approved by the ~~R~~regional ~~F~~forester after a 60-day public review.
- Where larger openings are the result of natural catastrophic conditions of fire, insect or disease attack, or windstorm.
- Where the area is cut does not meet the definition of created openings. **Standard**

3. The size of the uncut forest areas between openings must be based on the management objectives for the unit being analyzed. If these objectives include creating a mix of vegetation types to benefit the kinds wildlife associated with early successional stages and edges, the uncut units can be small. If the objectives include provisions for late successional associated species, the uncut units should be large enough to function as an ecological system not overly influenced by the edge. **Guideline**

4. When developing openings in vegetative communities, simulate naturally shaped edges.

Guideline

5. Pine encroachment in grass or meadow vegetation may be removed mechanically or using prescribed fire to maintain forage base and landscape diversity. Consider soils that formed under grass or meadow plant communities in determining extent of pine encroachment removal.

Guideline

Snags and Dead Woody Material Management

1. Design vegetative treatments to maintain an average of four hard snags per conifer forested acre. **Standard**

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. All soft snags should be retained unless they are a safety hazard. **Guideline**

6. When necessary to meet the minimum snag standard, create snags from live tree replacements.

Guideline

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

8. Prescriptions shall be developed prior to timber harvest to identify the amount, size(s), and distribution of down logs to be left on-site. 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.**

Forest Type	Hard Snags			Downed Logs	
	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~~Geographic Area

Silviculture and Timber Harvest Utilization

1. In designing timber sales use the following guidelines:

Type of Product	Minimum DBH	Minimum Top Diameter	Length (Feet)	Merchantability Factor
Live Coniferous Trees				
Sawtimber	8"-9"	6"-7"	8'-10'	10.67 (33.3%)
Products Other Than Sawtimber	5"-6"	4"	6.5'-8.3'	Variable
Dead Coniferous Trees				
Sawtimber	7"-12"	6"-10"	8'-16'	10.67 (33.3%)
Products Other Than Sawtimber	5"	4"	Variable	Variable

2. Silvicultural standards and guidelines should be applied at the watershed and landscape level, as well as to individual stands of trees. The standards and guidelines must be applied in such a way as to perpetuate a range of environmental conditions while supplying goods and services to people. **Guideline.**

3. The scientifically defined silvicultural systems, shown by forest cover type, which meet the management objectives for the landscape or individual stands of trees within a landscape setting are acceptable.

- Acceptable Silvicultural Systems

Forest Cover Type	Even-Aged Systems	Uneven-Aged Systems
Ponderosa pine	Shelterwood, Clear-cut and Seed Tree	Group Selection and Single-Tree Selection

- Both even-aged and uneven-aged management systems can be used and applied at scales ranging from a few acres to many hundreds of acres.
- These silvicultural systems are to be applied in a manner that will promote natural regeneration.
- Tree stand vegetation management treatments are to be approved by a certified silviculturist.
- The silvicultural systems identified can be used to convert uneven-aged stands to even-aged management and even-aged stands to uneven-aged management.
- For precommercial and commercial thinning:
 - Use thinning practices that consider genetic diversity and competition among trees for water, nutrients and light. The frequency of thinning should depend upon several factors including: tree species, financial efficiency, site growing conditions, fuels management, ~~focal species~~Management Indicator Species (MIS), and Scenic Integrity Objectives (SIOs) for the area.
 - In general, use stocking charts (~~FSH 2409.17~~) to implement intermediate cuttings in even-aged, suitable timberland stands to effectively meet land management direction and as a guideline for individual stand management. **Guideline**

Infrastructure

1. Allow no net decrease in the average pasture size. **Guideline**
2. Allow no net increase in the number of water developments. **Guideline**

Disturbance Processes

Prescribed Fire:

1. Visual effects of prescribed fire will comply with the approved SIO of the area. **Guideline**
2. When feasible and appropriate use burning to dispose of slash in order to return the inorganic and organic chemicals in the foliage and small woody material to the soil, to reduce fire hazard, and to provide seed beds for natural regeneration. Following burning promote revegetation of prescribed burned areas. Apply seed to initiate revegetation if ground cover is 60 percent or less and slopes are 30 percent or more. **Guideline.**
3. If piled and burned fuel creates ash piles deeper than three inches, scatter the ash, scarify and mix it with mineral soil, or bury it. **Guideline**
4. Defer prescribed burned areas from livestock grazing for a portion or all of the following growing season to ensure regrowth of forage species. **Guideline**

Prescribed Fire, cont.

5. Prescribed burn plans will identify acceptable levels of tree mortality for seedling, saplings, poles, and sawtimber. Burning prescriptions will be established to meet these levels. In planning prescribed burns, consider how the potential loss of trees is offset by the beneficial effects of fire, for example, overall stand health, wildlife benefits and fuel reduction. **Guideline**

Wildlife, Fish, and Rare Plants**Management Indicator Species**~~Focal Species~~:**Pygmy Nuthatch**

- Provide quality nesting and foraging habitat for this ~~management indicator species~~focal species and other species with similar habitat preferences by meeting the short-term (10 to 15 years) objective of 10% of the ponderosa pine woodlands in structural stages 4 and 5, with emphasis on structural stages 4a (mature open) and 5 (old growth/late successional). **Guideline**
- Within the associated watershed, for each vegetation management project, retain or create at least 4 hard snags at least 25 feet in height and greater than 10--inch diameter at breast height (DBH) per acre. This is an average minimum snag density across the project area. Collectively, 25% of the snags should be greater than 19--inch DBH. If the 25 foot or 19--inch DBH minimum criteria cannot be met, provide the largest and tallest snags available. **Standard**
- Snags can be clustered or individual, but must be well distributed within the watershed. **Guideline**
- During vegetation management activities in ponderosa pine, retain a sufficient number of green trees greater than 19--inch DBH or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre with the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual. If this guideline cannot be met, leave the largest retention trees available. **Guideline**

Plains Sharp-tailed Grouse

A range of 10 to 20% of the acres is prescribed for high structure grasslands in this ~~geographic area~~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,
 - Proximity to sharp-tailed grouse display grounds,
 - Proximity to shrub habitats, private croplands and other sharp-tailed grouse foraging habitats. **Guideline**
- Establish and maintain quality foraging habitat for sharp-tailed grouse and associated wildlife 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**

~~2.1.~~ Where deer and/or elk management is emphasized, livestock grazing, timber harvests, and road use activities shall be scheduled or limited to avoid disturbing elk and deer during the critical calving/fawning season and winter months. **Guideline**

~~3.2.~~ When desired, provide security (hiding and thermal) cover capable of hiding 90% of a standing adult elk or deer from human view at a distance of 200 ft. Hiding cover stand size should range from 6.5 to 26 acres. Thermal cover for deer should include saplings or shrubs (evergreen/deciduous for summer and evergreen only for winter) at 5 feet tall and 75% crown closure. Optimum stand size is 2 to 5 acres with a minimum width of 300 feet. Summer thermal cover for elk should contain coniferous and/or deciduous trees 20 – 40 feet in height and >70% canopy closure, and a distance to lowest limb of 5 feet or greater. Optimum stand size is between 30 and 60 acres. **Guideline**

~~4.3.~~ Elk calving areas contain forage and security areas. Newborn hiding cover should contain shrubs, downed logs and other large ground concealments at least 28" in height within 0.5 mile of water. Slash should be windrowed or piled. Lop and scatter should be discouraged. Slash depths of 18 inches impede elk movements so a variety of concealments should be available. Deer fawning habitat should include low shrubs and trees between 2 to 6 feet in height and tree canopy closure at about 50%. Optimum stand size is between 1 and 5 acres. **Guideline**

~~5.4.~~ Water is most critical during spring and summer for lactating elk and deer. Water shall be located within 0.25 to 0.5 miles from spring and summer use areas. **Guideline**

~~6.5.~~ Defer livestock grazing and/or timber harvest operations until after July 1 - 15 or rest pastures annually from grazing in identified calving/fawning and wintering areas. **Guideline**

~~7.6.~~ Implement habitat improvement projects, such as prescribed burning, and timber harvest operations, to attract elk and deer during times of the year when depredation activities occur on private land. **Guideline**

~~8.7.~~ Limit travel activities between May 15 – July 15 when elk calving habitat management is emphasized. Do not exceed an overall road density of .5 mile/sq. mile on areas emphasized for elk calving habitat. **Guideline**

~~9.8.~~ Where wild turkey management is emphasized in ponderosa pine areas, timber harvests and livestock grazing activities shall follow these guidelines:

- Provide mature timber (>9" dbh with a basal area >100 sq ft/acre) on at least 15 percent of the forested area and 15% of forested area with a basal area >120 sq ft/acre. **Guideline**
- To enhance wild turkey nesting habitat, leave and scatter logging slash. Do not pile slash; leave large culls (>9") in place with branches intact. **Guideline**
- Where wild turkey brood cover is desired, maintain a vegetative height of at least 8 inches and 70% ground cover of herbaceous vegetation or a comparable visual obstruction readings (VOR) along forest edge openings and along riparian areas. Brood cover should be maintained through at least July 15. **Guideline**
- To enhance wild turkey roosting habitat, retain at least 2-6 roost sites per square mile. All trees within roost sites should be protected regardless of their size. Roost sites with basal areas >80 sq ft/acre that include at least 5 mature trees (>9" dbh) are preferred and these sites shall encompass ¼ acre or more. **Guideline**

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~~Wildlife, Fish, and Rare Plants, #9, cont.~~

- Avoid timber harvest operations and prescribed burning activities during nesting season between April 15 and ~~mid-June~~June 15. **Guideline**
- Riparian areas shall be deferred from grazing until July 1 to prevent excessive removal of herbaceous vegetation used as brood habitat. **Guideline**
- Leave dense stands (>100 sq. feet/acre basal area) of woody escape cover within 100 yards of brood habitat openings. **Guideline**

~~10.9.~~ Enhance perennial stream fisheries (trout) in suitable streams on ~~National Forest~~ **NFS** Lands on the Pine Ridge. Establish gravel-based spawning beds at desired stream locations. Gravel beds should be a minimum of 20' long and 6" deep and use ½"-1 ½" coarse gravel. **Guideline**

~~11.10.~~ Construct instream structures (log deflectors, wedge dams, log covers, etc.) at desired stream locations to improve fisheries habitat. **Guideline**

~~12.11.~~ Conduct sampling to establish an aquatic macro-invertebrate population baseline for perennial and/or selected streams. **Guideline**

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CHAPTER 3

MANAGEMENT AREA DIRECTION



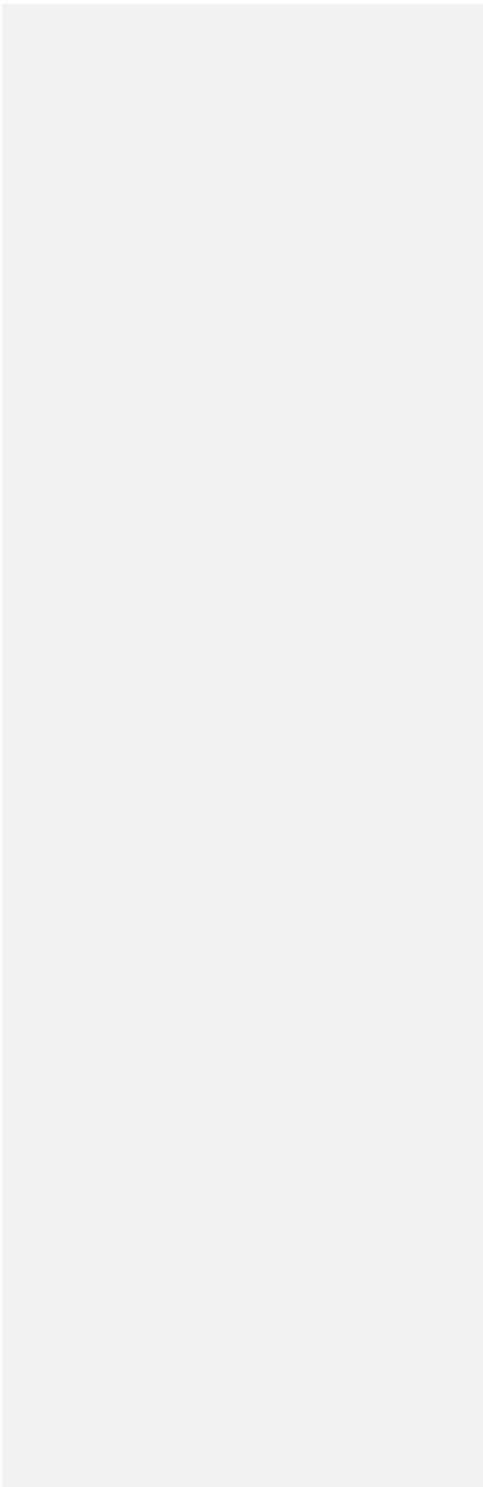


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CHAPTER 3: MANAGEMENT AREA DIRECTION
(INCLUDES AMENDMENT 2)

INTRODUCTION

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

Prescriptions have been broken into eight major categories based on the amount of human-made facilities and land use restrictions. For example, ~~Proposed-Recommended for~~ 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 area~~Management Areas were combined into other ~~management area~~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 area~~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~~predominantly 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~~have 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 that 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 that 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 (NFS) 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.

1.1 WILDERNESS: SOLDIER CREEK

Theme

Wildernesses are managed to protect and perpetuate their natural conditions, while providing opportunities for solitude and self-reliance.

Desired Conditions

The area is managed to perpetuate natural conditions, including native plant and animal species and communities. Desired vegetation composition and structure are controlled primarily by natural processes, such as fire, insects and disease. Livestock grazing strategies and intensities are managed to achieve or maintain native plant and animal species and communities.

Prescribed fire is used to reduce fire risk within the Wilderness and to adjoining lands and to meet desired vegetation composition and structure.

The area provides moderate opportunities for solitude in an environment that offers a low to moderate level of challenge and risk. Evidence of present human activity is limited to that necessary to protect Wilderness resources, to continue grazing, or is a result of a prior existing rights. Evidence of past human activity is considered integral to maintenance of the Wilderness resource. Travel is primarily along a well-defined trail system, although some cross-country opportunities exist.

Both directional and resource protection signs may be present. Bridges or other structures may be present if needed for resource protection or where no safe opportunity exists to cross a stream during periods of normal water flow.

Standards and Guidelines

General

1. Limit motorized use to administrative purposes (e.g., grazing administration, noxious weed control, and fire suppression). **Standard**

Fire

1. Until a comprehensive program for managing the Wilderness is established, suppress all wildfires using the appropriate suppression action. **Standard**

2. Prohibit use of heavy ground-disturbing equipment for fire suppression unless authorized by the regional forester. The Forest Supervisor may authorize use of other mechanical equipment, such as chain saws or motorized vehicles. **Standard**

Livestock Grazing

1. See Forest Service Manual 2323.22 for direction on livestock grazing activities. **Standard**

Invasive Plant Species

1. Control noxious and invasive plant species with mechanical, chemical or biological control means. Recreational or permitted livestock must use certified noxious weed seed free forage. **Standard**

Recreation

1. Limit maximum party size in Wilderness to 25 heartbeats (any combination of people and recreational stock), except as permitted. Smaller party-size limits for people and stock will be established where biological and physical resource capability cannot support that level of use. **Standard.**
2. Prohibit recreational livestock within 100 feet of streambanks except for watering and through travel. **Standard.**
3. Initiate a permit system and limit use when the established capacity level is exceeded. **Guideline**
4. Reduce the incidence of contact with other groups or individuals by applying the following guidelines:
 - Not more than 2 other parties encountered during cross-country travel or 4 other parties encountered on a Forest development trail per day on 80% of the days during the summer and fall use seasons.
 - No more than one other party within sight or sound of campsites on 80% of the days during the summer and fall use seasons. **Guideline**
5. Manage according to the Recreation Opportunity Spectrum class of semi-primitive nonmotorized. **Guideline**

Scenery Management

1. Manage according to the Scenic Integrity Objective of Very High. **Guideline**

Special Uses

1. Restrict outfitter/guide permits to day-use only. **Standard**

Infrastructure

1. Allow permanent electric fences. **Standard**
2. New fences shall be placed to promote visual integrity and overall cost efficiency in construction and long-term maintenance. **Guideline**
3. As fences are reconstructed, allow only wood fence posts in the Wilderness. **Guideline**

1.2 RECOMMENDED FOR WILDERNESS

Theme

These are areas that the Forest Service will recommend to Congress for inclusion in the Wilderness System. These areas are managed to protect Wilderness characteristics until Congressional action is taken. Non-conforming activities may be limited or restricted.

Desired Conditions

These areas are managed to protect Wwilderness characteristics. Natural processes, such as fire, insects, disease, rest, and grazing control vegetation composition and structure. Large pasture size and unobtrusive structural developments promote an open, natural-appearing landscape. Generally, opportunities for primitive recreation are provided, with a moderate degree of solitude available.

There is some evidence of past and present human use, such as fences, trails, water developments and primitive roads. Existing two-track roads and old roads may be evident but through nonuse should diminish. Some of these may become designated trails. Bridges or other structures may exist to protect resources or provide safe stream crossings during normal water flow.

Use of mechanized equipment for administrative purposes will continue. Opportunities to remove or relocate structural range improvements (fences and water developments), to achieve resource management goals and objectives, will be pursued. Both directional and resource protection signs may be present.

Standards and Guidelines

General

- 1. Allow uses and activities only if they do not degrade Wwilderness characteristics. **Standard**
- 2. Reclaim disturbed lands to meet Wwilderness characteristics. **Standard**
- 3. Limit all motorized use, including snowmobiles, to authorized administrative purposes, law enforcement, emergency and search and rescue. **Standard**
- 4. Control natural insect and disease outbreaks only when they threaten resource values outside of the Recommended for Wwilderness boundary. **Guideline**
- 5. Do not allow new road construction or reconstruction. **Standard**

Mineral and Energy Resources

- 1. Prohibit mineral material removal. **Standard.**
- 2. Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**

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Fire

1. Prohibit use of heavy ground-disturbing equipment for fire suppression unless authorized by the ~~F~~Forest ~~S~~Supervisor. **Standard**
2. Minimum Impact Suppression Tactics, MIST, (see Appendix G eGlossary) will be used to control fire within ~~W~~wilderness. **Standard**
3. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section G, ~~for F~~Fire ~~S~~suppression, Fuels Treatments, Prescribed Fire-direction.

Livestock Grazing

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section I, ~~(Livestock Grazing)~~; and Chapter 2, Geographic Area ~~Descriptions~~Direction.

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Goal 1.c

Recreation

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

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources~~-direction~~.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of High (see Appendix G Glossary-). **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**
2. Prohibit new special-use facilities. **Guideline**

Infrastructure

1. Allow construction of facilities and structures that are subordinate to the landscape or in keeping with the semi-primitive/primitive character of the area. **Standard**
2. Utilize natural materials in the construction or reconstruction of livestock facilities. **Standard**
3. For additional information refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section Q, Infrastructure; and Chapter 2, Geographic Area Direction.

1.31 NONMOTORIZED BACKCOUNTRY RECREATION

Theme

~~Backcountry, nonmotorized~~ **Nonmotorized Backcountry R**ecreation 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 administrative, law enforcement, search and rescue, fire suppression, and emergency purposes. **Standard**
4. Prohibit new road construction or reconstruction. **Standard**

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, no ground-disturbing oil and gas activities are permitted.

Standard

3. Prohibit mineral material removal. **Standard**
4. Honor all valid existing Oil and Gas leases. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, 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 and Forest-wide Direction, Section G, for Fire Suppression, Fuels Treatments, Prescribed Fire ~~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 enhance wildlife habitat diversity. **Guideline**

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Livestock Grazing

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

Invasive Plant Species

1. Refer to Chapter 1, Grassland-wide and Forest-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**

Heritage Resource

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

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources ~~direction~~.

Scenery Management

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

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 and Forest-wide

Direction, Section Q Infrastructure and Chapter 2, Geographic Area Direction.

1.31A BACKCOUNTRY RECREATION NONMOTORIZED: PINE RIDGE NATIONAL RECREATION AREA

Theme

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

Desired Conditions

A variety of uncrowded, year-around, 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 livestock grazing, such as fences and water tanks, is limited (no net gain). Large pasture size and less intrusive developments promote an open, natural-appearing landscape.

Vegetative composition and structure are controlled by natural processes, such as fire, insects, diseases, and grazing. Vegetation is moving toward the range of natural variability.

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. Reclaim disturbed lands to a condition suitable for the purposes for which the area was identified. **Standard**
3. Limit motorized use to administrative purposes (e.g., fire suppression, grazing administration, noxious weed control). **Standard**

Mineral and Energy Resources

1. Prohibit road construction for geophysical seismic projects. If access is not feasible by off-road travel, use of portable techniques is required. **Standard**
2. Allow oil and gas leasing; however, no ground-disturbing oil and gas activities are permitted. **Standard**
3. Prohibit mineral material removal. **Standard**

Fire

1. Prohibit use of heavy ground-disturbing equipment for fire suppression unless authorized by the district ranger. **Standard**
2. Use control as the wildland fire management strategy. **Guideline**

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 unique plant species and community types.
 - To enhance wildlife habitat diversity. **Guideline**

Livestock Grazing

1. Allow livestock facilities that do not detract from the semi-primitive character of the area. **Standard**

Invasive Plant Species

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

Recreation

1. Limit recreation development to trails, sanitation, horse holding and handling facilities, directional and resource signing, and primitive shelters. **Guideline**

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources ~~direction~~.

Scenery Management

1. Manage according to the Scenic Integrity Objective of High. **Guideline**

Infrastructure

1. Prohibit construction of facilities and structures that are not subordinate to the landscape. **Guideline**
2. Allow no net gain of fences and water developments. **Standard**

Special Uses

1. Prohibit new utility corridors. **Standard**
2. Prohibit new special-use facilities. **Guideline**

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. Unless allowed in the specific direction for the individual ~~Special Interest Area~~SIA, no ground-disturbing activities are permitted. However, existing valid rights will be honored. Refer to Chapter 1, Grassland-wide and Forest-wide Directions, Section D, Oil and Gas. **Standard**
3. Prohibit mineral material removal. **Standard**
4. Refer to the Preface and Chapter 2, Geographic Area Direction.

Fire

1. Refer to Grassland-wide and Forest-wide Direction, Section G, ~~for Fire~~ Suppression, Fuels Treatments, Prescribed Fire~~direction~~.

Livestock Grazing

1. Reference Chapter 1, Grassland-wide and Forest-wide Direction, ~~Section I~~, Livestock Grazing; and Chapter 2, Geographic Area ~~Descriptions~~Direction.

Invasive Plant Species

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

Recreation

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

Heritage Resources

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resource direction.

Scenery Management

1. Manage to meet a Scenic Integrity Objective of High. **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 and Forest-wide Direction, Section D, ~~Oil~~ and Gas Minerals and Energy Resources, and Appendix G Glossary). **Standard**
2. Prohibit new special-use facilities except for valid existing rights (Refer to Preface, Chapter 1, Grassland-wide and Forest-wide Direction, Section D, Minerals and Energy Resources and ~~-~~ Appendix G Glossary). **Guideline**

Infrastructure

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

SIA Descriptions

Note: The following SIAs are numbered from 2.1a to 2.1f and from 2.1h to 2.1m. SIA 2.1g Indian Creek appeared in the Draft plan. In the Final plan, that acreage is now under Management Area 1.2 Recommended for Wilderness.

Bessey Unit (including the Samuel R. McKelvie National Forest)

2.1 a - Bessey/McKelvie Tree Plantations SIA: The 21,710 acres of these accumulated sites are spread out between the Bessey unit and Samuel -R. McKelvie unit, both of which are located in the Sandhills of Nebraska. These areas contain tree plantations of ponderosa pine, jack pine and ~~e~~Eastern red cedar. These plantations were planted between about 1909 and 1945. Some of these stands were planted by Civilian Conservation Corps crews during the Great Depression as "demonstration projects" for area residents. These plantations create the largest hand-planted forests in the United States. Management emphasis is on recreation, scenery, and wildlife.

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Additional Direction:

- Allow the use of prescribed fire to accomplish resource objectives such as reducing fuel load buildup, wildlife habitat improvement, preparing seedbeds for natural and/or artificial regeneration and reduction of insect and disease problems. **Standard**
- Silvicultural prescriptions for tree-stand improvement, including thinning and harvest will recognize and evaluate the trade-offs associated with recreation, scenery and wildlife needs and alternative treatments to maintain forest health. The emphasis will be to maintain or improve forest health and structural diversity of the stands. Ponderosa pine is the preferred species. Apply a variety of silvicultural systems and harvest methods that best meet resource management objectives. Optimum economic efficiency and growth of individual stands for timber production is not an objective. There are no scheduled harvest quantities. **Guideline**

2.1b - Mallard Exclosure SIA: This 680-acre exclosure site features a sandhills wetland complex with green ash, cottonwood, and several willow species. Management emphasis is on protecting the unique botanical community.

Buffalo Gap National Grassland (Fall River Ranger District)

2.1c - Edgemont Shark Locality SIA: This 940-acre site features a former picnic area that is continually impacted by fossil collectors. An enormous number of shark and fish teeth, as well as ammonites, are found at the site. The earliest known records of plesiosaurs and mosasaurs in North America have been found at the site. The geologic rock unit exposed in the area is identified as Late Cretaceous Carlile Shale. Management emphasis is on interpretation, education and research of geology and paleontology.

Additional Direction:

- Only allow collection of ~~the~~ paleontological resources through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency responsibilities. **Standard**
- Require monitoring by a professional paleontologist during all soil disturbances. **Standard**
- Allow oil and gas leasing with surface use limitations that will preserve the special values of the area. **Standard**

2.1 d - Marietta South SLA: This 260-acre geologic site features the Belle Fourche, Greenhorn Limestone and Mowry Shale units of the Late Cretaceous Marine Sequence. This site has produced a wide variety of vertebrates, including plesiosaurs and pterosaurs, both rare in the fossil record. Other fossils located at this site include fishes, sharks, turtles and invertebrates, like ammonites and clams. Management emphasis is on interpretation, research and education of geology and paleontology.

Additional Direction:

- Only allow collection of ~~the~~ paleontological resources through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency responsibilities. **Standard**
- Require monitoring by a professional paleontologist during all soil disturbances. **Standard**
- Allow oil and gas leasing with surface use limitations that will preserve the special values of the area. **Standard**

2.1 e - One-Mile Hill SLA: This 630-acre site features Late Cretaceous Belle Fourche Shale and Greenhorn Limestone. The site contains a wide variety of fossils, including fish, turtles, sharks, ammonites and clams. It is fairly scenic, with a good deal of big sage and highly erosive soils and exposed shales clearly visible. Management emphasis is on interpretation, research and education of geology and paleontology.

Additional Direction:

- Only allow collection of ~~the~~ paleontological resources through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency responsibilities. **Standard**
- Require monitoring by a professional paleontologist during all soil disturbances. **Standard**
- Allow oil and gas leasing with surface use limitations that will preserve the special values of the area. **Standard**

2.1 f - Wallace Ranch Localities SLA: This 420-acre paleontological site is representative of the Late Cretaceous Pierre Shale marine unit, and has produced such fossils as fish, sharks, pterosaurs, mosasaurs, turtles, baculites and ammonites. A shark specimen found on the site is scientifically significant because ~~it~~ displays preserved cranial elements that in life were of cartilage material, not bone. Management emphasis is on interpretation, research and education of geology and paleontology.

Additional Direction:

- Only allow collection of ~~the~~ paleontological resources through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency responsibilities. **Standard**
- Require monitoring by a professional paleontologist during all soil disturbances. **Standard**
- Allow oil and gas leasing with surface use limitations that will preserve the special values of the area. **Standard**

Pine Ridge Unit (including the Oglala National Grassland)

2.1 h - *Bur Oak Enclosure SIA*: This three-acre site contains a large stand of bur oak that is thought to be native to the area. It is the only known population of bur oak on the Pine Ridge unit. Management emphasis is on protecting the unique botanical community.

Additional Direction:

- This area is unsuitable for livestock grazing. **Standard**
- Limit motorized travel to authorized use. **Standard**

2.1 i - *Hudson Meng Bison Bonebed SIA*: This 40-acre site located on the Oglala National Grassland contains 600 to 1,000 skeletons of an extinct, prehistoric bison species. The skeletons are approximately 10,000 years old. The site is undergoing intense scientific study, and a modern, interpretive visitor center has been built alongside a climate-controlled bonebed enclosure. Thousands of visitors visit the site each year. Management emphasis is on archeology interpretation, research, and visitor satisfaction.

Additional Direction:

- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**
- This area is unsuitable for livestock grazing. **Standard**
- Limit motorized travel to authorized use. **Standard**

2.1 j - *Mountain Mahogany Stand SIA*: This 90-acre site features a mature stand of mountain mahogany, which extends onto adjacent private land. The stand is thought to have become more ~~dominated~~dominant after a fire in the 1950s reduced competition from ponderosa pine. Management emphasis is on protecting the unique botanical community, and on regeneration and maintenance of species by reducing canopy cover through various treatment methods, such as understory cutting and prescribed burning of ponderosa pine.

2.1 k - *Quaking Aspen Stand SIA*: This 8-acre site, located on the Oglala National Grassland, features a stand of quaking aspen and three beaver ponds. The site provides for the only known quaking aspen on the national grassland. Smaller aspen stands are found along the Pine Ridge of the Nebraska National Forest. Management emphasis is on protecting the unique botanical community, providing a recreational fishery, and natural resource interpretive site.

~~2.1~~ Additional Direction:

- Limit motorized travel to authorized use. **Standard**

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2.11 - Toadstool Park SIA: This 2,000-acre site, located on the Oglala National Grassland, features badlands terrain of the Tertiary White River Group. The site contains the longest recorded fossil mammal trackway in the world from the Oligocene Epoch. The site has produced mammalian fossils representing the rise of modern mammalian families in North America and contains the geologic type sections of the geologic units from the Eocene and Oligocene epochs. A developed campground and replica sod house are located nearby. Fossil theft and destruction of the trackway by vandals are considerable concerns. Management emphasis is on interpretation, research and education of geology and paleontology. Recreation facilities will enhance public interpretation and visitor satisfaction; and complement the scenic beauty.

Additional Direction:

- Only allow collection of ~~the~~ paleontological resources through a permit for the purposes of research, mitigation, protection of important specimens, and other official agency responsibilities. **Standard**
- Allow oil and gas leasing; however, prohibit ground-disturbing oil and gas activities. **Standard**
- This area is unsuitable for livestock grazing, with the exception of Pasture 33D. **Standard**
- Limit motorized travel to authorized use. **Standard**
- Allow no new road construction. **Standard**

2.1m - Warbonnet/Yellowhand SIA: This 30-acre site features the location of a skirmish between the Fifth Cavalry led by Wesley Merritt and a band of Cheyenne Indians led by Chief Yellowhand. The band was attempting to escape forced confinement at Fort Robinson on July 17, 1876. During this skirmish, Buffalo Bill Cody is reputed to have killed Chief Yellowhand, the only casualty from the battle. Management emphasis is on historical interpretation and visitor satisfaction.

Additional Direction:

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

2.2 RESEARCH NATURAL AREAS

Theme

Research Natural Areas (RNA) 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 Research Natural Area 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 Research Natural Area was established or to reestablish natural ecological processes, such as fire, rest 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. Close or obliterate existing roads, except where they provide necessary access for administrative or scientific purposes, or valid private access, as funding allows. **Guideline**
4. Allow uses that maintain or improve the ecological characteristics for which the RNA was designated. **Standard**
5. 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, no ground-disturbing activities are permitted. **Standard**
3. Prohibit mineral material removal. **Standard**

Fire

1. Refer to Grassland-wide direction, Section G, ~~for Fire~~ Suppression, Fuels Treatment, Prescribed Fire.

~~direction.~~

Livestock Grazing

1. Do not increase animal unit months (AUMs) or developments unless determined necessary in the ~~Research Natural Area~~RNA management plan. Grazing suitability and desired vegetative conditions will be determined by the ~~Research Natural Area~~RNA management plan. **Standard**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area ~~descriptions~~Direction.

Invasive Plant Species

- ~~1.~~ Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Goal 1.c and Section J, Non-native and Invasive Species, Noxious Weeds and Insect Management.~~Invasive Plant Species~~

1. Recreation

1. Restrict recreational use if it hinders achievement of the desired condition for the ~~Research Natural Area~~RNA. **Standard**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section K, Recreation.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources~~direction~~.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of High (see Appendix G Glossary). **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 and Forest-wide Direction, Section Q, Infrastructure Use and Management; and Chapter 2, Geographic Area Direction.

Research Natural Area Descriptions

Samuel R. McKelvie National Forest

Steer Creek RNA: The 2,500-acre Steer Creek area is located approximately 13 miles northeast of the Niobrara Ranger Station on the Samuel R. McKelvie National Forest. The site is within ~~in~~ the Sandhills ecosystem of central Nebraska. The area is represented by dune prairies, dry valleys and wetland communities. Elevation ranges from 2,863 to 2,993 feet above sea level.

The dunes are formed from eolian material. Established hummocks typically give way to sparsely vegetated and shifting depressions of unstable sandy soils, commonly called blow-outs. These blow-outs serve as colonization sites for many specially adapted plant species. Between the sandy dunes lie broad valleys dominated by short grasses and sedges. Blow-outs may occur

Management Area Direction

in these valleys, too. Wetland communities in the area exhibit diverse species associated with wet meadows, freshwater marshes, and aquatic associations of submerged pondweed.

An attractive feature of Steer Creek is that surrounding lands are completely managed by the U.S. Forest Service, which reduces the possibility of conflicts with adjacent landowners. The area is not, however, in pristine condition. Two-track roads do enter the area. In addition, during the grazing period, large reductions in plant leaves and shoots are observed, as well as trampling of creek banks and substantial presence of manure in waterways. Substantial recovery of riparian areas has been observed after the grazing period. Less observable negative and positive effects from grazing likely occur in the area.

Bessey Unit, Nebraska National Forest

Signal Hill: The 700-acre Signal Hill RNA is located about 12 miles south and west of Halsey, Nebraska, in section 3 and 4, T. 21N., R. 27W. and was established in May of 1950. This tract represents vegetative community types of the Nebraska Sandhills, which consists of about 20,000 square miles, making up about one quarter of Nebraska's land area. The terrain is that of choppy hills or sand dunes now supporting a good vegetative cover. The soil is practically pure silica, and contains less than 1 percent of organic matter. The dunes in the vicinity of the RNA are described by geologists as being the youngest of the hills and still are affected by the wind, although it is generally agreed that they have become a good deal more stable. Elevation varies from 2,820 to 2,900 feet. There are no lakes or streams on the area, being an intermingled composition of dunes and small valleys without drainage. The rainfall varies from 15 inches to 26 inches per annum. The rainfall is well distributed throughout the season, although heavier in May, June and July. September, October and November are regarded as the "dry months." The mean annual temperature is 49 degrees Fahrenheit. The mean annual humidity averages about 67 percent.

Sandhill lovegrass is characteristic of the north slopes and in some swales. Sandhill bluestem is a common pioneer in blowouts and on steep south slopes. Sand reedgrass is abundant over a wide range. Other community types include Indian grass, switchgrass, sandhill muhly, needle-and-thread and sedge. Important mixed grass species include western wheatgrass, blue grama, hairy grama, green needlegrass, and red three-awn.

Additional Direction:

- This area is unsuitable for livestock grazing. Grazing suitability, stocking rates, and grazing management systems may be amended by the ~~Research Natural Area~~ RNA management plan. **Standard**

Buffalo Gap National Grassland (Fall River Ranger District)

South Pasture (777 Allotment): The 1,570-acre South Pasture is located about 18 miles west of Fairburn, South Dakota. It is situated in the Tertiary Table Lands and the Pierre Hills Divisions of the Great Plains. The area is characterized by nearly level to rolling hills to very steep badlands formations and gently sloping alluvial fans. Drainages flow into French Creek, which drains into the Cheyenne River. Elevation ranges from 2,950 to 3,250 feet above sea level.

South Pasture contains a wide variety of habitats. In the badlands portions, natural erosion has sculpted mounds, pinnacles, escarpments, overflows and steep drainage banks. Dominant vegetation includes western wheatgrass and needle-and-thread. Nonvegetated badlands outcrops also occur, as do juniper breaks, shrub patches and about one-quarter-mile of deciduous riparian woodland along French Creek. Plant and animal health and diversity are considered quite high,

although some exotic grass species, including smooth and Japanese brome, cheatgrass, and Kentucky bluegrass, can be found in isolated patches.

Current use includes holistic grazing management with a herd of more than 1,000 bison. This herd remains in the area for between six and eleven days per year. This grazing system is an attempt to mimic historic, natural grazing patterns of bison on short- and mixed-grass prairies. Some hunting and hiking also occur in the area.

Buffalo Gap National Grassland (Wall Ranger District)

West Wall RNA: The 1,040-acre area is located about nine miles southwest of Wall, South Dakota. The Cheyenne River drains most of the area. The area is situated in the Tertiary Table Lands and the Pierre Hills Divisions of the Great Plains. Topography varies considerably, from gently rolling uplands to rugged valleys and ravines to the flat Sage Creek floodplain and its terraces. Elevation ranges from 2,456 to 2,963 feet above sea level.

The West Wall area is divided into three pastures containing a wide variety of plant communities. Mixed-grass prairie species dominate, including thick stands of sod-forming grasses and taller native bunch grasses. Woody vegetation is limited to more mesic sites, including the largest area of juniper break habitat on the Buffalo Gap National Grassland. Woody vegetation is common in flat lowlands surrounding Sage Creek and in shallow depressions.

Impacts from past and present livestock grazing are evident. Currently, the stocking level of livestock in the area is considered moderate. Plant community health ranges from fair to good. Some encroachment by exotic grasses can be observed. Hiking and hunting do occur.

Fort Pierre National Grassland

Mallard South RNA: The 1030-acre Mallard South area is located approximately 19 miles south-southeast of Pierre, South Dakota. The landscape is characterized by level to rolling grasslands rising from unglaciated, Cretaceous-aged clay soils, dissected by entrenched intermittent streams. The southern branch of Cedar Creek, an intermittent tributary of the Missouri River, drains the area. Elevation ranges from 1,800 to 2,020 feet above sea level.

Three general types of vegetation dominate the site: mixed-grass prairie hillsides with such grasses as big and little bluestem and porcupine grass, uplands and footslopes of western wheatgrass, and riparian zones supporting a mosaic of grassland, shrub thickets, temporary wetland habitat, and a stringer of widely scattered deciduous trees. Unlike the surrounding landscape, Mallard South contains a relatively diverse, well-vegetated riparian zone. The abundance and vitality of plum, chokecherry and buffaloberry thickets in the area is also a rare feature within the Fort Pierre National Grassland. At least four Forest Service sensitive species occur in the area: regal fritillary butterflies, Northern leopard frogs, greater prairie chickens and upland sandpipers.

The relatively good condition of the riparian zones and high condition of several grassland types suggest that livestock stocking rates have not been excessive in the past few decades. Two exotic plant species, if not actively managed, may pose serious impacts: yellow sweet clover and smooth brome. A lack of natural firebreaks may impede using prescribed fire as an effective management tool.

3.51 BIGHORN SHEEP HABITAT

Theme

These areas are managed to provide adequate amounts of quality forage, cover, escape terrain, and solitude for bighorn sheep and other species.

Desired Conditions

Habitats capable of supporting bighorn sheep are managed to provide an abundant supply of food and cover. Other resource management activities are modified as needed to maintain high habitat suitability levels and desired levels of solitude. To achieve population objectives, the integrity of lambing, breeding and other important habitat features (e.g. escape cover) in occupied and unoccupied habitat will be protected.

Coordinate with other federal and state agencies and private landowners to manage habitat and monitor herd size of existing bands of bighorn sheep. In conjunction with other state game and fish agencies, consider augmenting existing populations with additional sheep introductions.

Consider increasing existing bighorn sheep populations on ~~National Forest System~~NFS land and other public lands. The integrity of bighorn sheep habitat will be maintained on potential habitats that are currently unoccupied. Activities on these habitats will be limited to those that do not compromise their suitability for future habitation by bighorn sheep. These areas are high priority for introducing bighorn sheep, as necessary, to maintain meta-populations and genetic diversity.

Standards and Guidelines

General

1. Resolve conflicts that cannot be mitigated in favor of maintaining bighorn sheep habitat.

Guideline

2. As funding allows, implement habitat enhancement projects that improve sheep foraging habitat and provide connectivity of foraging areas to escape cover. **Guideline**

Minerals and Energy Resources

1. Allow oil and gas leasing; however, no ground-disturbing activities are permitted. **Standard**
2. As funding allows, identify and implement surface and minerals estate land exchanges that contribute to bighorn sheep management objectives. **Guideline**

Fire

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section G, ~~for~~Fire Suppression, Fuels Treatments, Prescribed Fire~~direction~~.

Livestock Grazing

1. Do not convert existing livestock allotments to domestic sheep allotments in or adjoining this ~~management area~~Management Area. **Standard**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area ~~Descriptions~~Direction.

Invasive Plant Species

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

Recreation

1. Limit recreational activity if it ~~would disturb~~disturbs bighorn sheep breeding and lambing. **Guideline**
2. Restrict motorized travel, as needed, to protect sheep concentrations during lambing, breeding, and winter use, except as authorized and permitted. **Guideline**
3. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section K, Recreation and Section Q, Infrastructure Use and Management.

Heritage Resources

1. Refer to Chapter 1, Grassland-wide Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources direction.

Scenery Management

1. Manage area to encompass the spectrum of Scenic Integrity Objectives. **Guideline** (see Appendix G Glossary and Scenic Integrity Objective maps located in Chapter 2)

Special Uses

1. Allow construction of new utility corridors only if they do not degrade the big horn sheep habitat characteristics for which the area was designated. **Standard**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section P, Special Uses

Infrastructure

1. Prohibit new road construction across bighorn sheep habitat, however, honor valid existing rights such as oil and gas leases. **Guideline**
2. For additional information refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section Q, Infrastructure Use and Management; and Chapter 2, Geographic Area Direction.

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 in the Conata Basin reintroduction area that do not reduce habitat below the level needed to support a long-term sustainable black-footed ferret population. Until habitat is available to support a long-term sustainable black-footed ferret population in the Smithwick reintroduction habitat, do not authorize uses and activities that would prevent annual increases in the prairie dog population. When ferrets are eventually released by the U.S. Fish and Wildlife Service, follow the same direction for the Conata Basin area described in the first sentence. ~~(Amendment 2).~~ **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 (Amendment 2).~~

Mineral and Energy Resources

- 1. Oil and gas stipulations for black-footed ferrets (see Appendix D Oil and Gas Stipulations) apply to all prairie dog colonies within this ~~management area~~ 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**

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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. (Amendment 2)~~ **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 ~~f~~ederal wildlife agencies. **Standard**

Recreation

- 1. To help expand and maintain suitable and secure black-footed ferret habitat in the Conata Basin reintroduction area, prohibit recreational prairie dog shooting. However, regulated shooting may be allowed in selected areas along property boundaries to help reduce unwanted colonization of adjoining agricultural lands. Apply this same direction to the Smithwick reintroduction habitat once progress has been made in initiating a cooperative black-footed ferret recovery plan for the area. Coordination with the state wildlife agency will occur prior to any Forest Service actions regarding prairie dog shooting closures. **Standard** ~~(Amendment 2)~~

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3.64 SPECIAL PLANT AND WILDLIFE HABITAT

Theme

These areas are managed to maintain and enhance specific plant and wildlife species at risk and plant and wildlife communities. Habitat enhancement through improved management and close coordination with other resource uses is encouraged.

Desired Conditions

Suitable habitat will be maintained or enhanced for specific plant and wildlife species, guilds, and communities (reference Geographic Area direction for specific desired conditions for individual areas). Riparian areas (streams, seeps, springs, fens) are managed so they maintain their hydrologic regimes. Hardwood draws and woodlands are characterized by broadleaf deciduous trees. Prairie landscapes will have a diversity of warm season and cool season grasses and forbs. Plant communities of high species diversity will act as a seed source for other areas within the landscape where diversity may be reduced.

Standards and Guidelines

General

- 1. Wetlands habitat will be protected to maintain the ~~hydrology~~hydrological regimes for species viability. **Standard**
- 2. Maintain disturbance processes (fire, grazing) if required for habitat enhancement, restoration or species viability. **Standard**
- 3. Allow no new road or trail construction except when necessary to correct resource damage occurring from existing sites. **Guideline**
- 4. Conflicts that cannot be mitigated are resolved in favor of specific plant and wildlife species and communities. **Guideline**

~~5. See Chapter 2, Geographic Area for specific direction.~~

Mineral and Energy Resources

- 1. Prohibit mineral material removal. **Standard**

Fire

- 1. Refer to Grassland-wide and Forest-wide Direction, ~~S~~section G, ~~for~~Fire ~~S~~suppression, Fuels Treatments, Prescribed Fire.~~direction~~

~~+~~ **Livestock Grazing**

- 1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area ~~descriptions~~Direction.

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Invasive Plant Species

1. Prioritize invasive plant control activities in habitats supporting sensitive species. **Guideline**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Goal 1.c and Section J, Invasive Plant Species

Recreation

1. Recreation trails within these areas will be located to prevent habitat damage caused by dispersed use. **Standard**
2. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, ~~s~~Section K, Recreation.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources direction.

Scenery Management

1. Manage area to encompass the spectrum of Scenic Integrity Objectives. **Guideline** (see Appendix G Glossary and Scenic Integrity Objective maps).
- 2.

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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. Refer to Preface, Chapter 1, Grassland-wide and Forest-wide Direction, Section D, Minerals and Energy Resources. **Guideline**
2. Prohibit new special-use facilities except for valid existing rights. Refer to Preface, Chapter 1, Grassland-wide and Forest-wide Direction, Section D, Minerals and Energy Resources and Appendix G Glossary. **Guideline**
3. For direction on plant collecting refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section O, Special Forest or Grassland Products.

Infrastructure

1. New structural range improvements (fences and water developments) may be constructed as needed to achieve desired future conditions objectives. **Guideline**
2. For additional information refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section Q, Infrastructure Use and Management; ~~Infrastructure~~ and Chapter 2, Geographic Area Direction.

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, trashcans, 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 Chapter 1, Grassland-wide and Forest-wide Direction; Air, Water, Soils Geology and Minerals, Recreation, Scenery Management and Special Uses, Sections A, B, C, D, K, L, P respectively, for direction.

Fire

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section G, Fire Suppression, Fuels Treatments, Prescribed Fire ~~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 ~~W~~ and Forest-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area ~~descriptions~~ Direction.

Invasive Plant Species

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

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources direction.

Scenery Management

1. Manage area to meet a Scenic Integrity Objective of Moderate (see Appendix G Glossary). **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 and Forest-wide Direction, Section Q, Infrastructure Use and Management; 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 geographic area for further direction.~~

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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 Chapter 1, Grassland-wide and Forest-wide Direction, Geology and Minerals, Air, Water, Soils, Recreation, Scenery Management and Special Uses sections.

Fire

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section G, Fire Suppression, Fuels Treatments, Prescribed Fire ~~for fire suppression direction.~~

Livestock Grazing

1. Refer ~~to enee~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section I, Livestock Grazing; and Chapter 2, Geographic Area Direction ~~descriptions.~~

Invasive Plant Species

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

Recreation

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section K, Recreation ~~Grassland-wide direction Chapter 1, Section K~~.

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage Resources direction.

Scenery Management

1. Manage area to encompass the spectrum of ~~s~~Scenery ~~i~~Integrity ~~o~~Objectives. (see ~~Scenic Integrity Objective maps in Chapter 2 and Appendix G~~ Glossary, ~~page G~~) **Guideline**.

Special Uses

1. Locate new utilities along road corridors or within other areas already disturbed. **Guideline**
2. Refer to Chapter 1, Grassland-wide and Forest-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. ~~For additional information, refer to~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section Q, Infrastructure Use and Management; and Chapter 2, Geographic Area 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~~ 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 Management Area. Natural disturbance processes, including grazing and fire, will be used to emulate the natural range of variability of vegetation structure and composition (see 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 Management Area.

When no substantial threat to high-value resources occurs, natural outbreaks of native insects and disease will be allowed to proceed without intervention.

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 Chapter 1, Grassland-wide and Forest-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 Chapter 1, Grassland-wide and Forest-wide Direction, Section G, Fire Suppression, Fuels Treatments, Prescribed Fire ~~for fire suppression direction~~.

Livestock Grazing

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

Invasive Plant Species

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

Recreation

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

Heritage Resource

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section N, ~~for additional~~ Heritage resources ~~direction~~.

Scenery Management

1. Manage area to meet scenic integrity objectives at a minimum of Moderate and Low (see ~~Scenic Integrity Objective maps in Chapter 2 and Appendix G~~ Glossary, ~~page G~~).

Guideline**Special Uses**

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section P, Special Uses

Infrastructure

1. Refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section Q, Infrastructure Use and Management; and Chapter 2, Geographic Area Direction.

7.1 RESIDENTIAL/FOREST INTERMIX

Theme

Intermingled private and ~~National Forest System~~NFS lands are managed to build and maintain cooperative relationships between the landowners and other governments with jurisdiction.

Desired Conditions

A variety of plant communities, structural stages and associated wildlife habitats are provided through vegetative manipulation and natural processes. Natural openings, meadows, and other plant communities are maintained to protect soil and water resources, and key wildlife habitat areas. Timber harvest, livestock grazing, and prescribed fire may be used to attain a natural-appearing landscape, and to minimize the risks of catastrophic fires and epidemic levels of insects and diseases.

In high-use recreation areas, human disturbance may limit wildlife viewing to those species that are common or accustomed to the presence of people. Recreational use of these areas may be restricted to the extent necessary to reduce conflicts between landowners and visitors. Firearm use or open fires are restricted, when conditions warrant. Property boundaries are well marked. Trails link other ~~management area~~Management Areas, developed sites, and other nearby trails.

Visitors expect to encounter residential developments on intermingled private land. Residents encounter visitors and management activities. Landscape modifications and facilities may be visible; however, they are mitigated to blend and harmonize with natural features as much as is reasonable.

State and local governments and fire protection districts are consulted in developing fire-hazard reduction plans and ordinances.

Standards and Guidelines

General

1. Allow developments that complement natural features in the foreground. Developments in middle ground and background must be subordinate to the landscape and not obvious to the casual observer. **Guideline**

Fire

1. Treat management activity fuels to the required fire_line intensity level within three years after management activities cease. **Guideline**

2. When conducting fuel treatments along property boundaries, use methods that can be controlled with direct attack. **Guideline**

3. Prioritize fuel treatment based on the following conditions:

- Where there is an organization desiring to cooperate in fire-hazard reduction along mutual boundaries.
 - National Forest System and adjacent lands having high values that are vulnerable to fire.
- Guideline.**

8.5 NURSERY (CHARLES E. BESSEY)

Theme

This area emphasizes production of planting stock and seed storage, while maintaining the historical value and context of the site.

Desired Conditions

The nursery serves as the Forest Service's and other clients' seed extractory and storage facility and provides transfer of technology to federal, state, tribal, private, and international governments, agencies and groups. Native vegetation seed and quality bare root and containerized seedlings are produced to support Forest Service, tribal and cooperating states' seedling requirements.

Nursery operation features may include administrative buildings, storage facilities, greenhouses, seedbeds, refrigerator units, and seed and seedling processing facilities. Historical components of the nursery are enhanced through visitor information, interpretation, restoration, and stabilization. Visitors can expect frequent encounters with people, heavy equipment and noise. Few, if any, restrictions are placed on public use except to ensure public safety and to avoid unreasonable interference with nursery operations. Nonmotorized dispersed recreation is allowed to the extent that it will not interfere with nursery operations.

Insects and diseases are managed to protect vegetation on the nursery site. Trees that are not nursery stock are managed to provide wind protection around buildings and seedbeds, aesthetics and shade. Trees will be removed if they pose a hazard to public health and safety.

Goals and Objectives

The Charles E. Bessey Nursery is a unique area on the Nebraska National Forest. The following goals and objectives are specific to this area and not found in ~~geographic-area~~Geographic Area or ~~Grassland-wide~~and Forest-wide Direction.

Goals

1. Provide desired quality and quantities of bare-root and container tree seedlings, shrubs, and other vegetative materials to meet the needs of ~~the National Forest System~~NFS, state, American Indian tribes and other customers.
2. Provide seed extraction, testing, and storage services to customers.
3. Provide technical assistance to ~~N~~ational ~~F~~orests and ~~G~~rasslands, international visitors, states, American Indian tribes, other federal agencies, and Natural Resource or Conservation Districts in the areas of cone and seed collection, seed and seedling storage and handling, site preparation, and planting.

Objectives

- 1. Annually, provide the desired quantity and quality of tree and shrub seedlings and vegetative materials to meet customer expectations.
- 2. Annually, maintain accurate records on the quantity and quality of tree seed in the regional seedbank.
- 3. Annually, provide field trips to local school districts and others to discuss nursery operations, reforestation, seed handling, and storage.
- 4. Regularly consult with entomologists, pathologists, soil scientists, and hydrologists to identify problems and to evaluate the effectiveness of cultural practices and implement changes if necessary.
- 5. Over any 5-year period, Working Capital Funds accounts for trees and tree seed will balance (costs will equal expenditures).
- 6. Preserve the integrity of historic nursery structures.
- 7. Protect the water quality in the Middle Loup River.
- 8. Within 10 years, combine and construct new office facilities with the Bessey Ranger District.
- 9. As additional funding becomes available, add an additional greenhouse to meet requests for container seedlings.

Standards and Guidelines

General

- 1. Annually, complete seedling inventories by October 1, and provide reports to customers. Guideline
- 2. Conduct root growth potential tests on all seedlots at the time of lifting. Reports from these tests will be provided to customers. Guideline
- 3. Charge customers equitably for extra materials and services provided to them. Guideline

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Mineral and Energy Resources

- 1. Prohibit removal of mineral materials. **Standard**
- 2. Allow oil and gas leasing; however, no ground-disturbing oil and gas activities are permitted. **Standard**
- 3. Withdraw the area from locatable mineral activity. **Standard**

Livestock Grazing

- 1. Prohibit domestic livestock grazing. **Standard**

8.6 ADMINISTRATIVE SITES

Theme

This prescription emphasizes management of administrative sites.

Desired Condition

Site features may include office buildings, parking lots, work centers and storage facilities. Facilities provide adequate improvements to protect the health and safety of workers and visitors.

Landscape modifications and facilities may be visible, but are reasonably mitigated to blend and harmonize with natural features. Vegetation is managed to provide a pleasing appearance for visitors.

Standards and Guidelines

Mineral and Energy Resources

- 1. Allow oil and gas leasing; however, no ground-disturbing oil and gas activities are permitted.

Standard

CHAPTER 4

MONITORING AND EVALUATION

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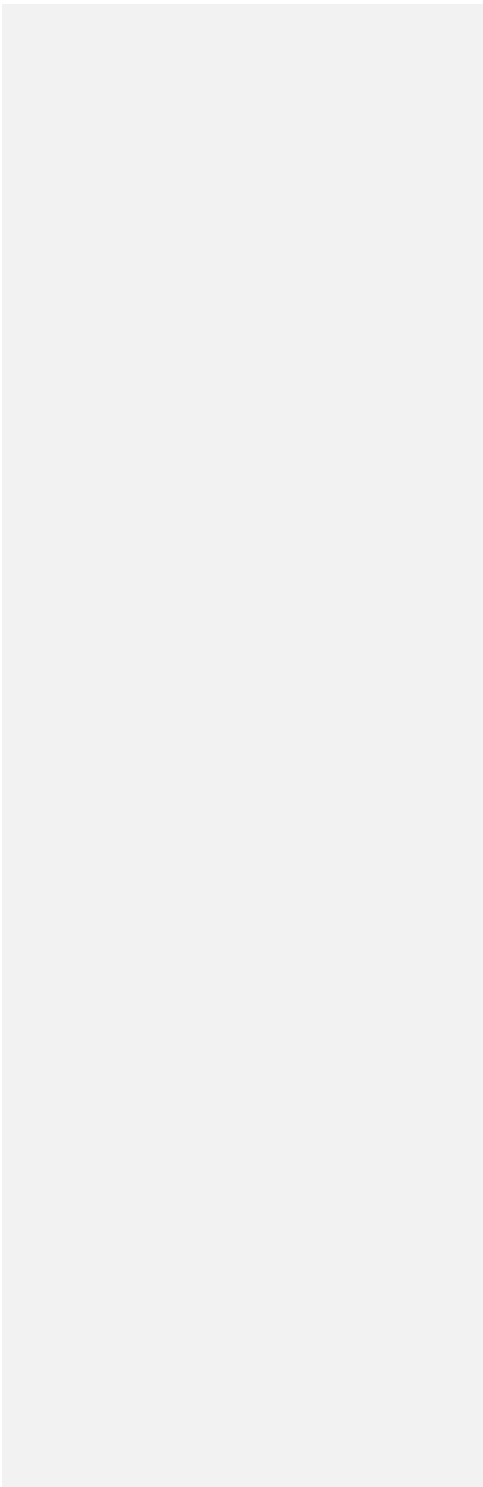


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CHAPTER 4 MONITORING AND EVALUATION

INTRODUCTION

Overview

The 2012 Planning Rule includes a requirement that all Forests that are not in plan revision update their forest plan monitoring within four years, or as soon as is practicable (36 CFR 219.12c). This document updates our forest plan monitoring to meet this requirement of the 2012 rule. 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~~

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~~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.~~

THE ROLE OF MONITORING UNDER THE 2012 PLANNING RULE Monitoring Purpose

The National Forest Management Act (NFMA) requires “continuous monitoring and assessment in the field” to evaluate “the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land” (16 USC 1604(g)(3)(C)). The 2012 Planning Rule includes a three-part iterative cycle of assessment, planning, and monitoring in a continuous feedback loop. Monitoring is meant to support the assessment process and evaluate plan implementation over time. This planning framework is designed to “inform integrated resource management and allows the Forest Service to adapt to changing conditions, including climate change, and improve management base on new information and monitoring” (§ 219.5 (a)). 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.

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SPECIFIC REQUIREMENTS FOR MONITORING UNDER THE 2012 RULE

A monitoring plan will consist of “monitoring questions and associated indicators” which “must be designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan’s desired conditions or objectives” (219.12 (a)(2)). The monitoring program must also be “coordinated with the regional forester and Forest Service State and Private Forestry and Research and Development” (§ 219.12 (a)(1)) and support and align with a broader-scale monitoring program, to be developed at the regional level, that will address monitoring questions at a geographic scale broader than one plan area (§ 219.12 (b)). Furthermore, in developing the monitoring plan, the responsible official should also provide opportunities for public participation, “taking into account the skills and interests of affected parties”, as well as the scope, methods, forum and timing of those opportunities (§ 219.4 (a)).

Monitoring may involve evaluating: a) if standards and guidelines are implemented (implementation monitoring); b) if management actions and standards and guidelines are effective in achieving goals and objectives (effectiveness monitoring); and c) the long term trend and condition of key resources (condition or surveillance monitoring). At a minimum, the plan monitoring program must contain one or more monitoring questions and associated indicators addressing the following eight items (see §219.12[a][5][i-viii]):

- (i) —The status of select watershed conditions;

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- (ii)—The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems;
- (iii)—The status of focal species to assess the ecological conditions required under § 219.9;
- (iv)—The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern;
- (v)—The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives;
- (vi)—Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area;
- (vii)—Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities;
- (viii)—The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

A monitoring evaluation report is to be produced and made available to the public every two years (§ 219.12 (d)). It “must indicate whether or not a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information... [and] must be used to inform adaptive management of the plan area” (§ 219.12 (d)(2)). The monitoring program and evaluation report are part of the administrative record (§ 219.14 (b)) and the Forest Supervisor must document “how the best available scientific information was used to inform planning, the plan components, and other plan content, including the plan monitoring program” (§219.13 (a)(4)). Forests will also have to document how Best Available Scientific Information (BASI) is used to develop the monitoring plan and specific monitoring items.

MONITORING PLAN COMPONENTS

The following section details the specific components of the proposed Monitoring Plan. Specific monitoring items are organized by the required categories of monitoring questions identified in the planning rule (§ 219.12), with at least one monitoring question and indicator for each category. Each question presented in the final Monitoring Plan will include a brief description of the desired condition or objective each monitoring item is associated with, followed by the question, a description of the specific indicator or metric used to answer or evaluate the monitoring question, the data source or measurement protocol associated with the monitoring item, and finally, a rationale or justification for the specific monitoring indicator and protocol. This will ensure that the requirements for best available science are met. *The proposed Monitoring Plan contains monitoring questions, indicators and frequency only; protocols and other relevant information are currently being developed.*

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Monitoring Category 1: Watershed Condition				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
<u>To what extent has the condition on watersheds containing National Forest System lands been restored, maintained or improved?</u>	<u>Sixth level watersheds containing NNFG lands in a Watershed Condition Class I, II, or III</u>	• <u>USFS Watershed Condition Framework (WCF) protocols</u> • <u>Watershed Assessment of River Stability and Sediment Supply (WARSSS)</u>	<u>5 Years</u>	<u>USFS WCATT Database</u>
<u>Are Streams and Waterbodies meeting State assigned Beneficial Uses and associated water quality criteria?</u>	<u>NNFG streams and waterbodies meeting or exceeding state water quality criteria for assigned beneficial uses.</u>	• <u>State Assigned Beneficial Uses and associated Water Quality Standards</u> • <u>State 303d and 305b reports/lists</u> • <u>NNFG Stream Survey Protocols</u> • <u>Rapid Bio-assessment Protocols for Use in Streams and Wadeable Rivers</u>	<u>Bi-Annually*</u> <u>*coinciding with State Water Quality Assessment Reports</u>	<u>NRIS Water (AqS) Database</u> <u>NNFG electronic Watershed files</u>
<u>Are Streams and Waterbodies protected from non-point source pollution sources?</u>	<u>Implementation and Effectiveness of Forest Plan Standards and Guidelines, Regional Watershed Conservation Practices (WCPs), and Best Management Practices (BMPs)</u>	• <u>USFS BMP Monitoring Protocols</u>	<u>Annually</u>	<u>USFS National BMP Database</u>

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.

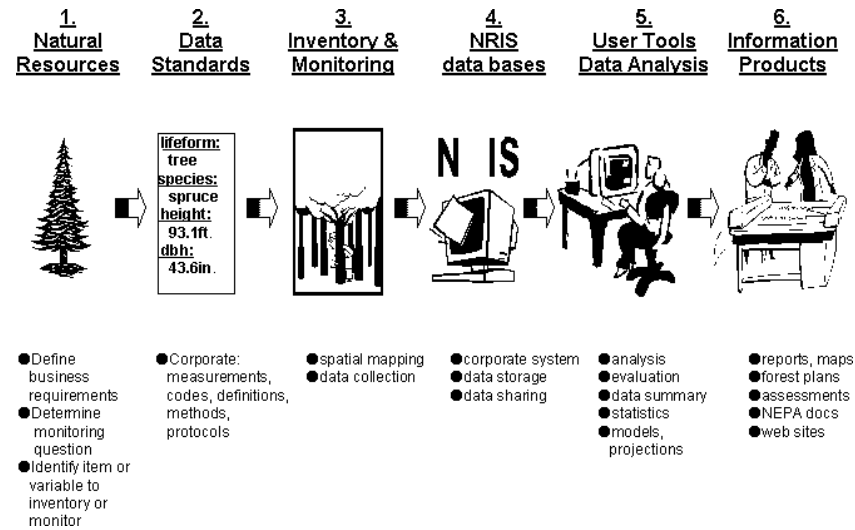
Monitoring and evaluation keep the Revised Land and Resource Management Plan up to date and responsive to changing issues by verifying the effectiveness of management plan standards and guidelines and anticipated program and project effects on resources, and providing information for amendments to the 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.

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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

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~~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.

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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: 6th 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

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~~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.

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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 under development) 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
- 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

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~~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 being developed):~~

Monitoring 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

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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.

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~~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 4	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

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
Notes: Livestock grazing, mining, timber harvesting and other ground disturbing activities can affect soil condition.						
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 waterbodies 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 waterbody 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.						

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
Goal 1.a- Objective 5	Watershed 4: To what extent have surface water, sub-surface flows, and 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.						
Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2 & 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	Geographic area wide	Ten years
Notes: Selected management indicator species include greater prairie chicken, sage grouse, plains sharp-tailed grouse, black-tailed prairie dog, and pygmy nuthatch. Determining and identifying potential habitat for each management indicator species is a regulatory requirement under NFMA. Reference areas may be needed to determine potential habitat capability for some management indicator species.						
Legal: 36 CFR 219.19(a)(6); 36 CFR 219.20; 36 CFR 219.27(5 and 6); Goal 1.b Objectives 2 & 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	Geographic area wide	Five years
Notes: Evaluating the current condition and trend of key habitats for each management indicator species is a regulatory requirement under NFMA. Monitoring of MIS habitat is a high priority						

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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 & 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 habitats on NFS lands?	High condition disparity; Viability; Great consequences; Key issue	Long-term population trends; Habitat suitability evaluation ratings	A	Geographic area 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 needs to be evaluated. Monitoring of MIS populations and habitat is a high priority						
USDA Departmental Regulation 9500.4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objectives 1, 2, 4 & 7	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; Cellars-Rosecrans	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. Monitoring of black-footed ferret populations and habitat is a high priority.						

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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(5); Goal 1.b Objectives 1, 2, 4, 7, & 9	T&E 2: To what extent are NFS lands and their management contributing to the recovery and viability of blowout penstemon?	Key issue (recovery and viability); Great consequences	Populations; Number of plants transplanted; Survival and reproduction statistics; Evidence of seed set and reproduction; Distribution (See also T&E under Implementation Monitoring)	A	Geographic Areas: Bessey and McKelvie	Annually
Notes: Blowout Penstemon is a threatened plant species mostly restricted to the Nebraska Sand Hills. A recovery plan has been prepared and the Forest Service is implementing recovery actions identified in the plan on the Nebraska National Forest. Additional recovery opportunities occur on the Samuel R. McKelvie National Forest. Stock for introductions in suitable habitat is produced in greenhouses at the University of Nebraska. Monitoring of blowout penstemon populations and habitat is a high priority.						
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 Objectives 1, 2, 4 & 7	T&E 3: 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

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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 consists of managing for regeneration of woodlands, reducing disturbances and developments in bald eagle habitat, and expanding prairie dog populations. Monitoring of bald eagle populations, nesting attempts and habitat is a high priority.						
USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objectives 1, 2, 4 & 7	T&E 4: To what extent are NFS lands and their management contributing to the recovery and viability of the American burying beetle?	Key issue (recovery and viability); Great consequences	Documentation of observations. (See also T&E under Implementation Monitoring)	A	Geographic Areas: Bessey and McKelvie	Annually
Notes: American burying beetle is an endangered invertebrate that occurs on the Nebraska National Forest and is expected to occur on the Samuel R. McKelvie National Forest. A recovery plan has been prepared. Unfortunately, information on the important habitat relationships in this part of the species range and how land uses influence the species is limited. Management at this time on NFS lands is limited mostly to inventory to document the species abundance and distribution. However, based on information in the recovery plan, management to increase and maintain prairie grouse species, a favored carrion source, may be beneficial but this is still highly speculative. Monitoring to determine the distribution, relative abundance and preferred habitats of this species is a high priority.						

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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 Objectives 1, 2, 4 and 7	T&E 5: To what extent are NFS lands and their management contributing to the recovery and viability of whooping crane?	Key issue (recovery and viability); Great consequences	Documentation of observations. (See also T&E: under Implementation Monitoring)	A	Administrative unit wide	Annually
Notes: The whooping crane is an endangered species and a recovery plan has been prepared. However, whooping crane use of the national grasslands and forests is rare, incidental and unpredictable. Monitoring is limited to documenting observations.						
Migratory Bird Treaty Act; USDA Departmental Regulation 9500-4; 36 CFR 219.19 and 219.27(6); Goal 1.b Objectives 1, 2, 4 & 7	T&E 6: 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	Geographic Areas: Oglala; Fall River Southeast; & Fall River West	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. Monitoring of mountain plover populations and habitat is a high priority.						

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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(5); Goal 1.b Objectives 1, 2, 4, 6, 7, & 9	T&E 7: Does Ute ladies' tresses occur on the NFS lands within the planning area?	Key Issue (recovery or potential habitat for the species and viability); Great consequences	Documentation of inventory results; Acres inventoried using target survey protocols; Acres of potential habitat; Acres of occupied habitat (See also T&E under Implementation Monitoring)	A	Geographic Areas: Fall River, Southeast, West, and Northeast	Annually
Notes: This species is a threatened species, and a draft recovery plan has been prepared. The occurrence of this species on the Buffalo Gap National Grassland has not been documented. If this species or potential habitat is found on these areas, FS will consult with U.S. Fish and Wildlife Service for additional guidance. Inventories to determine if the species or potential and suitable habitat exists on the national grasslands are 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 1: To what extent are National Forest System Lands and their management contributing to the viability of sensitive plant and animal species that are generally 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.						

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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 generally 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 these 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 & 6); Goal 1.b Objectives 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 found in aquatic habitats?	Key issue (viability); Great consequences	Populations; Relative abundance; Distribution; In-stream flow	A	Administrative unit wide	Five years
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 these sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						

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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 4: To what extent are National Forest System Lands and their management contributing to the viability of sensitive plant and animal species that are generally 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 in these habitats include: Northern goshawk, Merlin, Pygmy Nuthatch, Lewis woodpecker, and Fringed-tailed Myotis. 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(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 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.						

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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 6: To what extent are National Forest System Lands and their management contributing to the viability of sensitive plant and animal species that are generally 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 these sensitive species that are endemic or at higher risk (outcomes 3 through 6) is a high priority.						
36 CFR 219.19 and 219.27(6); Goal 1.b	Viability 7: To what extent has cooperative agreements and the landownership adjustment program been effective in reducing private land conflicts involving prairie dogs and enhancing long term opportunities for development of prairie dog colony complexes in the priority National Grassland areas.	Key issue (viability and biological diversity); Legal issue; Great consequences	Number of conflict situations resolved; Additional acres of potential or current prairie dog habitat under federal ownership or cooperative agreements	A	Geographic areas: Oglala; Fort Pierre;	Five years
Notes: Landownership adjustments and cooperative agreements provide the key to long term opportunities for expanding prairie dog populations and for reducing conflicts over prairie dog management.						
36 CFR 219.20; Management Areas 3.58 & 3.51	Wildlife 1: Is habitat effectiveness on designated big game range being maintained or enhanced?	Recreational and economic issue and cooperative program with state wildlife agencies	Habitat effectiveness evaluations	A	MA 3..51	Five years

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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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
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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.

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 1)	Key issue; Great consequences	Acres & number of outbreaks. Distance to and age of nearest management activity.	A	Geographic	Five years
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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
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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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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
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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
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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: Pine Ridge, Oglala	Five years
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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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.						
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.						

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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.						
36 CFR 249.21 (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. Monitoring will provide information for the travel management plan to be prepared within five years after record of decision is signed.						

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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
Notes: An understanding of the condition and trend of the features or communities that lead to protecting 2.1a thru 2.1m in Chapter 3, pages 3-13 thru 3-16 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

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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 the Tree Farm and Signal Hill Research Natural Areas needed so management action can be taken to preserve or enhance Research Natural Areas.						
Goal 2.b	Wilderness: To what extent are the Soldier Creek Wilderness special features and communities of special concern conserved or enhanced?	Great consequences	Condition of features/-communities	B	Area-specific	Five years
Notes: An understanding of the condition and trend of Soldier Creek Wilderness features is needed so management action can be taken to preserve the wilderness features.						
Goal 2.b	Recommended for Wilderness: To what extent are the Red Shirt and Indian Creek Recommended for Wilderness special features and communities of special concern 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 recommending the Red Shirt and Indian Creek areas as wilderness is needed so management action can be taken to preserve the wilderness features.						
Legal 36 CFR 219.7(f); Goal 2.e	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.						

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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.						
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, western prairie fringed orchid, and blowout penstemon 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.						

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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 4% of other NEPA projects completed for compliance with Land & Resource Management Plan direction.	B	Administrative-unit wide	Annually
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

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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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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 219.10 and 219.20 Key Issue; Legal; 36 CFR 219.10(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 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
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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.

36 CFR 219.10 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
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Monitoring Driver	Monitoring Question	Monitoring Priority	Potential Monitoring Items	Precision & Reliability	Scale	Frequency of Reporting
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	B	Administrative unit-wide	Five years
Notes: Development, management activities and recreational activities can have significant impacts on fish and wildlife. Negative impacts are avoided or lessened through the use of stipulations.						
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
Monitoring Category 2: Status of Select Ecological Conditions						
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>		

Is habitat effectiveness on designated big game range being maintained or enhanced?	Recreational and economic issue and cooperative program with state wildlife agencies	-	<u>5 Years</u>	-
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Monitoring Category 3: Focal Species				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
What is the status of black-tailed prairie dog to assess the functional role of colony habitat?	• Historical vs. current acreage levels • Prairie dog town occupancy, extent and density • <u>Sylvatic plague extent/changes</u>	• USFS prairie dog monitoring program • Sylvatic plague surveys • State data • <u>Academic research</u>		NRIS Wildlife
What is the status of pygmy nuthatch to assess the functional role of forested habitat?	• Acres and distribution of potential woodland nuthatch habitat • Current condition and trend of key woodland nuthatch habitat • <u>Snag retention</u>	• <u>USFS forest monitoring</u>	-	NRIS Wildlife FSVeg Spatial
What is the status of prairie grouse (plains sharp-tailed and greater prairie chicken) to assess the functional role of grassland vegetation habitat?	• Acres and distribution of potential prairie grouse habitat • Current condition and trend of grassland vegetation structure • <u>Current condition and trend of forb/shrub patches</u>	• <u>USFS vegetation structure monitoring</u>		FSVeg Spatial NRIS Wildlife

Monitoring Category 3: Focal Species				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent has cooperative agreements and the landownership adjustment program been effective in reducing private land conflicts involving prairie dogs and enhancing long-term opportunities for development of prairie dog colony complexes in the priority National Grassland areas?	- Number of conflict situations resolved; - Additional acres of potential or current prairie dog habitat under federal ownership or cooperative agreements		5 Years	NRIS Wildlife FACTS

Monitoring Category 4: Select Ecological Conditions for TES, SPCC's				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
What is the status and trend of habitat to support the recovery of the black-footed ferret on the planning unit?	• Prairie dog town extent, density and occupancy • Historical vs. current acreage levels • <u>Sylvatic plague extent / changes</u>	• USFS black-footed ferret monitoring • USFS prairie dog monitoring program • Sylvatic plague surveys • <u>Academic research</u>		NRIS Wildlife
What is the status and trend of habitat to support the recovery of the blowout penstemon on the planning unit?	• Sandhill blowout extent and size • <u>Historical vs. current acreage levels of Sandhill blowouts</u>	• USFS Sandhill blowout monitoring • <u>USFS blowout penstemon monitoring</u>	-	NRCS Soils FSVeg Spatial TESP
What is the status and trend of habitat to support the recovery of the American burying beetle on the planning unit?	• Acres and distribution of potential habitat • <u>Current condition and trend of grassland vegetation structure</u>	• <u>USFS vegetation structure monitoring</u>		FSVeg Spatial

Monitoring Category 5: Visitor Use and Recreation				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent are trails managed to meet regional standards and to minimize conflicts among users?	Location and miles of trails meeting and not meeting regional standards. Reports of conflicts among users.	-	Annually	Transportation Dataset INFRA
Where does the demand for recreation opportunities warrant development of additional opportunities such as trails or campgrounds?	Customer survey and individual public contacts. Name of facility, location, and time existing use exceeds capacity.	-	5 Years	-
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?	Customer survey and individual contacts with grassland and forest visitors and adjacent landowners.		5 Years	

Monitoring Category 5: Visitor Use and Recreation				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
How well is the current road and trail network providing for public needs?	Travel Management	MVUM	5 Years	Transportation Dataset INFRA
To what extent are traditional cultural properties being protected?	Condition of each site, incidents of vandalism or disruption of the use of traditional cultural properties.		5 Years	
To what extent have the special features found Special Interest Areas been conserved or enhanced?	Condition of features / communities		5 Years	
To what extent are the Soldier Creek Wilderness special features and communities of special concern conserved or enhanced?	Condition of features / communities		5 Years	Wilderness Stewardship Plan
What are the effects of National Forest System Management on adjacent communities?	NFS related jobs and income; Community tourism receipts; Federal receipts, Federal revenue sharing with state and local governments.		Annually	

Monitoring Category 6: Climate Change and Other Stressors				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
How have extreme and average temperature and precipitation values changed across the Nebraska National Forests and Grasslands?	• Timing, type and amount of precipitation • Changes in air temperature		5 Years	High Plains Climate Consortium

Monitoring Category 7: Progress Towards Desired Conditions				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent are rangeland vegetation structure objectives being met?	Location & percent of rangeland area meeting, making measurable progress towards, or not meeting desired vegetation structure.	-	5 Years	FSVeg Spatial SI GIS Dataset Rangeland Inventory and Monitoring
To what extent are rangeland vegetation composition objectives being met?	Location & percent of rangelands meeting, making measurable progress towards, or not meeting desired vegetation composition.	-	5 Years	FSVeg Spatial SI GIS Dataset Rangeland Inventory and Monitoring
To what extent are desired vegetation conditions in forested areas being met?	Location & percent of forested lands meeting, making measurable progress towards, or not meeting desired structural stages.		5 Years	FSVeg Spatial SI GIS Dataset Rangeland Inventory and Monitoring
To what extent are the Red Shirt and Indian Creek Recommended for Wilderness special features and communities of special concern conserved or enhanced?	Condition of features / communities		5 Years	

Monitoring Category 7: Progress Towards Desired Conditions				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent are National Register sites and districts being protected and preserved?	Condition of each site, incidents of vandalism or disruption of the use of traditional cultural properties.		5 Years	
To what extent are streams and riparian areas maintained at or trending towards Robust Stream Health, as defined by Region 2 FSH 2509.25?	Miles of stream in each stream health class (Robust, At-Risk, Diminished) and trends over time.	• Rosgen Stream Classification and Assessment Protocols • Stream Reference Reach Monitoring (Harrelson et al. (1994); Rosgen methods) • EPA National River and Stream Assessment Protocols • NNFG Stream Monitoring Protocols • Proper Functioning Condition (PFC) Protocols • Multiple Indicator Monitoring (MIM) Protocols	5 Years	NRIS Water (AqS) WCATT database NNFG Watershed electronic files

Monitoring Category 7: Progress Towards Desired Conditions				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent are wetland ecosystems protected to maintain stable conditions supporting hydrologic function, hydric soils, and hydric vegetative communities?	Number of springs and acres of wetland ecosystems in each stability class* and trends over time: • Good – Properly Functioning Condition (PFC) • Fair – Functioning At-Risk (FAR) • Poor – Not Properly Functioning (NPF) * EPA National Wetland Assessment uses classes of Good, Fair, and Poor; while Proper Functioning Condition Assessment Protocols refer to PFC, FAR, and NPC classes.	• USFS Groundwater Dependent Ecosystems (GDE), Level I and Level II Protocols • EPA National Wetland Condition Assessment Report and Protocols • EPA National Lake Assessment Report and Protocols • EPA and/or US Army Corps of Engineers Wetland Classification, Delineation, and Assessment Protocols • Proper Functioning Condition (PFC) Protocols	5 Years	NRIS Water (AqS) NNFG spring and wetland GIS databases NNFG Watershed Electronic files
To what extent have degraded streams, riparian areas, wetlands, and other waterbodies on National Forest System lands been restored?	Miles of degraded streams and riparian areas restored. Acres of degraded wetlands restored.	• USFS Watershed Improvement Tracking (WIT) Database protocols and Accomplishment Guidance for identifying Affected Zones	Annually	NRIS WIT database NNFG Watershed Electronic Files

Monitoring Category 8: Management and the Productivity of the Land				
<u>Monitoring Question</u>	<u>Indicator</u>	<u>Data Source or Protocol</u>	<u>Frequency</u>	<u>Database/Information Management Strategy</u>
To what extent has soil health and productivity been degraded by Forest Service management or permitted activities; and to what extent have degraded soils been restored?	Acres of soils degraded (soil disturbance class 2 or 3) and acres of soils restored to soil disturbance class 0 or 1 by Forest Service management or permitted activities.	- USFS Forest Soil Disturbance Monitoring Protocol, Volumes I and II: General Technical Report GTR-WO-82a and 82b - USFS Watershed Improvement Tracking (WIT) Database protocols and Accomplishment Guidance for identifying Affected Zones - USFS National BMP Monitoring Protocols	Annually* *targets reported annually for Soil and Water Improvement or Fisheries Stream Miles Improved	NRIS WIT database USFS National BMP Database NNFG Watershed Electronic Files
To what extent are noxious weeds, invasive species, and animal damage expanding or being reduced?	Species, Location, and acres of noxious weeds, Invasive species, and animal damage.		5 Years	TESP-IS Noxious Weeds

APPENDIX A AIR QUALITY

Class I areas: all units of Theodore Roosevelt National Park, North Dakota; Lostwood National Wildlife Area, North Dakota; both units of Badlands National Park, South Dakota; Wind Cave National Park, Fort Peck Indian Reservation, Montana, and Northern Cheyenne Indian Reservation, Montana

Class II areas: National Forest System lands in the planning area.

Allowable ~~PSDs~~ Increments
micrograms/meter³ (ug/m³)

Pollutant	Period	Maximum Allowable Increase Over Baseline		
		Class I	Class II	Class III**
PM-10	Annual	4	17	34
	24-Hour	8	30	60
Sulfur Dioxide	Annual	2	20	40
	24-Hour*	5	91	182
	3-Hour*	25	512	700
Total Suspended Particulates (TSP)	Annual	5	19	37
	24-Hour*	10	37	75
Nitrogen Oxides	Annual	2.5	25	50

* Not to be exceeded more than once a year.
** No Class III ~~a~~Areas have yet been designated.

Sources: 40 *Code of Federal Regulations* 52.21 (c) and Clean Air Act (as amended through December, 1990), section 163B.

APPENDIX B RECOMMENDED FENCE SPECIFICATIONS FOR BIG GAME MOVEMENT¹

Kind of Livestock ²	Big Game Species	Number of Wires	Maximum Height (in)	Wire Spacing (from ground up)	Wire Type ^{3,4}
Cattle only	Deer, Elk, Pronghorn	3	38	16, 10, 12	Bottom smooth
Cattle and Sheep	Deer, Elk, Pronghorn	4	40	16, 6, 6, 12	Bottom smooth
Sheep only	Deer, Elk, Pronghorn	4	32	12, 6, 6, 8	Bottom smooth
Cattle only	Bighorn Sheep	3	39	20, 15, 4	Barbed

¹ These recommendations are designed for facilitating movement of both young and adult big game animals during all seasons including winter and spring when snow drifting can be expected.

² No standards are available for bison, but provisions for big game movement should be considered when building bison fences.

³ Woven (net) wire fences are not recommended.

⁴ One or more of the top wires may also be electrified.

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APPENDIX C DETERMINING ANIMAL UNIT EQUIVALENT BASED ON LIVESTOCK WEIGHT

Livestock body size affects the quantity of dry matter consumed. Not all livestock are the same size or weight, and weight variations require adjustments in animal unit equivalents. The University of Nebraska defines an animal unit equivalent as *a 1,000-pound cow of above average milking ability with a calf less than 3 to 4 months postpartum*. The Society for Range Management defines an animal unit as *one mature cow approximately 1,000 pounds, either dry or with a calf up to 6 months of age*. In either case, the animal unit equivalent is equal to 1 animal unit, which has a daily dry matter allocation of 26 pounds of forage.

Following are several methods to determine animal unit equivalents based on livestock weight:

1. Holecheck et al. 1989, uses a rough guideline by using 2 percent of the body weight to determine daily dry matter intake per day when values for different seasons are averaged across the year.
2. University of Nebraska, *A Guide For Planning ~~a~~ And Analyzing ~~A~~ Year-Round Forage Program*, Nebraska Cooperative Extension EC 86-113, suggests animal weight variations require adjustments in animal unit equivalent values equal to 0.1 animal units for every 100 pounds of liveweight that the animal differs from the standard 1,000 pound animal unit equivalent of 1. Thus, a cow with calf less than 3 to 4 months postpartum that weighs 1,200 pounds would have an animal unit equivalent of 1.2.
3. North Dakota State University, *Animal Unit Equivalent for Beef Cattle*, DREC 98-1020, suggests using the metabolic weight to estimate the daily or monthly forage demand. Metabolic weight is the liveweight to the 0.75 power. Beef cattle animal unit equivalents can be determined for animals of different sizes by calculating their metabolic weight as a percentage of the metabolic weight of a 1,000 pound cow. The following formula would be used:

$$\frac{(\text{Live animal weight})^{0.75}}{1000^{0.75}} = \text{Animal Unit Equivalent}$$

APPENDIX D OIL AND GAS STIPULATIONS OGLALA AND BUFFALO GAP NATIONAL GRASSLANDS

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INTRODUCTION

This appendix displays the stipulations applied to oil and gas leases to be consistent with Forest Plan ~~s~~Standards and ~~g~~Guidelines, and a short explanation of the reasons for the stipulations. This is mandated by the oil and gas regulations found in 36 CFR 228 102 (c)(1)(ii). This section also discusses the guidelines by which waivers, exceptions, or modifications may be granted.

Waivers, exceptions, or modifications will be considered in accordance with the requirements of 36 CFR 228.104. Environmental analysis meeting the National Environmental Policy Act requirements will be conducted in considering a request for a waiver, exception or modification. The Deciding Officer will make a determination based on this information.

All the following stipulations are consistent with and necessary to implement the land and resource management plan.

DEFINITION OF TERMS

- **Stipulation:** A provision that modifies standard lease rights and is attached to and made a part of the lease. Stipulations have been developed for the categories of: 1) No Surface Occupancy, 2) Timing Limitations or seasonal restrictions, and 3) Controlled Surface Use.
- **No Surface Occupancy (NSO):** Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values.
- **Timing Limitation (TL) (Seasonal Restriction):** Prohibits surface use during specified time periods to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.
- **Controlled Surface Use (CSU):** Use and occupancy ~~is~~are allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for NSO or Timing stipulations.
- **Lease Notice:** Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. A Lease Notice also addresses special items the lessee should consider when planning operations; but does not impose new or additional restrictions.
- **♦Waiver (oil and gas leasing):** Permanent exemption from a lease stipulation. Waivers can be granted if the condition described in the stipulation no longer applies anywhere in the leasehold.

Definition of Terms, cont.

- **Exception (oil and gas leasing):** Case-by-case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria apply.
- **Modification (oil and gas leasing):** Modifications are similar to exceptions, but broader in scope, and involve a fundamental change to the provisions of the stipulation. They can be granted either temporarily or for the duration of the lease. A modification may, therefore, include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

WATER, WETLANDS, WOODY DRAWS, RIPARIAN, AND FLOODPLAINS

Controlled Surface Use (CSU)

Resource: Water, Wetlands, Woody Draws, Riparian, and Floodplains (CSU).
(see Appendix G [Glossary](#) for definitions)

Stipulation

Try to locate activities and facilities away from the water's edge and outside the riparian areas, woody draws, wetlands, and floodplains. If necessary to locate 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).
- Deposit no soil material in natural drainageways.
- Locate the lower edge of disturbed or deposited soil banks outside the active floodplain.
- Stockpile no 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 or use containerized mud systems.

Objective (Justification)

For justification refer to the Land and Resource Management Plan Grassland-wide [and Forest-wide](#) Direction, [Section B](#), Water, [guideline](#) number 14. This stipulation is to protect the biological and hydrologic features of riparian areas, woody draws, wetlands, and floodplains.

Application Methodology,

Use this stipulation in riparian areas, woody draws, wetlands, and floodplains that are greater than 400 meters wide. 43 CFR 3101.1-2 includes measures to relocate operations up to 200 meters and to delay operations up to 60 days in any lease year. Therefore, use Standard Lease Terms for areas less than 200 meters from edge.

Waivers

This stipulation may be waived if the authorized officer determines the entire leasehold no longer contains any riparian areas, woody draws, wetlands, or floodplains.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area do not include riparian areas, woody draws, wetlands, and floodplains.

SOILS**No Surface Occupancy (NSO)****Resource: Slopes Greater than 40 Percent (NSO)****Stipulation**

Surface occupancy and use is prohibited on slopes greater than 40 percent.

Objective (Justification)

For justification refer to the [Land and Resource Management Plan Chapter 1](#), Grassland-wide_ and Forest-wide Direction, [Section C](#), Soils, [guideline](#) number 4. The objective of this stipulation is to protect soil resources from loss of productivity, prevent erosion on steep slopes, soil mass movement, and resultant sedimentation.

Application Methodology

Use this stipulation on slopes greater than 40 percent.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and the entire leasehold no longer contains any slopes greater than 40 percent.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include slopes greater than 40 percent.

Resource: Slopes Between 25 - 40 Percent (NSO)

Stipulation

Surface occupancy and use is prohibited on slopes between 25 - 40 percent with either highly erodible soils or soils susceptible to mass failure.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section C, Soils, guideline N number 4. The objective of this stipulation is to protect soil resources from loss of productivity, prevent erosion on steep slopes, soil mass movement, and resultant sedimentation.

Application Methodology

This stipulation applies to slopes between 25 and 40 percent with either highly erodible soils or soils susceptible to mass movement. This stipulation will not apply to those areas of slopes between 25 - 40 percent where it is determined there are no highly erodible soils, or soils susceptible to mass failure.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and the entire leasehold no longer contains any highly erodible soils or soils susceptible to mass failure on slopes between 25 to 40 percent in the leasehold.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include slopes between 25 to 40 percent with highly erodible soils or soils susceptible to mass failure.

RECREATION

No Surface Occupancy (NSO)

Resource: Developed Recreation Sites (NSO)

Stipulation

No surface occupancy or use is allowed within developed recreation sites.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Plan Grassland-wide and Forest-wide Direction, Section K, Recreation ~~Developed Recreation Sites~~, standard N number 9. The objective is to maintain the recreation opportunities and settings within developed recreation sites

Application Methodology

Use this stipulation in developed recreation sites.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and the entire leasehold no longer contains developed recreation sites.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include developed recreation sites.

PALEONTOLOGY**Controlled Surface Use (CSU)****Resource: Fossils (CSU)****Stipulation**

Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the Forest Service, shall:

- Contact the Forest Service to determine if a site-specific vertebrate paleontological inventory is required. The Forest Service will conduct inventories and surveys as part of the field review for the proposed activity on the lease. The operator may voluntarily engage the services of a qualified paleontologist to conduct the inventory.
- Implement mitigation measures required by the Forest Service and Bureau of Land Management to preserve or avoid destruction of vertebrate paleontological resources. Mitigation may include relocation of proposed facilities or other protective measures.
- The lessee or operator shall bring to the attention of the Forest Service any vertebrate paleontological resources discovered as a result of surface operation under this lease, and shall leave such discoveries intact until directed to proceed by the Forest Service.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section E, Paleontological Resources, standard numbers 1 and 3. The objective is to protect fossils and immediate environment of the site, including inherent scientific, natural historic, interpretive, educational, and recreational values for the area potentially impacted.

Application Methodology

Use this stipulation for Class 3, 4, and 5 formations as described in Appendix J Paleontology. The predevelopment survey protocol is described in Appendix J Paleontology.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include significant fossils as described in Appendix J [Paleontology](#) and FSM 2883 [Geology Hazards Program Management](#).

WILDLIFE

Wildlife stipulations are listed in the order of Timing Limitations, Controlled Surface Use, and No Surface Occupancy.

Wildlife - Timing Limitations (TL)**Resource: Ferruginous Hawk and Swainson's Hawk Nests (TL)****Stipulation**

Surface use is prohibited from March 1 through July 31 within 0.50 miles (line of sight) of ferruginous and Swainson's hawk nests.

Objective (Justification)

For justification refer to [the Land and Resource Management Plan Chapter 1](#), Grassland-wide [and Forest-wide](#) Direction, [Section F](#), Fish, Wildlife and Rare Plants, [standard](#) number 52. The objective is to prevent reduced reproductive success.

Application Methodology

This stipulation applies to active ferruginous and Swainson's hawk nest. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waiver

This stipulation may be waived if the authorized officer determines conditions have changed and all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable, can be adequately mitigated, or if all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area include nests or nest site(s) known to have been unoccupied during each of the previous 7 years.

Resource: Golden Eagle Nests (TL)**Stipulation**

Surface use is prohibited from February 1 through July 31 within 0.50 miles (line of sight) of golden eagle nests.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 52. The objective is to prevent reduced reproductive success.

Application Methodology

This stipulation applies to active golden eagle nest. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waiver

This stipulation may be waived if the authorized officer determines conditions have changed and all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable, can be adequately mitigated, or if all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area include nests or nest site(s) known to have been unoccupied during each of the previous 7 years.

Resource: Merlin Nests (TL)**Stipulation**

Surface use is prohibited from April 1 through August 15 within 0.50 miles (line of sight) of merlin nests.

Objective (Justification)

For justification refer to Chapter 1, Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 52. ~~the Land and Resource Management Plan-Grassland-wide Direction, Fish, Wildlife and Rare Plants, number 52.~~ The objective is to prevent reduced reproductive success.

Application Methodology

This stipulation applies to active merlin nests. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted for periodic maintenance including work-over rigs if a nest is unoccupied within the current year after May 30.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area include nests or nest site(s) known to have been unoccupied during each of the previous 7 years.

Resource: Sharp-tailed Grouse Display Grounds (TL)

Stipulation

Surface use is prohibited from March 1 through June 15 within 1 mile (line of sight) of a sharp-tailed grouse display ground.

Objective (Justification)

For justification refer to the ~~Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, guideline number 15. The objective is to prevent abandonment of display grounds and reduced reproductive success.

Application Methodology

This stipulation applies to active sharp-tailed grouse display grounds. The 1-mile radius extends outward from the center of a display ground. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all display grounds within the leasehold or within the stipulated distance from the leasehold have not been used during the past 2 breeding seasons.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted if the display ground has not been used by May 1 of the current year.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include display grounds that have been used during the last 2 breeding seasons.

Resource: Sage Grouse Display Grounds (TL)**Stipulation**

Surface use is prohibited from March 1 through June 15 within 2 miles (line of sight) of a sage grouse display ground, and noise from production facilities must not exceed 49 decibels (10 dBA above background noise) at the display ground.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 2, Fall River West Geographic Areas, Wildlife, Fish and Rare Plants, standard number 1. The objective is to prevent abandonment of display grounds and reduced reproductive success.

Application Methodology

This stipulation applies to active sage grouse display grounds. The 2-mile radius extends outward from the center of a display ground. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all display grounds within the leasehold or within the stipulated distance from the leasehold have not been used during the past 5 breeding seasons.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted if the display ground has not been used by May 1 of the current year.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include any display grounds that have been used during the past 5 breeding seasons.

Resource: Mountain Plover (TL)**Stipulation**

Surface use is prohibited from March 15 through July 31 within 0.25 miles (line of sight) of a mountain plover nests or nest aggregation areas.

Objective (Justification)

For justification refer to the Land and Resource Management Plan, Fall River West Geographic Area Direction, Wildlife, Fish and Rare Plants, number 2. The objective is to prevent reduced reproductive success.

Application Methodology

This stipulation applies to mountain plover nests and nest aggregation areas, if mountain plovers begin nesting on the Buffalo Gap or Oglala National Grasslands. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and there are no nests or nest aggregation areas within the leasehold or within the stipulated distance from the leasehold.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted if the nest or nest aggregation area has not been used by June 10 of the current year.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include mountain plover nests and nesting areas.

Resource: Black-footed Ferret Habitat (TL)**Stipulation**

Surface use is prohibited from March 1 through August 31 within 0.125 miles (line of sight) of prairie dog colonies occupied or thought to be occupied by black-footed ferrets.

Objective (Justification)

For justification refer to [Chapter 2, Fall River West Geographic Area, Wildlife, Fish and Rare Plants, standard number 19](#)~~the Land and Resource Management Plan Grassland-wide Direction, Fish, Wildlife and Rare Plants, number 19~~. The objective is to protect ferrets when breeding and rearing young.

Application Methodology

This stipulation applies to prairie dog colonies occupied by black-footed ferrets. The spatial buffer extends out from the outer boundary of a prairie dog colony occupied by black-footed ferrets. This stipulation applies to drilling and testing and new construction projects, not to operation or maintenance of production facilities.

Waivers

The authorized officer may grant a waiver if ferret surveys, following protocol approved by the U.S. Fish, Wildlife and Rare Plants Service, indicate a low probability that ferrets occur in prairie dog colonies located in the leasehold, or if the U.S. Fish, Wildlife and Rare Plants Service determines that black-footed ferrets do not occur in the area. Currently, there are no prairie dog colonies occupied by black-footed ferrets that are outside Management Area 3.63. This stipulation will be applied if black-footed ferret populations expand outside Management Area 3.63.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted if surveys indicate a low probability that ferrets occur in a prairie dog colony where drilling, testing or new construction is proposed.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that black-footed ferrets do not occur in portions of the area.

Resource: Swift Fox Dens (TL)**Stipulation**

Surface use is prohibited from March 1 through July 31 within 0.25 miles (line of sight) of swift fox dens.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Chapter 1, Plan~~ Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 45. The objective is to prevent den abandonment and reduced ~~reproductive~~ reproduction.

Application Methodology

This stipulation applies to swift fox den sites. This stipulation applies to drilling and testing and new construction projects, not to operation or maintenance of production facilities.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and there are no dens within the leasehold or within the stipulated distance from the leasehold.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include swift fox dens.

Wildlife - Controlled Surface Use (CSU)

Resource: Black-footed Ferret Habitat (CSU)

Stipulation

Operations in prairie dog colonies known or thought to be occupied by black-footed ferrets are subject to the following constraints:

- Limit oil and gas development to no more than one location per 80 acres.
- Suitable black-footed ferret habitat lost as a result of new facilities within prairie dog colonies must be replaced within 1 year.
- Access for routine maintenance of oil and gas facilities in prairie dog colonies is limited to daylight hours. This does not apply to emergency repairs.
- If it's necessary to place a new road in a prairie dog colony, align the road to minimize habitat loss.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan Chapter 1~~, Grassland-wide ~~and Forest-wide~~ Direction, ~~Section F~~, Fish, Wildlife and Rare Plants, ~~standard~~ number 18, ~~21~~, and ~~guideline number~~ 22, and Management Area 3.63, General, ~~standard~~ number 1 ~~(as amended)~~, ~~and 2~~. The objective is to protect against activities that could result in adverse impacts on black-footed ferrets or ferret recovery objectives.

Commented [KB27]: 21 was removed by previous amendment.

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Application Methodology

This stipulation applies to prairie dog colonies occupied by black-footed ferrets outside Management Area 3.63. Currently, there are no prairie dog colonies occupied by black-footed ferrets that are outside ~~Management Area~~ 3.63. This stipulation will be applied if black-footed ferret populations expand outside ~~Management Area~~ 3.63.

Waivers

The authorized officer may waive this stipulation if black-footed ferrets are released under an experimental non-essential population status; this stipulation may be waived for areas inside the experimental population area but outside Management Area 3.63.

Exceptions

No conditions for an exception are anticipated, and approval of an exception is unlikely.

Modifications

No conditions for a modification are anticipated, and approval of a modification is unlikely.

Resource: Mountain Plover Habitat (CSU)

Stipulation

Operations in mountain plover nesting and brooding habitat are subject to the following constraints:

- Limit oil and gas development to no more than one location per 80 acres.
- Suitable mountain plover habitat lost as a result of new facilities must be replaced within 1 year.
- Access for routine maintenance of oil and gas facilities in mountain plover nesting and brooding habitat will be between 9 am and 5 pm. This does not apply to emergency repairs.
- If it's necessary to place a new road in a prairie dog colony, align the road to minimize habitat loss.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~Chapter 2, Geographic Area Direction, Fall River West, Wildlife Fish and Rare Plants, standard number 2. The objective is to prevent reductions in reproductive success.

Application Methodology

This stipulation applies to mountain plover nesting and brooding habitat, if mountain plovers begin nesting and brooding on the Buffalo Gap or Oglala National Grasslands. Multiple facilities concentrated at a site are allowed.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception would be unlikely.

Modifications

The boundary of the stipulated area may be modified if the authorizing officer determines that portions or the area does not contain active prairie-dog colonies.

Wildlife - No Surface Occupancy (NSO)

Resource: Mountain Plover Nests and Nesting Areas (NSO)

Stipulation

No surface occupancy or use is allowed within 0.25 miles of known mountain plover nests or nesting areas.

Objective (Justification)

For justification refer to [the Land and Resource Management Plan Chapter 2, Geographic Area Direction](#), Fall River West, Wildlife, Fish and Rare Plants, [standard](#) number 2. The objective is to prevent reduced reproductive success and adverse habitat loss.

Application Methodology

This stipulation applies to mountain plover nests or nesting areas if nests or nesting areas are established on the Oglala or Buffalo Gap National Grasslands.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception would be unlikely.

Modifications

The boundary of the stipulated area may be modified if the authorizing officer determines that portions or the area [do es](#) not contain mountain plover nests or nesting areas.

Resource: Bald Eagle Nests (NSO)

Stipulation

No surface occupancy or use is allowed within 1.0 mile (line of sight) of bald eagle nests.

Objective (Justification)

For justification refer to [the Land and Resource Management Plan Chapter 1, Grassland-wide and Forest-wide Direction, Section F](#), Fish, Wildlife and Rare Plants, [standard](#) number 51. The objective is to prevent reduced reproductive success and adverse habitat loss.

Application Methodology

This stipulation applies to active bald eagle nests.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area include nests or nest site(s) known to have been unoccupied during each of the previous 7 years. The boundary of the stipulated area may also be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the eagles.

Resource: Bald Eagle Winter Roosts (NSO)**Stipulation**

No surface occupancy or use is allowed within 1.0 mile (line of sight) of bald eagle roosting areas.

Objective (Justification)

For justification refer to ~~the Land and Resource Management~~ Chapter 1, Plan Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 51. The objective is to prevent adverse impacts on wintering and migrating bald eagles.

Application Methodology

This stipulation applies to bald eagle roosting areas.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and winter roosting areas are no longer used within the leasehold or within the stipulated distance from the leasehold.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include winter roosting areas. The boundary of the stipulated area may also be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the eagles.

Resource: Golden Eagle, Merlin, Ferruginous Hawk, Swainson's Hawk, and Burrowing Owl Nests (NSO)**Stipulation**

No surface occupancy or use is allowed within 0.25 miles (line of sight) of golden eagle, merlin, ferruginous hawk, Swainson's hawk, or burrowing owl nests.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 51. The objective is to prevent reduced reproductive success and adverse habitat loss.

Application Methodology

This stipulation applies to active golden eagle, merlin, ferruginous hawk, Swainson's hawk, or burrowing owl nests.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all nests within the leasehold or within the stipulated distance from the leasehold are known to have been unoccupied during each of the previous 7 years.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area include nests or nest site(s) known to have been unoccupied during each of the previous 7 years. The boundary of the stipulated area may also be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting these raptors.

Resource: Sharp-tailed Grouse and Sage Grouse Display Grounds (NSO)**Stipulation**

No surface occupancy or use is allowed within 0.25 miles (line of sight) of a sharp-tailed grouse or sage grouse display ground.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Chapter 1, Plan~~ Grassland-wide and Forest-wide Direction, Section F, Fish, Wildlife and Rare Plants, standard number 14. The objective is to prevent abandonment of display grounds, reduced reproductive success, and adverse habitat loss.

Application Methodology

This stipulation applies to active sharp-tailed grouse or sage grouse display grounds. The 0.25-mile radius extends outward from the center of a display ground.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all display grounds within the leasehold or within the stipulated distance of the leasehold have not been used during the last 2 breeding seasons (sharp-tailed grouse) or 5 breeding seasons (sage grouse).

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include any display grounds that have been used during the last 2 breeding seasons (sharp-tailed grouse) or 5 breeding seasons (sage grouse). The boundary of the stipulated area may also be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage grouse and the display grounds.

SCENERY MANAGEMENT**High Scenic Integrity Objective (SIO) Areas****Controlled Surface Use (CSU)****Resource: Scenery (CSU)****Stipulation**

Surface occupancy and use is subject to operational constraints to maintain the landscape character intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and to such scale that they are not evident.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ [Chapter 1](#), Grassland-wide ~~and Forest-wide~~ Direction, [Section L](#), Scenery Management, [guideline](#) number 1. The objective is to maintain the Scenic Integrity Objective (SIO) for areas identified as high.

Application Methodology

Use this stipulation on areas identified as high on the adopted SIO map. Operational constraints may include utilizing topographic/vegetative screening, matching color tones of facilities with surrounding topographic features, orienting the well pad/facilities, redesigning production facilities to such scale that they may not be evident, or placing facilities outside the high SIO area.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver is unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception is unlikely.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include high SIO areas.

Moderate Scenic Integrity Objective (SIO) Areas

Controlled Surface Use (CSU)

Resource: Scenery (CSU)

Stipulation

Surface occupancy and use is subject to operational constraints to maintain a landscape character that is no more than slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~ Chapter 1, Grassland-wide and Forest-wide Direction, Section L, Scenery Management, guideline number 1. The objective is to maintain the scenic integrity objective (SIO) for areas identified as moderate.

Application Methodology

Use this stipulation on areas identified as moderate on the adopted SIO map. Operational constraints may include utilizing vegetative/vegetative screening, matching color tones of facilities with surrounding topographic features, orienting the well pad/facilities, redesigning production facilities to such scale that they are visually subordinate to the landscape, or placing facilities outside the moderate SIO area.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver is unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception is unlikely.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include moderate SIO areas.

MANAGEMENT AREA PRESCRIPTIONS

MA 2.1 Special Interest Area – Archeological Resources

No Surface Occupancy (NSO)

Resource: Hudson-Meng Bison Bonebed and Warbonnet/Yellowhand Archeological Sites (NSO)

Stipulation

No surface occupancy or use is allowed within the boundaries of Hudson-Meng Bison Bonebed and Warbonnet/Yellowhand SIAs.

Objective (Justification)

For justification refer to ~~the Land and Resource Management Plan~~Chapter 3, Management Area Direction, MA 2.1, Hudson-Meng Bison Bonebed (2.1i) and Warbonnet/Yellowhand (2.1m) Special Interest Areas (SIAs). The objective is to protect the heritage resources.

Application Methodology

Use this stipulation in Management Area 2.1 SIAs, Hudson-Meng Bison Bonebed and Warbonnet/Yellowhand.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception would be unlikely.

Modifications

No conditions for a modification are anticipated, and approval of a modification would be unlikely.

MA 2.1 Special Interest Area – Paleontology and Geological Resources

Controlled Surface Use (CSU)

Resource: Edgemont Shark Locality, Marietta South, One-Mile Hill, and Wallace Ranch Localities (CSU)

Stipulation

Operations may be moved or modified to avoid disturbance to significant fossil resources.

Objective (Justification)

For justification refer to the Land and Resource Management Plan Management Area Direction, MA 2.1, Edgemont Shark Locality (2.1c), Marietta South (2.1d), One-Mile Hill (2.1d), and Wallace Ranch Localities (2.1f) Special Interest Areas (SIAs). The objective is to protect fossils and immediate environment of the site, including inherent scientific, natural historic, interpretive, educational, and recreational values for the area potentially impacted.

Application Methodology

Use this stipulation in Management Area 2.1 SIAs, Edgemont Shark Locality, Marietta South, One-Mile Hill, Wallace Ranch Localities, and Indian Creek.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception would be unlikely.

Modifications

No conditions for a modification are anticipated, and approval of a modification would be unlikely.

No Surface Occupancy (NSO)**Resource: Toadstool Park Paleontological and Geological Area (NSO)****Stipulation**

No surface occupancy or use is allowed within the boundaries of Toadstool Park SIA.

Objective (Justification)

For justification refer to the Land and Resource Management Plan Management Area Direction, MA 2.1, Toadstool Park (2.11) Special Interest Area (SIA). The objective is to protect fossils, geologic and biostratigraphic type sections, and immediate environment of the site, including inherent scientific, natural historic, interpretive, educational, and recreational values for the area potentially impacted.

Application Methodology

Use this stipulation in Management Area 2.1 SIA, Toadstool Park.

Waivers

No conditions for a waiver are anticipated, and approval of a waiver would be unlikely.

Exceptions

No conditions for an exception are anticipated, and approval of an exception would be unlikely.

Modifications

No conditions for a modification are anticipated, and approval of a modification would be unlikely.

LEASE NOTICES TO BE APPLIED TO ALL LEASES

Lease Notices are attached to leases to transmit information at the time of lease issuance to assist the lessee in submitting acceptable plans of operation, or to assist in administration of leases. Lease Notices are attached to leases in the same manner as stipulations, however, there is an important distinction between Lease Notices and Stipulations. Lease Notices do not involve new restrictions or requirements. Any requirements contained in a Lease Notice must be fully supported in a law, regulations, standard lease terms, or onshore oil and gas orders. The lessee does not sign a Lease Notice. Guidance in the use of Lease Notices is found in Bureau of Land Management Manual 3101 and 43 CFR 3101.1-3. Lease Notices for Cultural and Paleontological Resources, and for Endangered or Threatened Species, which are to be attached to all leases on the Nebraska National Forests and Grasslands can be found in Region 2 supplement to FSM 2820.

APPENDIX E GUIDELINE FOR CONSTRUCTING USER-FRIENDLY GATES

The gate closure consists of a length of chain, one end of which permanently attaches to the inside of the stationary gate post in line with the closed gate and no more than 3 inches above the top wire using a minimum of 1 3/4 inches of barbed and cement-coated fence staple. A spike at least 1/4 inch in diameter is driven into the stationary gate post horizontally at the same height as the chain attachment and 180 degrees from it. The spike head is removed if it interferes with placing the chain link over the spike. No less than 1 1/2 inches nor more than 2 1/2 inches of spike is to protrude from the gate post. When the gate is in the closed and tight position, a minimum of 12 inches of excess chain extends from the spike. The recommended chain is zinc-coated, 3/16 inch, straight-link-proof, coil chain.

OR

Specifications for gates depend on the location and use of the gate. Gates on roads must be large enough to allow passage of vehicles and heavy equipment expected on the road and are generally slightly wider than the road. Gates for livestock range from 8 to 16 feet, generally whatever is convenient to construct. Gates at trail junctions and on trails must be wide enough to allow horses to pass safely.

Gates that will be used frequently should swing and be constructed of metal, poles, or boards. Gates used less frequently may be constructed with barbed wire and wooden or wire stays. Pole-wing gates provide easy access because the gate can be swung in either direction and from either end depending on the end the panel is pivoted on and the direction the panel is swung. Gate closure devices should be a wire loop that is twisted together or length of chain attached to the permanent gate post that can be wrapped around the non-stationary gate post. In using a chain as a closure device, a spike needs to be driven into the permanent gate post to attach the chain to once it has been wrapped around the non-stationary gate post. To facilitate the opening and closing of the gate, the use of a chain binder system will be used to remove the slack in the gate.

APPENDIX F GEOLOGY AND MINERALS

General

Contact and coordination will be made with mining and oil and gas interest groups, such as the American Mining Congress, Northwest Mining Association, Rocky Mountain Oil and Gas Association, Independent Petroleum Association of Mountain States, and International Association of Geophysical Contractors, to investigate procedures and processes that will facilitate the exploration and development of energy and non-energy mineral resources occurring beneath the lands administered by the Forest Service, with the least impacts to surface resources.

The heritage resource value of historic mineral properties will be considered prior to approval of new mineral operations.

Reclamation will be considered satisfactory when the disturbed area has been reclaimed in accordance with surface use or operating plan requirements.

Oil and Gas Operations

All trash will be dumped into a screened trash container and hauled away to an approved landfill.

Rig stacking and storage of equipment not being used is not allowed on ~~f~~ederal land.

The siting of oil and gas facilities and developments in sensitive areas identified in an environmental analysis will be discouraged and possibly prohibited, especially in areas of mass failure hazard, along river bottoms or areas subject to high flooding hazard.

Avoid administrative, research, and study areas in locating oil and gas operations.

Drilling pads will be designed to divert surface water off or away from the pad to minimize erosion and water accumulation.

Closed circulation systems will be encouraged. In cases where open reserve pits for drilling operations are justified, the pits will be designed and construction to minimize potential for leakage and structural failure (including pit solidification). Reserve pit residues will be contained or removed.

Production pits are prohibited. Produced water tanks will be located to minimize the potential for contamination due to a produced water spill.

Oil and gas production facilities will be designed to contain potential oil and produced water spills.

Surface and subsurface developments will be sited, constructed, painted, and maintained to achieve minimum visual impact. Surface developments will be earth tone colors.

Fencing may be required to exclude livestock from portions of the drilling/production/reclamation areas.

If a well is a producer, all site rehabilitations (dirt moving work, seeding and fencing) shall be completed within six months. As a general guideline under normal weather conditions, the timetable for rehabilitation will allow two months for the mud to settle in the reserve pit, two

months for backfill settling upon pit closures, and two months to complete the final contouring of the land and applying topsoil. Before any production facilities are constructed, the operator will prepare site reclamation plan and Forest Service for all disturbed areas not required for production facilities. In the event of a winter-~~a~~ freeze-up, reclamation will be put on hold as determined by the Forest Service.

If a well is ~~a~~-not producing, the entire location and access road (if the access is not to be retained) will be rehabilitated (dirt moving work, seeding and fencing) within six months from the date the well is plugged. The rehabilitation timetable will be the same as above.

Energy and Mineral Related Special Uses

Do not charge additional fees on permits for off-lease activities necessary to mitigate Forest Service issues when such activities are directly related to administration of a drilling permit.

Facilities including roads for development and production of mineral rights outstanding under ~~F~~federal surface will be authorized under a plan of operations when located on the mineral deed, but will require a special use permit when located off the mineral patent. Appropriate charges will be made unless the road is needed as part of the Forest's or Grassland's planned transportation system.

Roads built on leases being developed are considered a lease right and authorized through the drilling permit. When located off the lease, new road construction will require a special use permit and appropriate fees will be charged unless the road is needed as part of the planned Forest's or Grassland transportation system.

On reserved mineral rights, a reserved minerals permit authorizes the road and pad within the boundaries of the reservation and a special use permit authorizes the off-~~l~~ease portion of the road. Charges for the well pad and for the portion of the road within the boundaries of the private mineral estate will be as stated in the applicable deed and ~~f~~Federal rules and regulations.

Noncommercial disposal of produced water from a private mineral estate under either ~~f~~Federal or private surface may utilize ~~f~~Federal surface outside the mineral patent, if it minimizes~~s~~d overall surface or subsurface impacts on ~~f~~Federal land and demonstrates sound land management. No disposal fee will be charged for noncommercial produced water disposal in these cases.

Pipelines and related facilities for disposal of produced water from mineral rights reserved by ~~F~~federal surface will be authorized under special use permit and the fee collection will be according to the provision in the mineral deed.

Produced Water Spills

Industry will be encouraged to prevent future produced water spills through facility design, maintenance, self-regulation and self-policing, and through the education of employees and subcontractors on the nature and severity of the problem. The Forest Service will encourage and pursue research to help mitigate this problem.

All instances of damage to National Forest Service-System (NFS) lands from produced water generated through gas and oil exploration and production will be investigated in coordination with other appropriate ~~f~~Federal and ~~S~~tate agencies.

The short-term goal of treatment will consist of establishing a grass cover within three growing seasons. The long-term goal will be the restoration of the area to the conditions that existed prior to damage. Treatment of the contaminated soil in place is the generally preferred method.

Resource Damage from Toxic Drilling Fluids

The ~~Forest or~~ Grassland will coordinate investigative and corrective actions with appropriate ~~f~~Federal and ~~s~~State agencies, industry and with private consultants as needed for all cases of suspected resource damage involving the release of toxic materials from existing or abandoned drilling sites.

The ~~Forest or~~ Grassland will attempt to identify the cause of toxic release damage, will require correction of existing problems where feasible and will work with industry to develop methods to reduce the likelihood of future occurrence of toxic materials damage.

Mineral Rights Reserved or Outstanding

Where ~~National Forest System~~NFS surface ownership overlies mineral rights outstanding or where the mineral estate is otherwise in non-federal ownership, Forest Service land management practices and guidelines for oil and gas exploration and development will be applied to the extent allowed by deeded rights, through the application of law, and by negotiation.

In order to better facilitate mineral development activities and to minimize resource damage to NFS lands, the ~~Forest or~~ Grassland will, through negotiation, develop a memorandum of understanding with large holders of mineral rights outstanding.

Pipelines and related facilities for disposal of produced water from outstanding private minerals under ~~f~~Federal surface will be authorized by an operating plan within the boundaries of the mineral patent. No fee will be charged.

Coal development management practices and guidelines will be applied within the intent of the Surface Mining Control and Reclamation Act of 1977 and applicable ~~s~~State government regulations.

Locatable

Development of locatable minerals will occur according to the provisions of 36 CFR 228 Subpart A. Requirements for environmental protection will be made part of plans of operation or other approval documents.

Mineral Materials

~~Forest or~~ Grassland aggregate resources may be made available for free use on the following allocation priority: Forest Service, other federal agencies, ~~S~~State and local agencies (36 CFR 228 Subpart C).

Mineral materials on lands managed under Bankhead-Jones may be disposed of only to public authorities and agencies (36 CFR 228 Subpart C).

Mineral material removal sites will be managed ~~to~~ encourage safe operations, to achieve minimal environmental impacts, and to meet all the stipulations of the plans and permits/contracts. To meet this mineral material removal sites will:

- Be located so as to create the least visual impact.
- Follow the following safety provisions:
 - No vertical walls over ten (10) feet in height will be left at the end of each day's operation.
 - During periods of nonuse, including weekends, pit walls of active sites will be reduced to minimum slope of 1:1.
 - Fencing may be substituted for the above requirement.
 - Warning signs around the margins of the pit will be required when deemed necessary by the responsible Forest Officer.
- Be contoured and sloped during the period of nonuse so as to prevent soil erosion and siltation of nearby water sources.
- Be rehabilitated within 6 months of the termination of use.

Annual production reports ~~will be~~ required for all permits issued for a term exceeding 1 year.

APPENDIX G GLOSSARY

Abiotic - Nonliving, not associated with life. Although the term does refer to nonliving, it may still be associated with life.

Access - The opportunity to approach, enter, and make use of public or private land.

Acre-Foot - The amount of water covering an area of one acre to a depth of one foot (43,560 cubic feet or 325,851 gallons).

Active Nest - A nest that is still structurally sound and could reasonably be expected to be occupied in the future; the period of time that a nest can be unoccupied but still classified as active varies and is dependent on the characteristics of the species most likely to use the nest in the future.

Active Prairie Dog Colony - A prairie dog colony that supports a prairie dog density that has not been noticeably reduced by poisoning, plague, or shooting and that is essentially at its carrying capacity.

Activity - A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives.

Activity Area - An area of land impacted by a management activity or activities. An activity area can range from a few acres to an entire watershed depending on the type of monitoring being conducted.

Activity Fuels - Debris generated by an activity that increases fire potential, such as firewood gathering, pre-commercial thinning, timber harvesting, and road construction.

Adaptation - A genetically determined characteristic that enhances an organism's chances for survival and reproduction.

Adaptive Management - A type of natural resource management in which decisions are made as part of an ongoing process. Adaptive management involves testing, monitoring, evaluating, and incorporating new knowledge into management approaches based on scientific findings and the needs of society. Results are used to modify management policy.

Adjustment - Change in animal numbers, seasons of use, kinds or classes of animals, or management practices as warranted by specific conditions.

Administrative Facilities - Those facilities, such as a ranger station or work center, that are used by the Forest Service in management of a ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~rassland.

Administrative Site - Work center or other area reserved for administrative purposes.

Administrative Unit - All the National Forest System lands, including ~~N~~ational ~~F~~orests or ~~N~~ational ~~G~~rasslands, for which one forest supervisor is responsible.

Administrative Use - Use authorized by Forest Service officials to complete management functions and activities.

Adverse Determinations - Please refer to the definition as found in the Biological Assessment and Evaluation appendix.

Adverse Effects (Heritage Resources) - Any effect on a heritage resource that would be considered harmful to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

Aesthetics - Pertaining to the quality of human perception of natural beauty (including sight, sound, smell, touch, taste, and movement).

Affected Environment - The biological and physical environment that will or may be changed by actions proposed and the relationship of people to that environment.

Afforestation - To establish forest cover on a nonforested land type, such as a grassland.

Agricultural Commodity - A product of agriculture.

Air Pollution - Any substance or energy (heat, light, noise, etc.) that alters the state of the air from what would naturally occur.

Air-Dry Weight - The weight of a substance after it has been allowed to dry to equilibrium with the atmosphere.

Airshed - A geographical area which, because of topography, meteorology, and climate, routinely shares the same air mass.

Alienated Land - Land of one ownership enclosed within boundaries of another ownership. Often refers to privately owned land within the boundaries of public land.

Allocation - The assignment of a land area to a particular use or uses to achieve management goals and objectives.

Allotment - A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System lands, including **National Forest or National Grasslands**.

Allotment Management Plan (AMP) - The document containing the action program needed to manage the range resource for livestock utilization, and possibly wildlife utilization, while considering the soil, watershed, wildlife, recreation, timber, and other resources in a range allotment.

Allowable Sale Quantity (ASQ) - The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity.

Allowable Use - 1) The degree of utilization considered desirable and attainable on various parts of a ranch or allotment considering the present nature and condition of the resource, management objectives, and levels of management. 2) The amount of forage planned to be used to accelerate range improvement.

Alluvium - Sediments deposited by streams, rivers, and moving waters.

All-weather Road - A road capable of being utilized during all weather conditions with only minor or short-term restrictions.

Alternative - A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of several policies, plans, or projects proposed for decision-making. An alternative need not substitute for another in all respects.

Amenity Values - Resource use for which market values (or proxy values) are not or cannot be established.

American Indian - A member of any tribe, band, nation, or other organized group or community of Indians recognized by the United States.

Analysis Area - One or more capability areas combined for the purpose of analysis in formulating alternatives and establishing various impacts and effects.

Analysis of the Management Situation (AMS) - A determination of the ability of a planning area to supply goods and services in response to society's demands for those goods and services.

Animal Unit Month (AUM) - The amount of feed or forage required by an animal-unit for one month.

Animal-Month - A month's tenure upon the rangeland by one animal. Must specify kind and class of animal. Note: This term is not synonymous with animal unit month (AUM).

Animal-Unit - Considered to be a mature 1,000-pound cow or the equivalent, based on an average daily forage consumption of 26 pounds dry matter per day.

Annual Plant - A plant that completes its life cycle and dies in one year or less.

Application (Oil and Gas) - A written request, petition, or offer to lease lands for the purpose of oil and gas exploration and/or the right of extraction.

Application for Permit to Drill (APD) - An application to drill a well, submitted by a lessee or operator to the Bureau of Land Management (BLM). The APD consists of a Drilling Plan, reviewed by the BLM and a Surface Use Plan of Operation (SUPO), reviewed by the Forest Service. The Drilling Plan discusses down hole drilling specifications and procedures. The Surface Use Plan of Operation SUPO examines surface uses, including access roads, well-site layout, cut/fill diagrams, reclamation procedures, production facility locations, etc. The approved APD is a contract between the operator and the federal government and cannot be changed or modified unless authorized by the BLM and Forest Service.

Aquatic Ecosystem - An ecosystem (biological and physical components and their interactions) in which water is the principal medium. Examples include wetlands, streams, reservoirs, and areas with plants or animals characteristic of either permanently or seasonally inundated soils.

Aquifer - A geologic formation capable of transmitting water through its pores at a rate sufficient for water-supply purposes. The term water-bearing is sometimes used synonymously with aquifer when a stratum furnishes water for a specific use. Aquifers are usually saturated sands, gravel, fractures, caverns, or vesicular rock (rock with cavities).

Archeological Resource - Any physical remains of past human life or activities.

Area of Potential Effects - The geographic area Geographic Area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist.

Areas of Critical Environmental Concern - Areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; wildlife resources; or other natural systems or processes or to protect life from natural hazards.

Arterial Road - See Road Functional Classification.

Aspect – 1) The visual first impression of vegetation or a landscape at a particular time or as seen from a specific point. 2) The predominant direction of slope of the land. 3) The seasonal changes in the appearance of vegetation.

Authorized Forest Officer - The Forest Service employee delegated the authority to perform specific duties: generally, a regional forester, forest supervisor, district ranger, or minerals staff officer.

Availability (Oil and Gas) - Availability of National Forest System lands, including ~~N~~ational ~~G~~erasslands, for oil and gas leasing. Availability refers to lands that have not been formally prohibited from oil and gas leasing activities.

Available Forage - That portion of the forage production that is accessible for use by a specified kind or class of grazing animal.

Available Lands - Those portions of the ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~erassland not administratively excluded from timber harvest or livestock grazing.

Available Lands (Oil and Gas) - Any lands subject to oil and gas leasing under the Minerals Leasing Act.

Background - See Distance Zones.

Badlands - A land type that consists mainly of exposed siltstone or silty and clay shale. Vegetation is limited to nonexistent.

Bank Stability Criteria - Factors used in determining bank stability. Such factors may include vegetation density and vigor, evidence of past or current gullying or slumping, presence of objects that may deflect water into the banks, presence and size of rocks, and distance to break in slope.

Barriers (Soils and Watershed) - Temporary structures used to control erosion, such as silt fences, straw bales, rock check dams, and felled logs.

Basal Area - The cross-sectional area of the stem or stems of a plant or of all plants in a stand. Herbaceous and small woody plants are measured at or near the ground level. Larger woody plants are measured at breast or other designated height. The area is expressed in square feet per acre.

Base Property - Those lands in a ranching enterprise that are owned and required to hold a term grazing permit.

Bedload (Watershed and Fisheries) - Sand, silt and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water. The particles of this material have a density or grain size that prevents movement far above or for a long distance out of contact with the stream bed under natural flow conditions.

Benchmark - Reference points that define the bounds within which feasible management alternatives can be developed. Benchmarks may be defined by resource output or economic measures.

Benefit-Cost Ratio - Measure of economic efficiency, computed by dividing the total discounted primary benefits by the total discounted economic costs.

Bentonite - A natural clay deposit that has high swelling capabilities when saturated. Used to seal earthen stock ponds.

Best Management Practices (BMPs) - Land management methods, measures or practices intended to minimize or reduce water pollution as well as practices that result in healthy ecosystems. Usually, BMPs are applied as a system of practices rather than a single practice. BMPs are selected based on site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.

Biennial Plant - A plant that lives for two years, usually flowering and fruiting only in the second year and then dying.

Big Game - Certain wildlife that may be hunted for sport under state laws and regulations, including elk, pronghorn antelope, mule and white-tail deer, turkey, and bighorn sheep.

Big Game Security - Protection that allows an animal to remain in a defined area despite increases in stress and disturbance associated with hunting seasons or other human activities.

Biocide - A chemical toxin that is lethal to living organisms.

Biogeography - The study of the geographic distribution of plants and animals.

Biological Control Agents - Natural organisms, such as animals, insects, diseases, parasites and predators, that reduce pest populations of insects, diseases, and noxious weeds.

Biological Control Methods - Use of natural organisms, such as insects, diseases, parasites, and predators to reduce pest populations of insects or weeds or ~~to~~-control diseases. Methods may include importation and release, conservation of native natural-enemy species, and augmentation (supplementation through rearing and release or genetic improvement) of biological control agents.

Biological Diversity - The full variety of life in an area, including the ecosystems, plant and animal communities, species and genes, and the processes through which individual organisms interact with one another and their environments. Emphasis is on the diversity of native or endemic species.

Biological Resource - Plants and animals of direct or indirect value to human beings.

Biomass - The total amount of living plants and animals above and below ground in an area at a given time.

Biome - A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions, but not including the abiotic portion of the environment.

Bioregion - A territory defined by a combination of biological, social, and geographic criteria rather than geopolitical considerations. Generally, a system of related interconnected ecosystems.

Biosphere - That portion of earth and atmosphere in which life can exist.

Biota - All ~~the~~ species of plants and animals occurring within an area or region.

Bird Ladders - A floating platform placed in water tanks and troughs to provide a means for birds and small animals to drink and escape from the water should they fall in.

Blowout - An excavation in areas of loose soil, usually sand, produced by wind.

Board Foot - A unit of timber measurement equaling the amount of wood contained in a board 1 inch thick, 12 inches long, and 12 inches wide.

Botanical Area - A unit of land that contains plant specimens, plant groups, or plant communities that are significant because of their form, color, occurrence, habitat, location, life history, arrangement, ecology, rarity, or other features.

Broadcast Burning - A fire ignited under specific conditions (prescriptions) and within established boundaries to achieve some land management objective.

Broadcast Seeding - Process of scattering seed on the surface of the soil prior to natural or artificial means of covering the seed with soil.

Broadcast Treatments (Pest Management) - The uniform application of pesticide over an entire area.

Browse - Twigs, leaves, and young shoots of trees and shrubs upon which animals feed: in particular, those shrubs that are utilized by some livestock and big game animals for food.

BTU - British Thermal Unit. The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at or near its maximum density.

Buck-Fence - A fence constructed of wooden poles fastened horizontally to wooden cross-members. Such fences withstand heavy snows in mountainous regions and eliminate the need for digging holes for posts in rocky terrain. Also called buck-pole fence.

Buffalo Wallow - A small natural depression of prairie occasionally containing standing water and having vegetation different from that of the surrounding area.

Buffer Zone - An area on the edge of protected areas with restrictive land-use controls allowing only activities compatible with protection of the core area, such as research, environmental education, recreation, and tourism.

Bureau of Land Management (BLM) - An agency in the U.S. Department of the Interior.

Butte - An isolated hill with relatively steep sides. A mesa.

Cabling - The use of a large cable pulled between two large crawler tractors to pull down or uproot brush. Also called chaining.

Cactus - A spiny, succulent plant of the Cactaceae family.

Candidate Species - Species for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list the species for protection under the Endangered Species Act.

Capable Rangeland - The potential of an area of land to produce resources, supply goods and services and allow resource uses under an assumed set of management practices and at given levels of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices such as silviculture or protection from fire, insects, and disease.

Capital Investment - Investments in facilities, such as roads and structures, with specially appropriated funds.

Captive Breeding - The propagation of animals outside their natural habitat, in which humans choose the individuals which will make up the population, as well as their mates within that population.

Carrying Capacity - The maximum possible stocking rate that is consistent with maintaining or improving vegetation or related resources. It may vary from year to year in the same area due to fluctuating forage production. Also called grazing capacity.

Carrying Capacity (Wildlife and Livestock Grazing) - The maximum number of animals that can be supported in a given environment without deteriorating that environment.

Casual Use - Activities occurring by chance or taking place at irregular intervals without ceremony or formality.

Cattleguard - A device or structure, at points where roads or railroads cross a fence line, that is so designed that vehicular travel is uninterrupted but crossing by all kinds of livestock is restricted.

Cavity - A hollow in a tree that is used by birds or mammals for roosting and reproduction.

CFR - Code of Federal Regulations.

Channel (Watershed) - A passage, either naturally or artificially created, that periodically or continuously contains moving water or that forms a connecting link between two bodies of water. River, creek, run, branch, and tributary are some of the terms used to describe natural channels. Natural channels may be single or braided. Canal and floodway are some of the terms used to describe artificial channels.

Channel Capacity - The ability of the channel flow_s to carry sediment downstream and through the system so that no net aggradation (buildup) of sediment in the channel results.

Channel Classification Criteria - Criteria used to determine stream type. For example, the Rosgen Classification System (1985) classifies streams based on channel slope (Type A through D) and dominant particle size of channel materials (sizes 1 through 6). Other factors considered include channel entrenchment, valley confinement, sinuosity, width/depth ratio, and whether channels are single- or multiple-thread. Using this information, it is possible to assess current channel condition_s.

Channel Condition - Refers to the stability of the channel determined through field observation of several factors. Channel condition is not set in time or place. It changes in response to climatic events as well as land management activities. To be meaningful, the condition must be considered over time.

Chemical Agent - A manufactured chemical compound.

Chiseling - Breaking or loosening the soil, without inversion, with a chisel cultivator or chisel plow. A practice used for grassland or pasture renovation. Also called ripping.

Class I Area (Air Quality) - Under the 1977 Clean Air Act amendments, all international parks, National Parks greater than 6,000 acres, and national Wilderness areas greater than 5,000 acres that existed on August 7, 1977. This class provides the most protection to pristine lands; it severely limits the amount of air pollution that can be added to these areas.

Class II Area (Air Quality) - All Wilderness areas designated after August 7, 1977, and all other National Forest System lands. This class provides a moderate degree of protection to lands by allowing a moderate increase in air pollution in these areas.

Class of Animal - Description of age and/or sex-group for a particular kind of animal. Example: cow, calf, yearling, ewe, doe, fawn, etc.

Classified Lands - Lands classified by laws or regulations. For example, Wilderness areas and Wild and Scenic Rivers.

Classified Roads - A road that is constructed or maintained for long-term highway vehicle use. Classified roads may be public, private, or forest development.

Climax - 1) The final or stable biotic community in a successional series that is self-perpetuating and in dynamic equilibrium with the physical habitat. 2) The assumed end point in succession.

Closed Circulation System - A system of equipment for drilling oil and gas wells that uses tanks instead of surface pits to contain all drilling fluids and cuttings. The fluid and cuttings are disposed of off-site in a manner consistent with state law.

Closed Range - Any range on which livestock grazing or other specified use is prohibited. Also called livestock exclusion.

Cold-water Fishery - Stream and lake waters that support predominately cold-water species of game or food fishes, which have maximum, sustained water-temperature tolerances of about 70 degrees Fahrenheit in the summer.

Collectors - See Road Functional Classification.

Commercial Timber Sales - The selling of timber from National Forest System lands, including National Grasslands, for the manufacture of commercial products, such as lumber, plywood, etc.

Common Variety Minerals - Deposits that do not possess a distinct, special economic value, although they may have value for use in trade or manufacture. These minerals include sand, stone, gravel, pumicite, cinders and pumice.

Community (Biological) - Any assembly of organisms living together.

Community (Social) - The people who reside in one locality and are subject to the same laws or who have common interests, etc.

Community Allotment - An allotment upon which several permittees manage livestock in common.

Community Lifestyles - The ways in which residents conduct their everyday routines and how those routines are associated with the National Forests or National Grasslands.

Community Stability - The capacity of community to absorb and cope with change without major hardship to institutions or groups within the community.

Complementary Pasture - Short-term forage crop (not necessarily annual) planted for use by domestic stock to enhance the management and productivity of the ranch.

Concern Levels - A measure of the degree of public importance placed on landscapes viewed from travel ways and use areas. Concern levels are divided into categories 1, 2, and 3, with concern level 1 being the highest.

Condition of Approval (COA) - Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved for oil and gas leasing.

Confine (Fire Management) - To limit fire spread within a predetermined area principally by using natural or preconstructed barriers or environmental surveillance under appropriate conditions (FSM 5105).

Congressionally Designated Areas - Lands within the boundaries of a component of the National Wilderness Preservation System, the National Wild and Scenic River System, the National Trails System, the National Monuments and the Recreation and Scenic Areas within the National Forest System, including National Forests and National Grasslands, and similar areas designated by Congressional legislation.

Connectivity - The arrangement of habitats that allows organisms and ecological processes to move across the landscape. Patches of similar habitats are close together or linked by corridors of appropriate vegetation. The opposite of fragmentation.

Consent for Oil and Gas Leasing - A consent by the Forest Service for oil and gas leasing on a specified parcel of National Forest System lands, including National Forests and National Grasslands. It grants the right to explore, develop, extract and dispose of specific minerals in lands covered by the lease, subject to various terms and conditions.

Conservation - The aggregate of practices and customs to perpetuate sustained yield of renewable resources and prevent waste of nonrenewable resources.

Conservation Biology - A synthetic discipline, comprising both pure and applied science, concerned with preserving the existing variety of organisms and natural habitats and the global reservoir of genetic diversity they represent.

Conservation District - A public organization created under state enabling laws as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use and development within its boundary. Usually, a subdivision of state government with a local governing body and always with limited authorities. Often called a soil conservation district or a soil and water conservation district.

Conservation Practices - Required land use practices on the National Forests or National Grasslands that are imposed upon the persons or organizations holding grazing permits (including grazing agreements) in order to protect, improve, develop, and administer the land and thus assist in furthering the program of land conservation and good land utilization.

Consultation – 1) An active, affirmative process that (a) identifies issues and seeks input from appropriate American Indian governments, community groups, and individuals and (b) considers their interests as a necessary and integral part of the Bureau of Land Management and Forest Service decision-making process. 2) The legal obligation requiring the federal government, through consultation, to consider the interests of American Indian tribes and account for those interests in the decision-making process. This legal obligation is based ~~on~~ laws and numerous Executive Orders and statutes. 3) A process that involves discussions between a federal agency and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service under Section 7(a)(2) of the Endangered Species Act of 1973, as amended, regarding potential impacts on a species or critical habitat listed under Section 4 of the act.

Consumptive Uses - Uses of a resource that reduces the supply. Examples include irrigation, domestic and industrial water use, grazing, and timber harvest.

Contact Herbicide - An herbicide that kills primarily by contact with plant tissue rather than as a result of translocation.

Contain (Fire Management) - To surround a fire, and any spots of fire, with a control line, as needed, which can reasonably be expected to check the fire's spread under prevailing conditions.

Continuous Fuel Concentrations (Fire Management) - An uninterrupted distribution of fuel particles (surface or aerial) in a fuel bed, which allows fire to sustain combustion and actively continue to spread.

Continuous Grazing - The grazing of a specific unit by livestock throughout a year.

Controlled Surface Use (CSU) - Allowed use and occupancy for oil and gas leasing, unless restricted by another stipulation, with identified resource values requiring special operational constraints that may modify the lease rights. CSU is used as an operating guideline, not as a substitute for No Surface Occupancy or a timing stipulation.

Conversion (Vegetation) - To change the dominant vegetative species or growth form, such as grass/forb, through vegetative management.

Cool-Season Plant - A plant that generally makes the major portion of its growth during the late fall, winter, and early spring. Cool-season species generally exhibit the C3 photosynthetic pathway.

Cooperating Agency - Any federal agency, other than the lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment.

Coordinated Resource Management Planning - The process whereby various user groups are involved in discussion of alternate resource uses and collectively diagnose management problems, establish goals and objectives, and evaluate multiple use resource management.

Corduroy - A method of sub grade reinforcement often used on trails and for some roads. Logs are placed perpendicular to the travel-way to support a surfacing material.

Corridor (Utility or Rights-of-Way) - A linear strip of land defined for the present or future location of transportation or utility rights-of-way within its boundaries.

Cost - The negative or adverse effects or expenditures resulting from an action. Costs may be monetary, social, physical, or environmental in nature.

Cost Efficiency - The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specific levels in the least-cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates of return may be appropriate.

Council on Environmental Quality (CEQ) - An advisory council to the President established by the National Environmental Policy Act of 1969.

Cover Type - The vegetative species that dominates a site. Cover types are named for one plant species or non-vegetative condition presently (not potentially) dominant, using canopy or foliage cover as the measure of dominance. In several cases, sites with more than one dominant species have been lumped together into one cover type. Co-dominance is not necessarily implied.

Cover/Forage Ratio - The ratio of tree cover (usually conifer types) to foraging areas, such as natural openings.

Created Opening - A treated forest area 10 basal area or less, which is designated to produce forage.

Cretaceous - The final period of the Mesozoic era (after the Jurassic and before the Tertiary period of the Cenozoic era), thought to have covered the span of time between 135 and 65 million years ago; also, the corresponding system of rocks. It is named after the Latin word for chalk (creta) because of the English chalk beds of this age.

Critical Habitat (Threatened, Endangered, and Proposed Species) - Habitat of federally listed threatened or endangered species where those physical and biological features essential to conservation of the species are found and which may require special management considerations or protection. This habitat may currently be occupied or may be determined by the Secretary of the Interior to be essential for areas outside the species' current range.

Cropland - Land primarily used for the production of cultivated crops.

Cross Fence - A fence that divides an allotment or pasture into smaller units.

Cubic Foot - A unit of measure usually referring to wood volume (1 foot wide by 1 foot long by 1 foot thick).

Cultural Resources - See Heritage Resources.

Culture - That complex whole that includes knowledge, belief, art, morals, customs, and any other capabilities and habitats peculiar to a society.

Cumulative Impact - The impact on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of the source (federal or nonfederal agencies, individuals). Cumulative effects can result from individually minor but collectively significant actions taking place over time.

Cured Forage - Forage, either standing or harvested, that has been naturally or artificially dried and preserved for future use.

Dead Fuels (Fuels Management) - Fuels, with no living tissue, in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

Decadence - A process, condition, or period of deterioration or decline. Deterioration of vigor, especially as related to a vegetative community.

Deciduous (Plant) - Plant parts, particularly leaves, that are shed at regular intervals or at a given stage of development; that is, a deciduous plant regularly loses or sheds its leaves.

Decision Documents - Documents that provide the criteria and information used in the formulation and evaluation of alternatives and the preferred alternative.

Decreaser (Plant) - Plant species of the original or climax vegetation that will decrease in relative amount with continued disturbance (heavy defoliation, fire, drought) to the norm. Some agencies use this only in relation to response to overgrazing.

Deferment - Delay of livestock grazing on an area for an adequate time to allow plant reproduction, establishment of new plants, or restoration of vigor of existing plants.

Deferred Rotation - To discontinue grazing on various parts of a range in succeeding years, allowing each part of the range to rest successively during the growing season to permit seed production, establishment of seedlings, or restoration of plant vigor. Each rested part of the range is grazed during the year. At least two, but usually three or more, separate grazing units are required.

Defoliation - The removal of plant leaves by grazing or browsing, cutting, chemical defoliant, or natural phenomena, such as hail, fire, or frost.

Degraded Water Body - Lakes and streams that show bank disturbance, sediment loads, channel modification, flow disruption, chemical contamination, and biological stress directly or indirectly caused by human activities.

Demand - The amount of output that users are willing to take at a specified price, time period, and conditions of sale.

Demand Analysis - A study of the factors affecting the schedule of demand for a good or service, including the price-quantity relationship, if applicable.

Deny Consent (Oil and Gas) - Not to consent as in denial of a proposed oil and gas lease.

Dependent Communities - Communities whose social, economic, or political life would become discernibly different in important respects if market or no market outputs from the ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~rasslands were significantly disrupted.

Desertification - The process by which an area or region becomes more arid through loss of soil and vegetative cover. The process is often accelerated by excessive continuous overstocking and drought.

Design Capacity - The maximum theoretical amount of use a developed recreational site was built to accommodate. Usually expressed in Persons At One Time (PAOTs).

Design Standard (Recreation) - Approved design and construction specifications for recreational facilities, which includes specified materials, colors, and dimensions.

Designated Travel~~w~~ay - A road or trail that has been identified by a Forest Service decision as open to all forms of travel.

Designated Wilderness Areas - See Wilderness.

Desired Future Condition - A portrayal of the land or resource conditions that are expected to result if goals and objectives are fully achieved.

Desired Plant Community - A plant community that produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the land use plan/activity plan objectives established for an ecological site. The desired plant community must be consistent with the site's capability to produce the desired vegetation through management, land treatment, or a combination of the two.

Desired Plant Species - Species that contribute positively to the management objectives.

Deteriorated Range - Range where vegetation and soils have significantly departed from the natural potential. Corrective management measures, such as seeding, would change the designation from deteriorated range to some other term.

Detrimentially Impacted Soils - An increase in bulk density from the average undisturbed bulk density values and the removal of soil from a continuous area of 100 square feet or more.

Detritus - Fragmented, particulate organic matter derived from the decomposition of debris.

Developed Recreation - This type of recreation is dependent on facilities provided to enhance recreational opportunities in concentrated use areas. Examples include campgrounds and picnic areas. Facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water and buildings.

Developed Recreation Sites - Relatively small, distinctly defined areas where facilities are provided for concentrated public use, such as campgrounds, picnic areas, and swimming beaches.

Development and Full Field Development (Oil and Gas) - 1) Development Well: A well drilled in proven territory in a field to complete a pattern of production. 2) Full Field Development: The drilling of the necessary development wells and associated field facilities, including roads, production facilities, pipelines, injection wells and power lines.

Development Roads - See Forest Development Roads.

Diameter at Breast Height - The diameter of a standing tree at a point of four feet, six inches from ground level.

Direct Effects - Environmental effects caused by an action and that occur at the same time and place.

Directional Drilling (Oil and Gas) - Drilling boreholes with the directional course of the hole planned before drilling. Such holes are usually drilled with rotary equipment at an angle to the vertical and are useful in avoiding obstacles or in reaching side areas or the mineral estate beneath a restricted surface.

Discovery Well (Oil and Gas) - An exploratory well that encounters a new and previously untapped mineral deposit. A discovery well may open up a new field, or it may locate a new and previously unknown producing horizon in an old field.

Dispersal - Leaving an area of birth, origin, or activity for another area.

Dispersed Recreation - This type of recreational use requires few, if any, improvements and may occur over a wide area. This type of recreation involves activities related to roads, trails and undeveloped waterways, and beaches. The activities do not necessarily take place on or adjacent to a road, trail, or waterway, only in conjunction with them. Activities are often day-use oriented and include hunting, fishing, boating, off-road vehicle use, hiking, and others.

Distance Zones - Distance zones are mapped for travel ways and use areas.

Immediate foreground: 0 to 300 feet. At an immediate foreground distance, people can distinguish individual leaves, flowers, twigs, and small animals (chipmunks and songbirds) and can notice movement of leaves and grasses in light winds.

Foreground: 0 to 1/2 mile. At a foreground distance, people can distinguish small boughs of leaf clusters, individual shrubs, clumps of wildflowers, medium-sized animals (squirrels and rabbits), and medium-to-large birds (hawks, geese, and ducks).

Middle ground: 1/2 to 4 miles. Middle ground is usually the predominant distance zone at which national grassland and forest landscapes are seen. At this distance, people can distinguish individual tree forms, large boulders, flower fields, small openings in the forest, and small rock outcrops. Form, texture, and color remain dominant, and pattern is important.

Background: 4 miles to horizon. At a background distance, people can distinguish groves or stands of trees, large openings in the forest, and large rock outcrops. Texture has disappeared and color has flattened, but large patterns of vegetation or rock are still distinguishable and landform ridgelines and horizon lines are the dominant visual characteristic.

District Ranger - The official responsible for administering the National Forest System lands, including [National Forests and National Grasslands](#), on a ranger district.

Disturbance - A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

Diverse Landscape - Refers to the relative abundance and distribution of plant and animal communities and species within an area.

Diversity - Diversity refers to the distribution and abundance of different plant and animal communities and species within the area covered by land and resource management plans. This term is derived from the National Forest Management Act (~~NFMA~~). This term is not synonymous with biological diversity.

Domestic - Refers to those animals and plants that are under the control of humans throughout their life cycle. Animals whose breeding is controlled by humans.

Down and Dead Woody Material - Woody material, from any source, that is dead and lying atop the ground.

Draft Environmental Impact Statement (DEIS) - The statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act and released to the public and other agencies for comment and review.

Drainage (Oil and Gas) – 1) Drainage occurs when oil and gas migrates in the subsurface from areas of high pressure to areas of lower pressure, such as is found near a producing well. 2) Production of migrated oil and gas without compensation to the owner and/or lessee from whose

estate the hydrocarbons moved is called drainage.

Drift Fence - An open-ended fence used to retard or alter the natural movement of livestock. Generally used in connection with natural barriers.

Drought – Any year or sequence of years when annual precipitation amounts are less than 75% of normal.

Dry Meadow - A meadow dominated by grasses and characterized by soils that become moderately dry by mid-summer.

Easement - A right held by one person to make use of another's land for a limited purpose, such as a special-use authorization for a right-of-way that conveys a limited interest in National Forest System land and is compensable according to its terms.

Ecological Diversity - The variety of ecosystems occurring within a given landscape.

Ecology - The study of the interrelationships of organisms with their environment.

Economic Efficiency - The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit-cost ratios and rates-of-return may sometimes be appropriate.

Ecoregion - A continuous ~~geographic area~~Geographic Area over which the macroclimate is sufficiently uniform to permit development of similar ecosystems on sites with similar properties. Ecoregions contain multiple landscapes with different spatial patterns of ecosystems.

Ecosystem – 1) A community of living plants and animals interacting with each other and with their physical environment. A ~~geographic area~~Geographic Area where it is meaningful to address the interrelationships with human social systems, sources of energy, and the ecological processes that shape change over time. 2) A community of organisms and its environment functioning as an ecological unit in nature.

Ecosystem Health - A condition where the parts and functions of an ecosystem are sustained over time and where the system's capacity for self-repair is maintained, such that goals for uses, values, and services of the ecosystem are met.

Ecosystem Management - Scientifically based land and resource management that integrates ecological capabilities with social values and economic relationships to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long term.

Ecotone - A transition or junction zone between two or more diverse communities.

Ecotype - A locally adapted population of a species that has a distinctive limit of tolerance to environmental factors. A genetically uniform population of a species resulting from natural selection by the special conditions of a particular habitat.

Edaphic - The influence of soils on living organisms, particularly plants, including people's use of the land for plant growth.

Edge Effect - Either suppression of growth or excessive growth at the edges of a plot where the plants come in contact with plants of a different variety and different competitive ability. With respect to edges as boundaries of ecosystems, it refers to the greater diversity of animals found, those from each of the adjoining ecosystems as well as those that specialize on the edge itself.

Effects - Physical, biological, social, and economic results (expected or experienced) resulting from achievement of outputs. Effects can be direct, indirect, and cumulative.

Effects (Heritage Resources) - Impacts to the characteristics that qualify a heritage resource for the National Register of Historic Places. These can include alterations in location, setting, use, design, materials, feeling, and association. Adverse effects include:

- Physical destruction or damage.
- Isolation from or alteration of setting.
- Introduction of visual, audible, or atmospheric elements.
- Physical deterioration from neglect or from any action.
- Transfer, lease, or sale.

Eligible (Heritage Resources) - Indicates that a specific heritage resource qualifies for or is already listed in the National Register of Historic Places.

Emergency repairs - One or more of a variety of operations on a producing well designed to re-establish or maintain production or to prohibit or mitigate environmental risks and risks to human health, such as those that might be caused by leaking equipment. Emergency repairs are those immediately necessary to ensure that producing operations are in continuous compliance with laws, regulations, policies, management plan direction, and permit requirements. Examples of emergency repairs related to maintaining production and conservation of the mineral resource include, but are not limited to, pump engine repairs and adjustments; heater treater and dehydration unit repairs and adjustments; fracturing, acidizing, and hot oil treatments; squeezing cement; replacing or repairing a bottom hole assembly, tubing, or rods; and repairing leaks, such as from a stuffing box, casing head, flowline, pipeline, heater treater, dehydration unit, or collection tanks or pits. Emergency repairs related to environmental and/or human health and safety risks include, but are not limited to, pump engine repairs and adjustments, squeezing cement; and repairing leaks, such as from a stuffing box, casing head, flowline, pipeline, heater treater, dehydration unit, or collection tanks or pits. Emergency repairs may or may not require the use of a workover rig and may be completed in a few hours or several days, depending on the nature of the emergency.

Emergent Vegetation - A plant rooted in water with much of its vegetative growth extending above the ~~surface of the water~~-~~water surface~~.

Encroachments - Improvements occupied or used on National Forest System lands, including ~~National Forests and~~ ~~National~~ ~~Grasslands~~, without authorization.

Endangered Species - Any species of animal or plant in danger of extinction throughout all or a significant portion of its range and so designated by the Secretary of Interior in accordance with the 1973 Endangered Species Act.

Endangered Species Act of 1973 - An act to conserve ecosystems for endangered species and threatened species, to conserve the endangered species and threatened species themselves, and to take appropriate steps to achieve the purposes of the (relevant) treaties and conventions.

Endemic - Plants or animals that occur naturally in an area and whose distribution is relatively limited to a particular locality.

Environment - All the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms.

Environmental Analysis - An analysis of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions.

Environmental Assessment - A concise public document, for which a federal agency is responsible, that serves to:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.
- Aid an agency's compliance with the National Environmental Policy Act when no environmental impact statement is necessary.
- Facilitate the preparation of an environmental impact statement when one is necessary.

Environmental Impact Statement (EIS) - A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. An EIS is prepared first in draft or review form and then in a final form and includes the following points:

- The environmental impact of the proposed action.
- Any adverse impacts that cannot be avoided by the action.
- The alternative courses of action.
- The relationship between local short-term use of the human environment and the maintenance and enhancement of long-term productivity.
- A description of the irreversible and irretrievable commitment of resources which would occur if the action was accomplished.

Ephemeral Streams - Streams that flow only as a direct response to rainfall or snowmelt events. They have no base flow.

Equilibrium Theory - In island biogeography, greater numbers of species are expected to be found on larger islands because the populations on smaller islands are more vulnerable to extinction. Often applied to terrestrial analogs, such as forest or grassland patches in agricultural or suburban areas or nature reserves.

Eradication (Plant) - Complete killing or removal of a noxious plant from an area, including all plant structures capable of sexual or vegetative reproduction.

Erosion - The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

Essential Experimental Population – Population of a federally listed species released under Section 10(j) of the Endangered Species Act ([ESA](#)) and whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild. Section 10(j) of ESA authorizes listed species to be released as experimental populations outside their currently occupied range, but within probable historic habitat, to further species conservation.

Essential Habitat - Those areas designated by ~~r~~Regional ~~f~~Foresters as possessing the same characteristics as critical habitat without having been declared as critical habitat by the Secretary of Interior. The term includes habitats necessary to meet recovery objectives for endangered, threatened, and proposed species and those habitats necessary to maintain viable populations of sensitive species.

Executive Order - An order or regulation issued by the President or some administrative authority under presidential direction.

Exempt Stock - Livestock permitted to graze on federal land free of charge. Usually confined to animals actually used for domestic purposes, like saddle horses and milk cows.

Exemption (oil & gas leasing) - Case-by-case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria applies.

Existing Road System - All existing roads, owned or administered by various agencies, that are wholly or partly within or adjacent to and serving ~~N~~ational ~~F~~orests and ~~N~~ational ~~G~~erasslands or intermingled private lands (ref: FSM 7705.21). These roads may or may not be included on the current Forest Transportation Inventory but are evident on the ground as meeting the definition of a road.

Exotic - Not native to the place where it is found. Often in reference to a specific race or variety of an organism that has been transplanted to a new region.

Exotic Species - An organism that exists in a free state in an area in which it is not native. Also refers to animals from outside the country in which they are held captive or in free-ranging populations.

Experimental Population Area - Area designated through the federal rule-making process for release of a federally listed species under the provisions of Section 10(j) of the Endangered Species Act.

Exploration and Wildcat Wells (Oil and Gas) - Wells drilled to test for the presence of oil or gas in a previously undeveloped area.

Extensive Grazing Management - Grazing management that utilizes relatively large land areas per animal and a relatively low level of labor, resources or capital.

Extinction - Disappearance of a taxon of organisms from existence in all regions.

Extirpated - The elimination of a species from a particular area.

Extractive Use - Use of natural resources that removes them from their natural setting.

Facility - Structures needed to support the management, protection, and utilization of the ~~n~~ational ~~F~~orests and ~~N~~ational ~~G~~erasslands, including buildings, utility systems, and other construction features. There are three categories of facilities: recreation, administrative, and permitted.

Fair Market Value - The amount or value for which, in all probability, a property would be sold by a knowledgeable owner willing but not obligated to sell to a knowledgeable purchaser who desires but is not obligated to buy.

Fauna - All vertebrate and invertebrate animal species.

Fee Sites (Recreation) - A Forest Service recreational area where users must pay a fee. Fee sites must meet certain standards and provide certain facilities.

Fee Title (Landownership) - The full and complete possessory ownership of a parcel of land. An inheritable estate.

Feed Lot - A commercial facility for high-intensity feeding of livestock under a controlled environment.

Feral - Plants or animals that are no longer under human cultivation or domestication and have reverted to a wild state.

Fertilizer - Mineral nutrients added to the substrate of plants to enhance growth and vitality.

Fire Incidence - The average number of fires in a specified area during a specified time.

Fire Occurrence - Number of fires per unit time in a specified area. Synonymous with fire frequency.

Fire Risk - The chance of a fire starting, as affected by nature and incidence of causative agents, including lightning, people, and industry. Three risk scales are used:

- **High:** includes locations where lightning, people, or industry have commonly caused fires in the past.
- **Moderate:** includes locations where lightning, people, or industry have periodically caused fires in the past.
- **Low:** includes locations where lightning, people, or industry have infrequently caused fires in the past.

Fire Suppression - All the work and activities connected with fire-extinguishing operations beginning with discovery and continuing until the fire is completely extinguished.

Fire Suppression Objective - To suppress wildfires at minimum costs consistent with land and resource management objectives and fire management direction as determined by the National Fire Management Analysis System (NFMAS). This includes all work and activities associated with fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished. An example might be a fire suppression objective of five acres, based on a cost-effectiveness analysis.

Fire-dependent Systems - Forests, grasslands, and other ecosystems historically composed of species of plants that evolved with and are maintained by fire regimes.

Fireline Intensity - The rate of heat energy released per unit time per unit length of a fire front. Numerically, it is the product of ~~the~~ heat combustion, quality of fuel consumed per unit area in the fire front, and the rate of spread of a fire (as measured in British Thermal Units (BTUs) per second foot of the fire front).

Firewood - See Fuel Wood.

Fiscal Year - Within the Forest Service, the fiscal year includes October 1 to September 30, the following year. For example, October 1, 1996 to September 30, 1997 is referred to as a Fiscal Year 1997.

Floodplain - The area adjacent to a stream/river channel effective in carrying flow, within which carrying capacity must be preserved and where the flood hazard is generally highest; that is, where flood depths and velocities are the greatest (FSH 2520).

Flora – All plant species.

Focal Species – A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area.

Forage - Vegetation used for food by wildlife and livestock, particularly ungulate wildlife and domestic livestock.

Forage Production - The weight of forage that is produced within a designated period of time on a given area. The weight may be expressed as green, air dry, or oven dry. The term may also be modified as to time of production such as annual, current year, or seasonal forage production.

Forbs - Any herbaceous plant other than those in the grass, sedge, and rush families. For example, any non grass-like plant that has little or no woody material.

Foreground - See Distance Zones.

Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) - An act of Congress requiring the preparation of a program for the management of the National Forest's renewable resources, and of land and resource management plans for units of the National Forest System, including ~~N~~ational ~~G~~erasslands. It also requires a continuing inventory of all National Forest System lands and renewable resources.

Forest Development Roads - A Forest road under the jurisdiction of the Forest Service. Forest Development Roads are not intended to meet the transportation needs of the public at large. Generally, these are roads constructed to a standard to serve expected traffic generated by resource management. Although generally open and available for public use, the Forest Service may restrict or control use to meet specific management direction.

Forest Development Trails - As defined in 36 CFR 212.1 and 261.2, those trails wholly or partly within or adjacent to and serving ~~N~~ational ~~F~~orests and ~~N~~ational ~~G~~erasslands that have been included in the Forest Development Transportation Plan. A trail is a pathway for purposes of travel by foot, stock, or trail vehicle.

Forest Development Transportation Facility - An access road, trail, waterway, or airfield wholly or partly within, or adjacent to, and serving ~~N~~ational ~~F~~orests and ~~N~~ational ~~G~~erasslands, which has been included in the Forest Development Transportation System.

Forest Development Transportation Plan - The plan for the system of access roads, trails, and airfields needed for the protection, administration, and utilization of the ~~N~~ational ~~F~~orests and ~~N~~ational ~~G~~erasslands or the development and use of resources upon which communities within or adjacent to National Forest System lands are dependent.

Forest Development Transportation System - Those facilities, Forest Development Roads, trails, and airfields in the transportation network and under Forest Service jurisdiction.

Forest Facility Master Plan - The plan that depicts the development and management of each ~~N~~ational ~~F~~orest's facilities. This includes the current volume of business and projections for the future, locations of needed skills to perform program work, existing administrative sites and

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proposed locations of new sites, and management strategies concerning consolidation or sharing between units.

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Forest Plan (Forest Land and Resource Management Plan) - A document that guides natural resource management and establishes standards and guidelines for a National Forest or National Grassland. Required by the National Forest Management Act.

Forest Supervisor - Official responsible for administering any particular National Forest or National Grassland. Forest Supervisors report to Regional Foresters.

Forest System Roads - Roads that are part of the Forest Development Transportation System, which includes all existing and planned roads, as well as other special and terminal facilities designated as part of the Forest Development Transportation System.

Forest Visitor Map - Maps depicting detailed information concerning National Forests, National Grasslands, National Recreation Areas, and Special Interest Areas. The format is an entire National Forest, National Grassland, or subdivision thereof. Forest Visitor Maps are available to the public at a price that reimburses the cost of printing and distribution.

Forested Range - Forestland that produces, at least periodically, sufficient under story vegetation suitable for forage and that can be grazed without significantly impairing wood production and other forest values.

Fossil - The remains or traces of an organism or assemblage of organisms that have been preserved by natural processes in the Earth's crust. Minerals, such as oil and gas, coal, oil shale, bitumen, lignite, asphaltum and tar sands, phosphate, limestone, diatomaceous earth, uranium, and vanadium, while they may be of biologic origin, are not here considered fossils. Fossils of scientific value may occur within or in association with such minerals.

Fragmentation - The breakup of a large land area (such as a grassland) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

Free-flowing - Existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.

FSH - Forest Service Handbook

FSM - Forest Service Manual

Fuel Break - A zone in which fuel quantity has been reduced or altered to provide a position for wildfire suppression. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, and human-made barriers.

Fuel Loading - The volume of available or burnable fuels in a specified area, usually expressed in tons per acre.

Fuel Treatment - Any manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control, including lopping, chipping, crushing, piling, and burning. Synonymous with fuel modification.

Fuels - The organic materials that will support the start and spread of a fire: duff, litter, grass, weeds, forbs, brush, trees, and dead woody materials.

Fuels Management - Manipulation or reduction of fuels to meet protection and management objectives while preserving and enhancing environmental quality.

Fuelwood - Round, split, or sawed wood cut into short lengths for burning as fuel.

FY - Fiscal Year

Gap Analysis - A process to determine distribution and status of biological diversity and assess adequacy of existing ~~management area~~ **Management Areas** to protect biological diversity.

Gene Flow - The movement of genes from one part of a population to another or from one population to another, through the transfer of gametes.

Gene Pool - The sum total of all the genes of all the individuals in a population at a given time.

Genetic Diversity - The genetic variation present in individuals, populations or species.

Geographic Area - A piece of land where management is directed toward achieving a specified desired condition.

Geographic Information System (GIS) - A spatial type of information management system that provides for the entry, storage, manipulation, retrieval, and display of spatially oriented data.

Geological Area - A unit of land that has been designated by the Forest Service as containing outstanding formations or unique geological features of the earth's development, including caves and fossils.

Geophysical Operation - Prospecting for minerals or mineral fuels by measuring the various physical properties of the rocks and interpreting the results in terms of geologic features or the economic deposits sought. Physical measurements are taken at the surface, concerning the differences in the density, electrical resistance, or magnetic properties of the rocks. There are four main methods employed in geophysical prospecting: gravitational, magnetic, electrical, and seismic, with several modifications of each.

Geothermal Resources - Of or relating to the heat of the Earth's interior.

Goal - A concise statement that describes a desired condition to be achieved sometime in the future. A goal is normally expressed in broad, general terms that are timeless in that there is no specific date by which the goal is to be achieved (36 CFR 219.3). The Region 2 Desk Guide has this to say about goals: "Desired conditions and processes are measurable, have a timeless nature, and describe a resource condition or ecological process. In the first round of (land and resource management) planning, these statements were often termed 'goals.' They describe the conditions or processes we expect to achieve through resource management. Complete accomplishment of desired conditions is not mandatory during the current planning phase, but it is our ultimate intent."

Goods and Services - The various outputs, including on-site uses, produced by forest and rangeland renewable resources.

Graminoid - Grass or grass-like plant, such as *Poa*, *Carex*, and *Juncus* species

Grant - A grant passes some estate or interest, corporeal or incorporeal, in the lands that it embraces. To give or permit as a right or privilege, such as a grant of route authority.

Grass - A member of the grass family, Poaceae.

Grassland - Any land on which the dominant plants are grasses or on which grasses originally dominated.

Grassland Agriculture - The management and utilization of the land within areas of native and introduced grasses and the land's associated resources and values in harmony with nature's requirements and behavior so as to foster the long-term stability and productivity of the ecosystem and the rural land base of the area, the quality of life and economic stability of people living on the land, and the local communities associated with the land.

Grazing - The act of animals consuming plants on range or pasture.

Grazing Association - A group of individuals permitted to graze the [National Forest or](#) National Grassland under a grazing agreement. This group is governed by its established constitution, by-laws, and rules of management.

Grazing Capacity - The maximum number of livestock under management that a given range area is capable of supporting within guidelines found in the allotment management plan.

Grazing Distribution - Dispersion of livestock or wild herbivores grazing within a given area.

Grazing District – 1) An administrative unit of federal range established by the Secretary of the Interior under the provisions of the Taylor Grazing Act of 1934, as amended. 2) An administrative unit of state, private, or other rangelands, established under certain state laws.

Grazing Fee - A charge, usually on a monthly basis, for grazing use by a given kind of animal.

Grazing Land - An area of rangeland, public or private, that is used by animals for grazing.

Grazing Permit - Official, written permission to graze a specified number, kind, and class of livestock for a specific period on a defined range allotment.

Grazing Season – 1) A period of grazing to obtain optimum use of the forage resource. 2) On public lands, an established period for which grazing permits are issued.

Grazing System - A specialization of grazing management that defines systematically recurring periods of grazing and deferment for two or more pastures or management units. Some examples are: deferred grazing, rotation grazing, deferred-rotation grazing, and short-duration grazing.

Grazing Trespass - The grazing of livestock on a range area without proper authority and resulting from a willful or negligent act.

Grazing Unit - An area of rangeland, public or private, that is grazed as an allotment or pasture.

Grazing, Short-duration - A grazing system in which animals are concentrated on less than one-half of the total land area and the lengths of deferment exceed the lengths of grazing.

Ground Cover - The percentage of material, other than bare ground, covering the land surface. It may include live and standing dead vegetation, litter, cobble, gravel, stones, and bedrock. Ground cover plus bare ground would total 100 percent.

Groundwater - Water within the Earth that supplies wells and springs. Specifically, water in the zone of saturation where all openings in soils and rocks are filled. The upper surface level forms the water table.

Growing Season - In temperate climates, that portion of the year when temperature and moisture permit plant growth.

Guideline - 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 be documented in a project decision document but do not require management plan amendments.

Guilds - A group of organisms, not necessarily taxonomically related, that is ecologically similar in characteristics such as diet, behavior, or microhabitat preference, or with respect to their ecological role (Ricketts et al. 1999).

Habitat – The sum total of environmental conditions of a specific place occupied by a wildlife species or a population of such species.

Habitat Capability – The capacity of a vegetative community to support selected wildlife and fish species for all or a part of its life cycle. Habitat capacity is normally expressed as projected populations or densities of animals.

Habitat Effectiveness - As used in this document, habitat effectiveness refers to the capability of an area to support big game based on forage, cover, open roads, and the spatial distribution of the three factors, regardless of the time of year.

Habitat Suitability – A measure of current habitat quality relative to the local biological potential of an area to provide habitat for a species. Habitat suitability is usually expressed as low, moderate or high or is quantitatively presented as an index value scaled from 0 (unsuitable) to 1.0 (optimum habitat).

Half Lives - The time required for half of a chemical agent to undergo decay to a neutral chemical compound.

Hard Snags - A dead or partially dead tree composed primarily of sound wood, particularly sound sapwood.

Hardened Sites (Recreation) - Developed recreation sites where techniques have been used to protect natural resources (soil, water, vegetation, etc.) from overuse. For example, vehicles may be confined to roads by barriers or gravel, pavement, or soil additives may be placed on roads, walkways, and under picnic tables.

Hardwood - Pertains to broadleaf trees or shrubs.

Hardwood Draws - Upland drainages containing deciduous trees and shrubs.

Hay - Herbage, especially grass and legumes, mowed, cured, and stored for fodder.

Haying - The mowing, baling, and storage of hay to be used as a product.

Herb - A plant with one or more stems that dies back to the ground each year.

Herbaceous Crop - A crop of plants with herb characteristics.

Herbicide - A chemical substance used for killing plants.

Herbivore - An animal that subsists principally or entirely on plants or plant material.

Herd - An assemblage of animals usually of the same species.

Heritage Resources - The physical remains and conceptual content or context of an area. Physical remains may include artifacts, structures, landscape modifications, rock art, trails, or roads. Conceptual content/context includes the setting for legendary, historic, or prehistoric events, such as a sacred area for American Indians.

High Edge Contrast - Found at the junction of two communities or stands that are structurally very different: for example, a mature forest and grass/forb community.

Historic Property - Any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places. This term includes artifacts, records, and remains related to and located within such properties.

Historical Range of Variability - The natural fluctuation of components of healthy ecosystems over time. Refers to the range of conditions and processes that are likely to have occurred prior to settlement of the project area by people of European descent (approximately the mid-1800s), which would have varied within certain limits over time. Historical conditions and processes portrayed include such variables as forest or grassland vegetation types, compositions, and structure; fish and wildlife habitats and populations; and drought, grazing, and fire regimes.

Holistic Resource Management (HRM) - Holistic Resource Management (HRM) is a practical, goal- oriented approach to the management of the ecosystem including the human, financial, and biological resources on farms, ranches, public, and tribal lands, as well as national parks, vital water catchments, and other areas. HRM entails the use of a management model that incorporates a holistic view of land, people, and dollars.

Home Range - The geographic area within which an animal restricts its activities.

Human Environment - Includes the natural and physical environment and the relationship of people within that environment.

Hydrologic Cycle - The ecological cycle that moves water from the air, by precipitation, to the earth and back to the atmosphere. A variety of processes are involved, including evaporation, runoff, infiltration, percolation, storage, and transpiration.

IDT - Interdisciplinary Team

Ignition - The initiation of combustion.

Implementation - Those activities necessary to initiate the actions in the approved land and resource management plan.

Inaccessible Range – Rangeland that is not grazed by livestock because of barriers, distance to water or steep slopes.

Inactive Prairie Dog Colony - A prairie dog colony that no longer supports a prairie dog population due to poisoning or plague; however, the colony area still retains its intact burrow system.

Increaser (Plant) - Plant species of the original vegetation that increase in relative amount, at least for a time, under continued disturbance (heavy defoliation, fire, drought) to the norm.

Indigenous Species - Animals or plants that originated in the area in which they are found; for example, animals or plants that were not introduced after frontier settlement of the Northern Great Plains and that naturally occur on the Northern Great Plains.

Indirect Effects - Environmental effects caused by an action but resulting later in time or farther away in place, yet which are still reasonably foreseeable.

Infrastructure - The facilities, utilities, and transportation systems needed to meet public and administrative needs.

Ingress - The act or right to enter; access; entrance.

In-holdings - Lands within the proclaimed boundaries of a **N~~a~~tional F~~e~~forest** or **N~~a~~tional G~~e~~grassland** that are owned by some other agency, organization, or individual.

Insecticide - A chemical or biological agent formulated to kill insects.

Instream Flows - The minimum water volume (cubic feet per second) in each stream necessary to meet seasonal stream flow requirements for maintaining aquatic ecosystems, visual quality, recreational opportunities, and other uses.

Integrated Pest Management (IPM) - A process for evaluating and selecting a program from available techniques to reduce pest populations in an ecologically, economically, and socially acceptable manner. Programs may include one or a combination of available techniques: for example, the use of pesticides, cultural or silvicultural treatments, biological control agents, host resistance, genetic control, mechanical destruction or trapping, and behavioral chemicals, including attractants and repellants.

Intensity (Fire Management) - A measure (in **British Thermal Units (BTUs)** per foot per second) of the energy released per unit of time in an area of actively burning fire; the amount of heat released per foot of fire front per second.

Intensive Grazing Management – Grazing management that attempts to increase production or utilization per unit area or production per animal through a relative increase in stocking rates, forage utilization, labor, resources, or capital. Intensive grazing management is not synonymous with rotation grazing. Grazing management can be intensified by using any one or more of a number of grazing methods that use relatively more labor or capital resources.

Interdisciplinary Team (ID Team) - A group of people with different specialized training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem.

Intermittent Service (Roads) - A facility developed and operated for periodic service and restricted to nonmotorized use for more than one year between periods of use.

Intermittent Stream – 1) A stream that flows only 50 to 90 percent of the year when it receives water from some surface source, such as melting snow. 2) A stream that does not flow continuously, as when water losses from evaporation or seepage exceed the available stream flow.

Interpretive Services - Visitor information services designed to inform and educate **N~~a~~tional F~~e~~forest** and **N~~a~~tional G~~e~~grassland** visitors in order to improve their understanding, appreciation, and enjoyment of **N~~a~~tional F~~e~~forest** and **N~~a~~tional G~~e~~grassland** resources.

Introduced Species - A species not a part of the original fauna or flora of the area in question.

Invader (Plant) - Plant species that were absent in undisturbed portions of the original vegetation of a specific range site and will invade or increase following disturbance or continued heavy grazing.

Invasive Plant - A species that displays rapid growth and spread, free from natural controls and enhanced by abundant seed production and germination.

Invertebrate Fossils - The fossilized remains of animals that do not have a bony skeleton or backbone. Examples of invertebrate fossils include: shellfish, snails, and bugs.

Irretrievable Commitments - Applies to losses of production or use of renewable natural resources for a period of time. For example, road construction leads to an irretrievable loss of the productivity of the land under which the road is located. If the road is later obliterated, the land may eventually become productive again. The production lost is irretrievable, but the action is not irreversible.

Irreversible Commitments - Decisions causing changes that cannot be reversed. For example, if an area is mined, that area cannot, at a later date, be allocated to some other resource activities, such as Wilderness. Once mined, the ability of that area to meet Wilderness criteria, for instance, has been irreversibly lost. Irreversible commitments often apply to some non-renewable resource, such as minerals and heritage resources.

Jurisdiction - The right, power, or authority to administer or control. As an example, a county has jurisdiction over county roads and may manage them as desired.

Key Area - 1) An area selected to monitor the effects of management activities on ecosystem health. Examples may include but are not limited to, woody draws, uplands, riparian areas, and valley bottoms. 2) That portion of a pasture or grazing unit which is selected as a monitoring point because of its location, use, or grazing value.

Keystone Species - Species that play roles affecting many other organisms in an ecosystem. Often, they are grouped according to their perceived importance to humans, such as upland birds or waterfowl.

Known Geologic Structures (KGS) - A trap in which an accumulation of oil and gas has been discovered by drilling and which is determined to be productive. Its limits include all acreage that is presumptively productive.

Lacustrine Systems - A wetland/aquatic habitat with water in a depression, generally greater than 20 acres (lakes).

Land Exchange - The conveyance of non-federal land or interests to the United States in exchange for National Forest System land, including ~~N~~ational ~~G~~razinglands, or interests in such land.

Land Unit - A mapped land type polygon or a mapped soil unit.

Landline Location - The legal identification, accurate location, and description of property boundaries.

Landowner - Person who has title to land recognized by the prevailing legal system.

Landscape - The landforms of a region in aggregate.

Landscape Connectivity - The spatial contiguity within the landscape. A measure of how easy or difficult it is for organisms to move through the landscape without crossing habitat barriers.

Landscape Diversity - Variability of the components of a landscape.

Landtype - An inventory map unit, with relatively uniform potential, for a defined set of land uses. Properties of soils, landform, natural vegetation, and bedrock are common components of land type delineation used to evaluate potentials and limitations for land use.

Landtype Group - A logical grouping of land types that facilitate resource planning.

Late Succession Forests - Ecosystems distinguished by old trees and related structural features. The term encompasses the later stages of stand development that typically differ from earlier stages in structure, composition, function, and other attributes. There are two types of late succession ponderosa pine defined for the Northern Great Plains:

- Open-canopy, late succession ponderosa pine occurs where periodic, low-intensity fires have been part of the ecosystem. These late successional stands consist of clumps or groups of trees with grasses in the openings between the clumps. The clumps or groups of trees contain little down dead material and few small trees.
- Closed-canopy, late succession ponderosa pine occurs where periodic, low-intensity, high-frequency fires have not been a significant part of the ecosystem. These stands contain large old trees with open branches and irregular crowns. The stands have multiple canopy layers made up of various-aged trees. They are well-stocked with trees and contain standing dead and down trees.

Lead Agency - The agency or agencies preparing or having taken the primary responsibility for preparing an environmental impact statement.

Leasable Minerals - Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium, sodium minerals, and oil and gas. Geothermal resources are also leasable under the Geothermal Stream Act of 1970.

Lease (Oil and Gas) - A legal contract granting the right to explore for, develop, and produce oil and gas resources for a specific period of time under certain agreed-upon terms and conditions.

Lease Modification (Oil and Gas) - Fundamental change to the provisions of a lease stipulation either temporarily or for the term of the lease. A modification may include an exemption from or alternation to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

Lease Stipulations (Oil and Gas) - Additional specific terms and conditions that modify the lease rights or change the manner in which an operation may be conducted.

Leasehold (Oil and Gas) - The area described in a federal oil and gas lease.

Lessee (Oil and Gas) - A person or entity holding record title in an oil and gas lease issued by the United States.

Line of Site – Refers to the presence or absence of topographical features or existing facilities that visually screen oil and gas exploration and development or other activities from raptor nests and winter roosts of bald eagles. Line-of-sight is determined from the height and location of the feature (ground nest, nest burrow opening, tree nests, cliff nest or roost site) being protected. Line-of-sight does not apply for noise disturbances or when disturbance to raptors that are temporarily off a nest is likely to result in nest abandonment.

Listed Species - Any species of fish, wildlife, or plant officially designated as endangered or threatened by the Secretary of the Interior or Commerce.

Litter - A surface layer of loose organic debris consisting of freshly fallen or slightly

decomposed organic materials.

Livestock - Domestic animals.

Livestock Use Permit - Used to document specific animal numbers, class, and seasons of use under a specified management plan for a given period (10 years).

Local Roads - Roads that connect terminal facilities with collector roads, arterial roads, or public highways. May be developed for either short-term or long-term service.

Locatable Minerals - Minerals or mineral materials subject to claim and development under the Mining Law of 1872, as amended. Generally, locatable minerals include metallic minerals, such as gold and silver, and other materials not subject to lease or sale, like some bentonites, limestone, talc, zeolites, etc.

Loess - A uniform and unstratified fine sand or silt transported by wind.

Logging - Harvest of trees of given size from a forest.

Maintenance (Transportation Management) - The upkeep of the entire Forest Development Transportation Facility, including surfaces and shoulders, parking and side areas, structures, and such traffic control devices as are necessary for its safe and efficient utilization.

Maintenance Levels - See Road Maintenance Levels.

Major Federal Action - Includes actions with effects that may be major and which are potentially subject to federal control and responsibility.

Managed Season (Recreation) - That period of time during which developed recreational sites are open for public use, with routine maintenance, cleanup, and operation on a scheduled basis.

Management - The organization of actions designed to reach a given set of objectives.

Management Area - Area of the grassland that are managed for a particular emphasis. These areas have common management direction and may be non-contiguous on the ~~N~~^aational ~~F~~^eorest or ~~N~~^aational ~~G~~^rassland.

~~**Management Indicator Species** - A plant or animal species selected because their status is believed to (1) be indicative of the status of a larger functional group of species, (2) be reflective of the status of a key habitat type, or (3) act as an early warning of an anticipated stressor to ecological integrity. The key characteristic of a MIS species is that its status and trend provide insights to the integrity of the larger ecological system to which it belongs.~~

~~**Management Indicators (Fish and Wildlife)** - Plant or animal species or habitat components selected in a planning process used to monitor the effects of planned management activities on populations of wildlife and fish, including those that are socially or economically important.~~

Marginal Land - Land of questionable physical or economic capabilities for sustaining a specific use.

Market Value - The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay as evidenced by market transactions.

MBF - Thousand Board Feet

MCF - Thousand Cubic Feet

Meadow – 1) An area of perennial herbaceous vegetation, usually grass or glasslike, used primarily for hay production. 2) Openings in forests and grasslands of exceptional productivity in arid regions, usually resulting from high water content of the soil (streamside situations, areas having a perched water table).

Measurable Progress – Progress in meeting objectives that can be measured quantitatively or by visual but systematic monitoring procedures, including standard methods for assessing proper functioning condition or photographic keys for assessing various vegetation attributes.

Memorandum of Understanding (MOU) - A legal agreement between the Forest Service, other agencies, private parties, or individuals resulting from consultation between them that states specific measures they will follow to accomplish a project. A ~~memorandum of understanding~~ **MOU** is not a fund-obligating document.

Mesa - A flat-topped mountain or other elevation bounded on at least one side by a steep cliff.

Microsite - A rock outcrop, snag, seep, stream pool, and other environmental features small in scale but unique in character.

Middleground - See Distance Zones.

Midgrass - Grasses which normally grow 18 - 36 inches tall, as in western wheatgrass.

Migration - The movement of genotypes (as individuals) into or out of a population.

Mineral Development - The activities and facilities associated with extracting a proven mineral deposit.

Mineral Entry - Claiming public lands administered by the Forest Service, including National Forests and ~~National Grasslands~~, under the Mining Law of 1872 for the purpose of exploiting minerals. This can also refer to ~~a~~-mineral exploration and development under the mineral leasing laws and the Material Sale Act of 1947.

Mineral Estate - The ownership of minerals, including rights necessary for access, exploration, development, and transportation operations.

Mineral Material - Common varieties of sand, building stone, gravel, clay, etc., obtainable under the Minerals Act of 1947, as amended.

Mineral Material Permit - A document used for sale transactions of common variety, salable minerals.

Mineral Potential - The classification of lands according to the probability of undiscovered mineral resources, delineated as to the type of mineral, the extent of the expected deposit, and the likelihood of its occurrence. The likelihood of occurrence for oil and gas is classified as follows:

- **High Potential:** Describes a geologic environment that is highly favorable for discovering oil and gas resources. The area is on or near a producing field, and evidence exists that the geologic conditions of the reservoir, source, and trap necessary for the accumulation of oil and gas are present.
- **Moderate Potential:** Refers to an environment that is favorable for the occurrence of undiscovered oil and gas resources; however, one of the geologic conditions necessary for the accumulation of oil or gas may be absent.

- **Low Potential:** Refers to an environment that is not favorable for the accumulation of oil and gas as indicated by geologic, geochemical, and geophysical characteristics. Evidence exists that one of the geologic conditions necessary for the accumulation of oil or gas is absent.
- **Unknown Potential:** Refers to the region for which geologic information is insufficient to otherwise categorize potential. This category should be limited to specific areas for which there is a true lack of data and should not be used as a substitute for performing the interpretation.

Mineral Production - The extraction of mineral deposits.

Mineral Rights - 1) **Mineral rights outstanding** are third-party rights, an interest in minerals not owned by the person or party conveying the land to the United States. It is an exception in the deed that is the result of a prior conveyance separating title of certain minerals from the surface estate. 2) **Reserved mineral rights** are the retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for the exercising of these rights have been defined in the Secretary's *Rules and Regulations to Govern Exercising of Mineral Rights Reserved in Conveyances to the United States* attached to and made a part of deeds reserving mineral rights.

Mineral Withdrawal - The exclusion of locatable mineral deposits from mineral entry on areas required for administrative sites by the Forest Service and other areas highly valued by the public. Public lands withdrawn from entry under the General Mining Laws and/or the Mineral Leasing Laws.

Minimum Management Requirements - Standards for resource protection, vegetative manipulation, silvicultural practices, even-age management, riparian areas, soil and water, and diversity to be met in accomplishing National Forest System goals and objectives.

Mining Claims - That portion of the public estate held for mining purposes in which the right of exclusive possession of locatable mineral deposits is vested in the locator of a deposit.

Mining Law of 1872 - Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the General Mining Law or Mining Law.

Mitigate - To lessen the severity.

Mitigation - Includes avoiding an impact by not taking certain actions; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

Mitigation (Heritage Resources) - Actions taken to reduce or eliminate adverse effects caused to heritage resources. Avoidance is not considered a mitigation measure.

Mixed grass prairie - Grassland type west of the tallgrass prairie in North America, consisting of a mixture of tall-, short-, and midgrasses and other herbaceous plants, also called mixed prairie.

MMBF - Million Board Feet

MMCF - Million Cubic Feet

Modeling - The use of mathematical and computer-based simulations as a tool to enhance

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understanding of complex systems and as planning techniques for such purposes as developing species recovery plans and understanding population structure, extinction vulnerabilities, or deforestation rates.

Modification (Oil and Gas Leasing) - Modifications are similar to exceptions, but broader in scope, and involve a fundamental change to the provisions of the stipulation. They can be granted either temporarily or for the duration of the lease. A modification may, therefore, include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

Monitoring and Evaluation - The sample collection and analysis of information regarding Forest Plan management practices to determine how well objectives have been met, as well as the effects of those management practices on the land and environment.

Monoculture - The cultivation of a single crop to the exclusion of other land uses.

Motorized Equipment - Machines that use a motor, engine, or other nonliving power source. This includes, but is not limited to, such machines as chain saws, aircraft, snowmobiles, generators, motor boats, and motor vehicles. It does not include small battery or gas-powered hand-carried devices, such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

Motorized Recreation - A recreational opportunity provided through the use of a motorized vehicle. This includes travel on and off highways, Forest roads, and four-wheel-drive primitive roads and trails. Travel regulations may be established to protect forest and grassland resources, to minimize use conflicts, and to promote user safety.

MOU - See Memorandum of Understanding.

Mowing - The cutting of hay to be left on the ground.

Multiple Use - According to the Multiple Use Sustained Yield Act of 1960, multiple use is the management of all the various renewable surface resources of the National Forest System, including **N**ational **G**rasslands, so that they are utilized in the combination that will best meet the needs of the American people. Such management makes the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions. Some lands will be used for less than all of the resources. Harmonious and coordinated management of the various resources is employed, each with the other, without impairment of the productivity of the land. Consideration is given to the relative values of the various resources and not necessarily the combination of uses that gives the greatest dollar return or the greatest unit output.

National Environmental Policy Act of 1969 (NEPA) - An act declaring a national policy to encourage productive harmony between people and their environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people and to enrich the understanding of the ecological systems and natural resources important to the nation and to establish a Council on Environmental Quality.

National Fire Management Analysis System (NFMAS) - A broad umbrella process to help fire managers identify the most efficient fire program meeting the direction in the Forest Plan. This includes information for the planning record on program composition, annual programmed costs, emergency firefighting costs, expected resource impacts, and net value change.

National Forest Management Act (NFMA) - A 1976 law that amended the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of Regional and Forest Plans and regulations to guide **F**orest **P**lan development.

National Forest System (NFS) Lands - Federal lands designated by Executive Order or statute as **N**ational **F**orests, **N**ational **G**rasslands, or purchase units, or other lands under the administration of the U.S. Forest Service.

National Grasslands - Lands designated **N**ational **G**rasslands by the Secretary of Agriculture and permanently held by the Department of Agriculture under Title III of the Bankhead-Jones Farm Tenant Act.

National Natural Landmark - An area possessing such exceptional value or qualities for illustrating or interpreting the natural heritage of our nation that they are considered to be of national significance. To possess national significance, such an area must be a true, accurate, essentially unspoiled example of nature.

National Recreation Trails - Trails designated by the Secretary of Interior or the Secretary of Agriculture as part of the national system of trails authorized by the National Trails System Act. National recreation trails provide a variety of outdoor recreation uses.

National Register of Historic Places (NRHP) - A list of heritage resources that have local, state, or national significance maintained by the Secretary of the Interior.

National Wild and Scenic River System - Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition.

National Wilderness Preservation System - All lands covered by the Wilderness Act and subsequent **W**ilderness designations, irrespective of the department or agency having jurisdiction.

Native - A plant or animal indigenous to a particular locality.

Native Seed - Seeds of plants considered indigenous to the Northern Great Plains.

Natural - Occurring in conformity with the ordinary course of nature. An area having undergone no, or at least minimal, disturbance by anthropogenic forces.

Natural Area - An area of land in which organisms and geological processes are undisturbed by humans, with as few controls as possible.

Natural Barrier - A natural feature that will restrict livestock movements, such as a dense stand of trees or downfall, or a feature that will stop the spread of fire, such as a talus slope, water course, or areas otherwise devoid of fuel.

Natural Community - A community uninfluenced by external factors.

Natural Fuels - Fuels resulting from natural processes and not directly generated or altered by land management practices.

NCSS (National Cooperative Soil Survey) - A nationwide partnership of federal, regional, state, and local agencies and **i**nstitutions. This partnership works to cooperatively investigate, inventory, document, classify, and interpret soils and disseminate, publish, and promote the use of information about soils of the United States.

NEPA Process - Means all measures necessary for compliance with the requirements of Section 2 and Title I of [the National Environmental Policy Act of 1969](#).

Net Public Benefits - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System, including [National Grasslands](#), is consistent with the principles of multiple use and sustained yield.

Niche - The ecological role of a species in a community.

No Adverse Effect (Heritage Resources) - Any effect on a heritage resource that would not be considered harmful to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

No Effect (Heritage Resources) - No effect to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

No Lease (Oil and Gas) - A decision not to lease until some future analysis determines the lands are available for leasing.

No Surface Occupancy (NSO) (Oil and Gas) - A fluid mineral leasing stipulation that prohibits occupancy or disturbance on all or part of the land's surface to protect special values or uses. The NSO stipulation includes the following terminology: no surface use/occupancy, no surface disturbance, conditional NSO, and surface disturbance or surface occupancy restriction by location. The lessee may exploit the oil and gas or geothermal resources under leases restricted by this stipulation through use of directional drilling from sites outside NSO areas.

No Action Alternative - An alternative that maintains established trends or management direction.

Non-consumptive Use - Those resources that do not reduce the supply. No consumptive uses of water include hydroelectric power generation, boating, swimming, etc.

Non-essential Experimental Population - Population of a federally listed species released under Section 10(j) of the Endangered Species Act ([ESA](#)) and whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild. Section 10(j) of ESA authorizes listed species to be released as experimental populations outside their currently occupied range, but within probable historic habitat, to further species conservation.

Non-extractive Use - Use that does not remove a resource from its natural setting.

Nonmotorized Activities - Activities that do not incorporate the use of a motor, engine, or other nonliving power source. This includes such machines as aircraft, hovercraft, motorboats, automobiles, motor bikes, snowmobiles, bulldozers, chainsaws, rock drills, and generators.

Non-point Source Pollution - Pollution whose source is not specific in location. The sources of the pollutant discharge are dispersed, not well-defined or constant. Examples include sediments from logging activities and runoff from agricultural chemicals.

Non-vertebrate Fossils - The fossilized remains of anything that does not have a bony skeleton or backbone. Examples of non-vertebrate fossils include: plants, pollen, petrified wood, shellfish, snails, and bugs.

Northern Region - The Forest Service organizational unit consisting of Montana, northern Idaho, North Dakota, and northwestern South Dakota. Also known as Region 1.

Not Administratively Available (Oil and Gas) - Decision that lands are not available for leasing. They are no longer considered for any type of leasing and no further decision is required concerning those lands.

Notice of Intent - Notice that an environmental impact statement will be prepared and considered. The notice briefly describes the proposed action and possible alternatives, the agency's scoping process, and the address and name of the agency to contact regarding questions about the proposed action and the environmental impact statement.

Noxious Weeds - Those plant species designated as weeds by federal or state laws. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host for serious insects or diseases, and generally non-native.

Objective - A concise, time-specific statement of measurable, planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and resources to be used in achieving identified goals.

Occupied Nest - Nest that is repaired or tended in the current year; also includes nests within a nesting territory while raptors are demonstrating pair bonding activities and developing an affinity to the area.

Off-Highway Vehicle (OHV) or Off-Road Vehicle (ORV) - Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, snow, ice, marsh, swampland, or other natural terrain.

Offset Drilling - To drill a well adjacent to a previously drilled well, usually in the adjacent spacing unit.

Oil and Gas Lease - A legal contract granting the right to explore for, develop and produce oil and gas resources for a specific period of time under certain agreed-upon terms and conditions.

On-Top-the-Surface (Fossils) - Fossil resting on surface, collection requires no digging or prying to remove.

Open Range - 1) Range that has not been fenced into management units. 2) All suitable rangeland of an area upon which grazing is permitted. 3) Untimbered rangeland. 4) Range on which the livestock owner has unlimited access without benefit of land ownership or leasing.

Operating Plan - A written plan, approved by a forest officer and prepared by those engaged in mining activity on the ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~rassland. It covers prospecting, exploration, or extraction activities that will take place on National Forest System lands, including National Forests and ~~N~~ational ~~G~~rasslands.

Operating Right (Oil and Gas) - The interest created out of a lease that authorizes the holder of that interest to enter upon the leased lands to conduct drilling and related operations, including production of oil and gas from such lands in accordance.

Opportunity Cost - A foregone value. In this analysis, it is a cost calculated as the difference between present net value of the alternative and the present net value (PNV) of the maximum PNV increment.

Organism - An individual or living thing.

Outpost Well - A well drilled a farther distance from a production well than a step-out well, but still on the same structural trend. The distance could be a couple of miles.

Outputs - The goods, end products, or services purchased, consumed, or utilized directly by people. Outputs are goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term used to describe any result, product, or service that a process or activity actually produces.

Overgrazing - Continued heavy grazing that exceeds the recovery capacity of the community and creates a deteriorated range.

Overstocking - Placing a number of animals on a given area that will result in overuse if continued to the end of the planned grazing period.

Overstory - The portion of vegetation in a forest that forms the uppermost foliage layer.

Paleontological Areas - A unit of land that contains fossils of plants and animals, shellfish, early vertebrates, coal swamp forests, early reptiles, dinosaurs, and other prehistoric plants and animals.

Paleontological Resources - Fossil resources, including both body and trace fossils, of all groups of organisms (vertebrates, invertebrates, plants, pollen, and spores, etc.)

Paleontology - The study of life in past geologic times.

Palustrine Systems - A wetland habitat generally less than 20 acres and less than 6.5 feet (2 meters) deep (marshes).

Particulates - Small particles suspended in the air and generally considered pollutants.

Parturition Habitat - Habitat used by big game species during the birthing season.

Pasture - A land area consisting of grass or other growing plants used as food by grazing animals. Also an area used for grazing, often enclosed and separated from other areas by fences, hedges, ditches, or walls.

Patent - The instrument with which the federal government grants public lands to an individual. A land patent is monument of title issued by the federal government for the conveyance of some portion of the public domain under the 1872 Mining Law.

Patented Mining Claim - A claim for which title has passed from the federal government to the mining claimant under the Mining Law of 1872.

Payment in Lieu of Taxes (PILT) - Payments to local or state governments based on ownership of federal land and not directly dependent upon production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976.

Perch-inhibitors - Devices placed on power poles to discourage raptor perching and mortality from electrocution.

Perennial Plant - A plant that lives for two or more years.

Perennial Streams - Streams that flow continuously throughout most years.

Perimeter Control - A strategy that seeks to confine the active zone that is responsible for fire spread. Actual fire line location (I.e., direct vs. indirect) will be selected to minimize the combined cost of suppression and the values that could be lost in a fire. The benefits of fire's effects may also be used to determine location.

Permitted Grazing - Use of a National Forest System range allotment under the terms of a grazing permit.

Permittee (Grazing) - One who holds a permit to graze livestock on state, federal, or certain privately owned lands.

Persons at One Time (PAOT) - A recreational capacity measurement indicating the number of people who can use a facility or area at one time.

Person-Year - The amount of work done by one person working all year or several people working a portion of a year. Approximately 2,000 working hours.

Pesticide - A chemical agent formulated to kill or suppress insects, plants, or animals.

pH - The degree of acidity or alkalinity.

Pioneer Species - The first species or community to colonize or recolonize a barren or disturbed area in primary or secondary succession.

Pitting - Making shallow pits or basins of suitable capacity and distribution on range to reduce overland flow from rainfall and snowmelt.

Plain - A broad stretch of relatively level, treeless land.

Plan of Operations - A written plan describing mining and mineral processing activities that will likely cause a significant surface disturbance. The plan is prepared by those engaged in activities, such as prospecting, exploration, or mining, in the ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~rassland. This plan must be approved by a Forest Officer.

Planned Ignitions - A fire started by a deliberate management action under an approved plan to meet specific resource objectives.

Planning Area - The area of the National Forest System, including ~~N~~ational ~~G~~rasslands, covered by a Regional or Forest Plan.

Planning Criteria - Standards, tests, rules, and guidelines by which the planning process is conducted and upon which judgments and decisions are based.

Planning Horizon - The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions that would influence the planning decisions. In the National Forest System planning process, this is 150 years.

Planning Period - A time interval for which inputs and outputs are identified in a planning process. Current Forest and Rangeland Renewable Resources Planning Act RPA and ~~National~~ Forest Plan intervals are five and ten years, respectively.

Planning Questions - A major policy question of long-range significance, derived from the public issues and management concerns, to be addressed when selecting among alternative Forest plans.

Planning Records - Documents and files that contain detailed information and decisions made in developing the Forest Plan. Available at the Forest Supervisor's Office.

Planning Unit – Each individual ~~n~~National ~~G~~grassland and ~~F~~forest in the planning area.

Plant Associations - A grouping of plants that have reached dynamic equilibrium with the local environmental conditions; equivalent to climax. On site, there is no evidence of replacement by other dominant plant species, and there is no evidence of serious disturbances.

Plant Communities - Assemblages of plant species living in an area. A plant community is an organized unit to the extent that it has characteristics in addition to the individuals and populations and functions as a unit.

Potential Natural Community (PNC) - A taxonomic unit of vegetation classification. The biotic community that would be established under present environmental conditions if all successional sequences were completed without additional human-caused disturbances. Natural disturbances, such as drought, flood, wildfire, grazing by native fauna, and insect and disease infestations, are inherent in the development of ~~potential natural communities~~PNCs, which may include naturalized, non-native species.

Prairie - A tract of level to hilly land that has a dominance of grasses and forbs, has a scarcity of shrubs, and is treeless. The natural plant community consists of various mixtures of tall grass, mid-grass, and short-grass plant species.

Prairie Dog Colony Complex – A group of at least 10 prairie dog colonies with nearest-neighbor intercolony distances not exceeding 6 miles and with a total colony complex acreage of at least 1,000 acres.

Prairie Grouse – A term used to refer collectively to sharp-tailed grouse and prairie chicken.

Precambrian - All geologic time and its corresponding rocks before the beginning of the Paleozoic; it is equivalent to about 90 percent of geologic time.

Preferred Alternative - The alternative recommended for implementation in the Forest Plan based on the evaluation completed in the planning process.

Prehistoric Site - Archeology sites associated with American Indians and usually occurring before contact with Europeans.

Prescribed Burning - Controlled application of fire to wild land fuels in either their natural or modified state, under specified environmental conditions, that allows the fire to be confined to a predetermined area and, at the same time, to produce the fire line intensity and rate of spread required to attain planned resource management objectives.

Prescribed Fire - A fire burning with prescription, resulting from planned or unplanned ignition.

Prescription (Fire Management) - A written statement defining objectives to be attained as well as temperature, humidity, wind direction and speed, fuel-moisture content, and soil moisture under which the fire will be allowed to burn. Generally expressed as acceptable ranges of the various indices and the limit of the ~~geographic area~~Geographic Area to be covered.

Present Net Value (PNV) - The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area.

Present Net Worth - The discounted value of price times the quantity less the cost.

Prevention of Significant Deterioration of Air Quality (PSD) - A classification established to preserve, protect, and enhance the air quality in National Wilderness Preservation System areas in existence prior to August 1977 and other areas of national significance, while ensuring economic growth in a manner consistent with the preservation of existing clean air resources. Specific emission limitations and other measures, by class, are detailed in the Clean Air Act.

Primary Range - Areas that animals prefer to use and over which they will graze when management is limited. The area on which overuse will occur before secondary range is used when animals are allowed to shift for themselves.

Primitive Area - All areas so designated by the Secretary of Agriculture on the effective date of the Wilderness Act and that have not yet been permanently designated as Wilderness or to other use by act of Congress.

Production Pit – 1) A pit on an oil and/or gas well location after well completion. 2) A pit associated with the production of oil or gas.

Productivity - The total quantity of organic material produced within a given period by organisms or the energy that this represents, such as gram-calories per square centimeter per year. The innate capacity of an environment to produce plant and animal life. The capacity of a soil to produce a certain kind of crop under a defined set of management conditions.

Products Other than Logs (POL) - Products such as posts, poles, and fiber from trees or parts of trees that are less than saw log size. POL usually include trees greater than five inches diameter at breast height and less than 7.9 inches diameter at breast height, with the tops of the trees greater than four inches to less than six inches.

Program Development and Budgeting - The process by which activities for the ~~N~~National ~~F~~orest or ~~N~~National ~~G~~razingland are proposed and funded.

Programmatic EIS - An area-wide Environmental Impact Statement (EIS) that provides an overview when a large-scale plan is being prepared for the management of federally administered lands on a regional or multi- regional basis. A programmatic EIS is a necessary analysis of the affected environment and the potential cumulative effects of the reasonably foreseeable actions under that program or within that geographical area. Analyses of lesser scope or more site-specificity may be tiered to the analysis in a programmatic EIS.

Proper Functioning Condition (PFC) - Riparian/wetland areas achieve proper functioning condition when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. This reduces erosion; improves water quality; filters sediment; captures bed load; aids floodplain development; improves floodwater retention and groundwater recharge; develops root masses that stabilize stream banks against cutting action; develops diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and supports greater biodiversity. The functioning condition of riparian/wetland areas is a result of the interaction among geology, soil, water, and vegetation.

Proposed Action - In terms of the National Environmental Policy Act, the project, activity, or action that a federal agency intends to implement or undertake and which is the subject of an environmental analysis.

Proposed Critical Habitat - Habitat proposed for designation to benefit any listed or proposed species. Notice of proposed critical habitat appears in the Federal Register.

Proposed Species - Any species of fish, wildlife, or plant that is proposed by the Fish and Wildlife Service or the National Marine Fisheries Service for listing as threatened or endangered.

Province - A continuous geographic area wherein species composition, both plant and animal, is more homogenous than between adjacent areas.

Public - The people of an area, state, or nation that can be grouped together by a commonality of interests, values, beliefs, or life-style.

Public Access - Usually refers to a road or trail route over which a public agency has secured a right-of-way for public use.

Public Involvement - A Forest Service process designed to broaden the information base upon which agency decisions are made. It includes the following steps:

- Informing the public of Forest Service activities, plans, and decisions.
- Encouraging public understanding about the participation in the planning processes that lead to final decision-making.

Public Issue - A subject or question of widespread public interest identified through public participation relating to management of National Forest System lands, including National Forests and National Grasslands.

Quality Habitat - Habitat that is highly suitable for a plant or animal species or community based on the local biological site potential.

Range - Any land supporting vegetation suitable for grazing including rangeland, grazeable woodland, and shrubland.

Range Allotment - A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System lands, including National Grasslands, and other associated lands administered by the Forest Service.

Range Analysis - Systematic acquisition and evaluation of rangeland resources data needed for allotment management planning and overall land management.

Range Betterment Funds - Funds established by Title IV, section 401 (b)(1), of the Federal Land Policy and Management Act of 1976 to be used for range improvement. This consists of 50 percent of all money received by the United States as fees for grazing livestock on the National Forest and National Grasslands in the 16 contiguous western states.

Range Condition – 1) A rangeland is considered to be in satisfactory condition when the desired condition is being met or short-term vegetative objectives are being achieved to move the rangeland toward the desired condition or trend. Unsatisfactory condition is when the desired condition is not being met and short-term vegetative objectives are not being achieved to move the rangeland toward the desired condition or trend. 2) Historically, range condition usually has been defined in one of two ways: (a) a generic term relating to present status of a unit of range in terms of specific values or potentials. Specific values or potentials must be stated or (b) the present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions and amounts of plants in a plant community resemble that of the climax plant for the site.

Range Development, Nonstructural - Any practice designed to improve range condition or facilitate more efficient utilization of the range.

Range Development, Structural - Any structure or excavation to facilitate management of range or livestock.

Range Management - A distinct discipline founded on ecological principles and dealing with the use of rangelands and range resources for a variety of purposes. These purposes include use as watersheds, wildlife habitat, grazing by livestock, recreation, and aesthetics, as well as associated uses. Two kinds of range management can be described:

- **Extensive** range management carries the goal to control livestock numbers within the present capacity of the range, but little or no attempt is made to achieve uniform distribution of livestock. Range management investments are minimal and only to the extent needed to maintain stewardship of the range in the presence of grazing. Past resource damage is corrected and resources are protected from natural catastrophes.
- **Intensive** range management carries the goal to maintain full plant vigor and to achieve full livestock utilization of available forage. This goal is achieved through implementation of improved grazing systems and construction and installation of range improvements. Cultural practices, such as seeding and fertilizing, to improve forage quality and quantity may be used.

Rangeland - Lands on which the native vegetation is predominately grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing usage. Includes lands revegetated naturally or artificially to provide a forage cover that is managed like native vegetation.

Rangeland Health - The degree to which the integrity of the soil, the vegetation, the water, and air as well as the ecological processes of the rangeland ecosystem is balanced and sustained. Integrity is defined as: Maintenance of the structure and functional attributes characteristic of a particular locale, including normal variability.

Ranger District - Administrative subdivision of the National Forest or National Grassland supervised by a District Ranger who reports to a Forest Supervisor.

Rare Communities - A ranking system used by The Nature Conservancy to assess relative endangerment. Community types are ranked on a global, national, and state scale of 1 to 5. A rank of G1 (Global 1) indicates that a community type is critically imperiled globally to rarity, endemism, and/or threats. A rank of G5 indicates little to no risk of global elimination. Similar definitions apply to national and state rankings.

RARE II - See Roadless Area Review and Evaluation II.

Rate of Spread (Fire Management) - Relative activity of a fire in extending its horizontal dimensions for a specified period in the fire's history. Expressed as rate of increase of the perimeter, rate of increase in area, or rate of advance of its head, depending on the intended use of the information. Generally, units are in chains or acres per hour.

Reasonably Foreseeable Development (RFD) (Oil and Gas) - A projection of likely exploration, development, and production of oil and gas within a study area based on existing and credible geologic data, technology, economics, and activity trends.

Receipts - Money collected from timber stumpage, livestock grazing, campground fees, special-use permits, and oil and gas lease rentals and royalties and returned to the federal treasury.

Reclamation - Returning disturbed lands to a form and productivity that will be ecologically balanced, often in conformity with a predetermined reclamation plan.

Reconstruction - Construction activities performed on an existing facility. Reconstruction includes those activities that alter the facility from its originally constructed or subsequently reconstructed condition.

Record of Decision - A document separate from, but associated with, an environmental impact statement that publicly and officially discloses the responsible official's decision on the proposed action.

Recovery Plan - Identifies, justifies, and schedules the research and management action necessary to reverse the decline of a species and ensure its long-term survival.

Recreation Capacity - The number of people who can take advantage of the supply of recreational opportunities at one time without substantially diminishing the quality of the recreational experience or the area's resources.

Recreation Development Scale - Classification of the development level in camp and picnic sites that describes the types of recreational opportunities and modifications to the environment that can be expected. The levels, from 1 to 5, are listed below:

1. **Minimum Site Modification:** Rustic or rudimentary improvements are designed for protection of the site rather than the comfort of users. Use of synthetic materials are excluded. Minimum controls are subtle. Spacing is informal and extended to minimize contacts between users. Motorized access is not provided or permitted.
2. **Little Site Modification:** Rustic or rudimentary improvements are designed primarily for protection of the site rather than the comfort of users. Use of synthetic materials is avoided. Minimum controls are subtle. Little obvious regimentation is visible. Spacing is provided or permitted. The primary access is over primitive roads. Interpretive services are informal, almost subliminal.
3. **Site Modification Moderate:** Facilities provide approximately equal protection for the site and comfort for users. Contemporary or rustic design of improvements is usually based on the use of native materials. Inconspicuous vehicular controls are usually provided. Roads may be hard-surfaced and trails formalized. Development density is about three family units per acre. The primary access may be over high-standard roads. Interpretive services are informal, but generally direct.

4. **Site Heavily Modified:** Some facilities are designed strictly for comfort and convenience of users. Luxury facilities are not provided. Facility design may incorporate synthetic materials. Artificial surfacing of roads and trails is used extensively. Vehicle traffic controls are usually obvious. The primary access is usually over paved roads. Development density is about three to five family units per acre. Plant materials are usually native. Interpretive services are often formal or structured.
5. **High Degree of Site Modification:** Facilities are mostly designed for comfort and convenience of users and usually include flush toilets. Showers, bathhouses, laundry facilities, and electrical hook-ups may also be included. Synthetic materials are commonly used. Formal walkways or surfaced trails are evident. The regimentation of users is obvious. Access is usually by high-speed highways. Development density is five or more family units per acre. Plant materials may be foreign to the environment. Formal interpretive services are usually available. Designs are formalized and architecture may be contemporary. Mowed lawns and clipped shrubs are not unusual.

Recreation Information Management (RIM) - The Forest Service system for recording recreation facility condition and use.

Recreation Opportunity - Availability of a real choice for a user to participate in a preferred activity within a preferred setting in order to realize desired experiences.

Recreation Opportunity Spectrum (ROS) - A system for planning and managing recreational resources that categorizes recreational opportunities into eight classes (listed below). Each class is defined in terms of the degree to which it satisfies certain recreational experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use.

- **Primitive:** The area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.
- **Semi-primitive Nonmotorized:** The area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation is not permitted.
- but local roads used for other resource management activities may be present, on a limited basis. Use of such roads is restricted to minimize impact on recreational opportunities.
- **Semi-primitive Motorized:** The area is characterized by a predominately natural or natural appearing environment of moderate to large size. The concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized use of local primitive or collector roads with predominately natural surfaces and trails suitable for motor bikes is permitted.

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Recreation Opportunity Spectrum, cont.

- **Roaded Natural:** The area is characterized by predominately natural-appearing environments with moderate evidence of the sights and sounds of people. Such evidence is usually harmonious with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident but compatible with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.
- **Roaded Natural Nonmotorized (Dakota Prairie only):** The area is closed to motorized use, yet has been heavily modified or is not large enough to be set aside as semi-primitive nonmotorized.
- **Roaded Modified:** An area characterized by a natural environment that has been substantially modified by structure and vegetative manipulation. No on-site facilities are present except signing at major road junctions. Moderate evidence of other users on roads is present. Minimal site controls of users are present, except for gated roads.
- **Rural:** The area is characterized by a natural environment that has been substantially modified by development of structures, vegetative manipulation, or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreational activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.
- **Urban:** The area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are often used to enhance specific recreational activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans are predominant on the site. Large numbers of users can be expected both on the site and in nearby areas. Facilities for highly intensified motor use and parking are available, with forms of mass transit often available to carry people throughout the site.

Recreation Visitor Day (RVD) - A unit for measuring recreational activities, which aggregates 12 visitor hours. This may consist of one person for 12 hours, 12 persons for one hour, or any equivalent combination of continuous or intermittent recreation use by individuals or groups. RVDs are used to measure recreational production or output capacity.

Recreational Livestock Use - The use of an area with animals, such as horses and mules, in conjunction with recreation, like horseback riding.

Recreational Residence - A house or cabin on National Forest System lands, including National Grazinglands, used seasonally for recreation, but not the primary residence of the owner.

Reference Areas - Land areas selected, managed and monitored to help determine the local biological site potential to provide quality habitat for a plant or animal species or community.

Reforestation - The renewal of forest cover by seeding, planting, and natural means.

Refugia - Areas that have not been exposed to great environmental changes and disturbances undergone by the region as a whole. Refugia provide conditions suitable for survival of species that may be declining elsewhere.

Regeneration - The renewal of a tree crop, whether by natural or artificial means. This term may also refer to the crop itself.

Region - An administrative unit within the National Forest System lands, which includes National Forests and National Grasslands. The United States is divided into nine geographic regions. Each region has a headquarter office and is supervised by a Regional Forester. Each region contains National Forests and sometimes National Grasslands or other lands administered by the Forest Service.

Regional Forester - The official responsible for administering a single region.

Regional Guide - A document developed to meet the requirements of the Forest and Rangeland Renewable Resources Act of 1974, as amended, that guides all natural resource management activities and established management standards and guidelines for National Forest System lands, including National Grasslands in a given Region. This management direction is applied to the National Forests and National Grasslands within that Region.

Rehabilitation - Actions taken to restore or reclaim site productivity, water quality, or other values.

Relict - A remnant or fragment of the climax plant community that remains from a former period when it was more widely distributed.

Renewable Resources - Resources that can be used indefinitely when the use rate does not exceed the ability to renew the supply. However, in the Forest and Rangeland Renewable Resources Planning Act (RPA) program, the term is used to describe those matters within the scope of the responsibilities and authorities of the Forest Service as required by the Forest And Rangeland Renewable Resources Planning Act of 1974. Consequently, the renewable resources include: timber, range, minerals, wildlife and fish, water, recreation, and Wilderness.

Research Natural Area (RNA) - A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural, physical, and biological processes to prevail without human intervention. However, under unusual circumstances, deliberate manipulation may be utilized to maintain the unique feature that the RNA was established to protect.

Residual Cover – Standing or lodged herbaceous vegetation left after livestock grazing and killing frost.

Resource Road - A road that access an oil and gas facility and terminates at that facility

Resource Values - The tangible and intangible worth of forest and grassland resources.

Response Guild – A group of plant or animal species that respond in a similar way to changes in habitat conditions resulting from land uses or management activities.

Responsible Official - The Forest Service employee who has the delegated authority to make a specific decision.

Rest - To leave an area of rangeland ungrazed by livestock or unharvested by mechanical methods for at least one year (12 consecutive months).

Rest Rotation (Livestock Grazing) - An intensive system of management where grazing is deferred on various parts of the range during succeeding years, allowing the deferred part complete rest for one year. At least two, but usually three or more, separate grazing units are required.

Restoration - Holistic actions taken to modify an ecosystem to achieve desired, healthy, and functioning conditions and processes. Generally refers to the process of enabling the system to resume its resiliency to disturbances.

Revegetation - The reestablishment and development of plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through reforestation or reseeding.

Revision Topics - Major focus areas for land and resource management plan revisions identified through the public involvement and the need for change.

Rhizome - A horizontal underground stem, usually sending out roots and above-ground shoots from the nodes.

Rights-of-Way - 1) Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project or facility passing over, upon, under, or through such land (36 CFR 251.51). 2) The privilege that one person or persons particularly described may have of passing over the land of another in some particular line.

Riparian - The bands and adjacent areas of water bodies, water courses, seeps, and springs whose waters provide soil moisture in excess of what is locally available. This results in a more moist habitat than that found on the contiguous flood plains and uplands. Refers to land bordering a stream, lake, or tidewater, and generally implies a particular type of habitat physiognomy often characterized by an over story of trees or other large woody plants with a complex under story of other woody and/or herbaceous species.

Riparian Area - Areas of the aquatic and riparian ecosystems with distinctive resource values and characteristics that are geographically delineated (FSM 2526). Ecological units with distinctive vegetation, landform, soil, and water regimes consisting of the aquatic ecosystem and wet-to-moist areas located between aquatic ecosystems and adjacent terrestrial ecosystems. Includes floodplains and wetlands. Riparian ecosystems are distinguished by soil characteristics and distinctive existing or potential vegetation communities that are adapted to soils with consistently high levels of moisture.

Riparian Communities - Repeating, classified, defined and recognizable assemblages of plant or animal communities associated with riparian areas.

Riparian Ecosystem - A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. It is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

Ripping - The mechanical penetration and shearing of range soils to depths of 8 to 18 inches for the purpose of breaking hardpan layers to facilitate penetration of plant roots, water, organic matter, and nutrients. A range improvement practice used where native grasses of a rhizomatous nature can be spread into the ripped soil.

Risk Assessment - Process of gathering data and making assumptions to estimate short- and long-term effects on human health or the environment from particular products or activities.

Risk Index (Fire Management) - A number related to the probability of an ignition.

Road - A general term denoting a way with at least two-wheel tracks for purposes of travel by vehicles greater than 50 inches in width.

Road Credits - Credits earned by timber purchasers and which are applied toward the sale price of timber in exchange for building the roads needed for access.

Road Density - Road density refers to the miles of road per square mile. There are different road densities depending on what road types are being considered.

- **Forest Development Road Density:** The miles of Forest Development Roads per square mile. This is the road density of the road system managed by the Forest Service for resource management.
- **Open Road Density:** The miles of Forest Development Roads and other private and public roads and highways open for public travel.
- **Wheel-track Density:** The miles of established wheel tracks per square mile. Wheel tracks are not managed as part of the Forest Development Road System and are formed by repeated travel off system roads by users.

Road Functional Classification - The way in which a road services land and resource management needs and the character of services it provides. Functional classification for roads include the following:

- **Forest Arterial Road:** Provides service to large land areas and usually connects with public highways or other Forest Service arterial roads to form an integrated network of primary travel routes. The location and standard are often determined by a demand for maximum mobility and travel efficiency rather than specific resource management service. It is usually developed and operated for long-term land and resource management purposes and constant service.
- **Forest Collector Road:** Serves smaller land areas than a Forest Arterial Road and is usually connected to a Forest Arterial Road or public highway. Collects traffic from Forest Local Roads and/or terminal facilities. The location and standard are influenced by both long-term multi-resource service needs, as well as travel efficiency. May be operated for either constant or intermittent service, depending on land use and resource management objectives for the area served.
- **Forest Local Road:** Connects terminal facilities with Forest Collector or Forest Arterial Roads or public highways. The location and standard are usually controlled by a specific resource activity rather than travel efficiency. Forest Local Roads may be developed and operated for either long- or short-term service.

Road Maintenance Level - Defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria. There are five maintenance levels:

- **Maintenance Level 1:** Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period is one year or longer. Basic custodial maintenance is performed.
- **Maintenance Level 2:** Assigned to roads open for use by high-clearance vehicles.

Passenger car traffic is not a consideration.

Road Maintenance Level, cont.

- **Maintenance Level 3:** Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.
- **Maintenance Level 4:** Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.
- **Maintenance Level 5:** Assigned to roads that provide a high degree of user comfort and convenience. Normally, roads are double-laned and paved or aggregate-surfaced with dust abatement.

Road Prism - Equivalent to the term roadway. The portion of the road within the limits of excavation and embankment, including slope rounding. A similar term is road template, the shape and cross-sectional dimensions of the roadway to be constructed as defined by the construction staking notes and the characteristics of the typical sections.

Roadless Analysis - A scientifically-based procedure to assess environmental and social issues and concerns associated with maintaining, constructing, reconstructing, and decommissioning National Forest System roads such as that found in the report, Roads Analysis: Informing Decisions About Managing the National Forest Transportation System, (USDA Forest Service, 1999, Misc. Rep. FS-643).

Roadless Area - Areas within the National Forest System, which are evaluated and considered as potential **Wilderness Areas**. They are areas which remain essentially roadless and undeveloped, and which have not yet been designated as wilderness or for other uses by law. Direction for evaluating potential **Wilderness** and recommending areas to the **Congress** for **Wilderness** designation is found in 36 CFR 219.17 and FSM 1923. The procedures for identifying and evaluating potential **Wilderness** in the National Forest System are found in FSH 1909.12.

Roadless Area Review and Evaluation II (RARE II) - A comprehensive process, instituted in June 1977, to identify roadless and undeveloped land areas in the National Forest System, including **National Grasslands**, and to develop alternatives for both Wilderness and other resource management.

Roadless Inventory - Roadless areas identified by following the inventory criteria listed in FSH 1909.12 Chapter 7.

Roadside Corridor - A passageway that frames a road or travel way. The corridor includes the viewing area and facilities, which may be within the immediate roadside area or part of a sweeping distance panorama.

Rocky Mountain Region - The Forest Service organizational units consisting of Colorado, Wyoming, part of South Dakota, Nebraska, and Kansas. Also known as Region 2.

Rodenticide - A chemical agent formulated to kill rodents.

Rotation - The planned number of years between the formation or regeneration of a crop or stand and its final cutting at a specified stage of maturity.

Rotation Grazing - A grazing scheme where animals are moved from one grazing unit

(paddock) in the same group of grazing units to another without regard to specific graze/rest periods or levels or plant defoliation.

RPA Assessment and Program - The [Forest and Rangeland Renewable Resources Planning Act \(RPA\)](#) Assessment is prepared every 10 years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services. The RPA Program is prepared every five years to chart the long-term course of Forest Service management of the [National Forests and National Grasslands](#), assistance to state and private landowners, and research. An RPA Assessment and Program are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974.

Runoff - The total stream discharge of water, including both surface and subsurface flow, usually expressed in acre-feet of water yield.

Rural Development - A partnership or program designed to enrich the cultural life, enhance the environment, provide employment, and improve living conditions in rural America.

Savanna - A grassland with scattered trees, either as individuals or clumps. Often a transitional type between true grassland and forest.

Scenery - General appearance of a place, a landscape, or features of a landscape.

Scenery Management - The art and science of arranging, planning, and designing landscape attributes relative to the appearance of place and expanses in outdoor settings.

Scenic Area - A unit of land with outstanding natural beauty that requires special management to preserve this beauty.

Scenic Attractiveness - The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rock form, water form, and vegetation pattern. Reflects varying visual perception attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance, and pattern.

- **Distinctive:** Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.
- **Typical:** Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide ordinary or common scenic quality. These landscapes have generally positive, yet common attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance. Normally they would form the basic matrix within the ecological unit.
- **Indistinctive:** Areas where landform, vegetation patterns, water characteristics, and cultural land uses have low scenic quality. Often water and rock form of any consequence are missing in class C landscapes. These landscapes have weak or missing attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

Scenic Class - A system of classification describing the importance or value of a particular landscape or portions of that landscape.

Scenic Easement - An interest in the land that allows the easement holder specified uses or rights without actual ownership of the land; in this case, control of the use of land adjacent to

public highways, parks, and rivers. It may provide something attractive to look at within the easement area, an open area to view something attractive beyond the easement itself, or a screen to block out an unsightly view beyond the easement area.

Scenic Integrity (~~Existing or~~ Objective (SOD)) - State of naturalness or, conversely, the state of disturbance created by human activities or alteration. Integrity is stated in degrees of deviation from the existing landscape character in a national grassland or forest. The scenic integrity **objective** levels are:

- **Very High (Unaltered): Preservation.** This level refers to landscapes where the valued landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level.
- **High (Appears Unaltered): Retention.** This level refers to landscapes where the valued landscape character appears intact. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.
- **Moderate (Slightly Altered): Partial retention.** This level refers to landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.
- **Low (Moderately Altered): Modification.** This level refers to landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.
- **Very Low (Heavily Altered): Maximum Modification.** This level refers to landscapes where the valued landscape character appears heavily altered. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, vegetative type changes or architectural styles within or outside of the landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as roads, and structures do not dominate the composition.
- **Unacceptably Low:** This level refers to landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little if any form, line, color, texture, pattern, or scale from the landscape character. Landscapes at this level of integrity need rehabilitation.

Scenic Resource - Attributes, characteristics, and features of landscapes that provide varying responses from, and varying degrees of benefits to, humans.

Scoping Process - An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action. Identifying the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrows the scope of the environmental impact statement accordingly.

Scoria - Porcellanite, one of the saleable minerals. Used widely for surfacing roads. A natural by-product of prehistoric burning of coal and shale beds.

Season-long Grazing (Livestock Grazing) - Allowing livestock to graze a single pasture throughout one growing season.

Secondary Range - Range that is lightly used or unused by livestock under minimal management and will ordinarily not be fully used until the primary range has been overused.

Sediment - Material suspended in water or deposited in streams and lakes.

Sediment Load - The solid material transported by a stream and expressed as the dry weight of all sediment that passes a given point in a given period of time.

Sediment Yield - Amount of sediment leaving an analysis area and entering a channel.

Seeps - A spot where water or petroleum flows from the earth, often forming the source of a small stream.

Self-sustaining Fish Population - A reproducing fish population that does not require supplemental hatchery stocking.

Sensitive Species - Those plant and animal species identified by ~~r~~Regional ~~f~~Foresters for which population viability is a concern, as evidenced by the following:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Sensitivity Levels (Visuals) - A measure of people's concern for the scenic quality of the ~~N~~ational ~~F~~orests and ~~N~~ational ~~G~~rasslands. Three sensitivity levels are employed, each identifying a different level of user concern for the visual environment: Level 1 (highest sensitivity), Level 2 (average sensitivity), and Level 3 (lowest sensitivity).

Seral (Ecology) - A biotic community that is in a developmental, transitory stage in an ecological succession.

Seral Stages (Ecology) - The sequence of a plant community's successional stages to potential natural vegetation.

Sere - The series of stages that follow one another in an ecologic succession. A series of biotic communities that follow one another in time on any given area of the earth's surface.

Severely Burned Soil - A condition in which most woody debris and the entire forest or grassland floor is consumed down to bare mineral soil. Soil may have turned red due to extreme heat. Also, fine roots and organic matter are charred in the upper one-half inch of mineral soil.

Shortgrass - Grasses which normally are only a few inches tall, including blue and hairy grama and buffalograss

Shortgrass prairie - Native grasslands which are dominated by shortgrasses.

Short-term Transportation Facility - A facility developed and operated for a limited period of time that will cease to exist as a transportation facility after the purpose for which it was constructed is completed and the occupied land is reclaimed and managed for natural resource purposes.

Significant Archeological Sites - Sites eligible for inclusion in the National Register of Historic Places as determined by the Forest Service in consultation with the State Historic Preservation

Officer.

Silviculture - Generally, the science and art of tree management, based on the study of the life history and general characteristics of forest trees and stands, with particular reference to local factors. More particularly, the theory and practice of controlling the establishment, composition, constitution, and growth of forests for desired conditions.

Site Productivity - Production capability of specific areas of land.

Snag - A standing dead tree or standing portion from which at least the leaves and smaller branches have fallen. Often called a stub if it is less than 20 feet tall.

Social Analysis - An analysis of the social (as distinct from the economic and environmental) effects of a given plan or proposal for action. Social analysis includes identification and evaluation of all pertinent desirable and undesirable consequences to all segments of society.

Soft Snag - A snag composed primarily of wood in advanced stages of decay and deterioration, particularly in the sapwood portions; generally, not merchantable.

Soil Compaction - A physical change in soil properties that results in a decrease in porosity and an increase in soil bulk density and strength.

Soil Erosion - The detachment and movement of soil from the land surface by water or wind. Soil erosion and sediment are not the same.

Soil Productivity - The inherent capacity of a soil to support the growth of specified plants, plant communities, or a sequence of plant communities. Soil productivity may be expressed in terms of volume or weight/unit area/year, percent plant cover, or other measures of biomass accumulation.

Soil Profile - A vertical section of the soil from the surface down through all of its layers into the parent material.

Soil Survey - A general term for the systematic examination of soils in the field and in laboratories; their description and classification; the mapping of soil types; the interpretation of soils according to their adaptability for various crops, grasses, and trees; their response to treatment for plant production or for other purposes; and their productivity under different management systems.

Soil Surveys - The systematic examination, description, classification, and mapping of soils in an area.

Special Interest Area - Place with unusual scenic, historic, prehistoric, scientific, natural, or other special attributes which merit special attention and management.

Special Stipulations - Terms and conditions of use attached to leases, where needed, to protect specific resources or uses on National Forest System lands, including National Forests and National Grasslands (36 CRF 261.2).

Special Uses - Improvements or activities owned or carried out by private individuals, corporations, or other business entities on National Forest System lands, including National Grasslands, under the authorization of a permit.

Special-use Application - A written request for use of National Forest System lands, including National Grasslands.

Special-use Permits - A permit, term permit, lease, or easement that allows occupancy, use, rights, or privileges on National Forest System lands, including National Forests and National Grasslands (36 CFR 261.2).

Species - A group of potentially interbreeding populations that are reproductively isolated from other such groups.

Species at Risk – Federally listed endangered, threatened, candidate, and proposed species and other species for which loss of viability, including reduction in distribution or abundance, is a concern within the planning area. Other species at risk include sensitive species and state listed species.

Species Composition – The proportions of various plant species in relation to the total on a given area. It may be expressed in terms of cover, density, weight, etc.

Species Diversity - A measurement that relates the density of individuals of a species in a habitat to the number of different species present in the habitat. The number of different species in a given habitat.

Species Viability - A species consisting of self-sustaining and interacting populations that are well distributed through the species' range. Self-sustaining populations are those that are sufficiently abundant and have sufficient diversity to display the array of life history strategies and forms to provide for their long-term persistence and adaptability over time.

Split-estate (Minerals) - Lands where the surface estate is owned by one entity and the mineral estate is owned by another.

Stabilization (Heritage Resources) - Arresting the deterioration of a damaged heritage resource in order to prevent further damage from occurring. Stabilization may include reconstructing portions of the heritage resource.

Stand - A community of trees or other vegetative growth occupying a specific area and sufficiently uniform in species composition, age, spatial arrangement, and conditions as to be distinguishable from the other growth on adjoining lands, so forming a silvicultural or management entity.

Standard - Actions that must be followed or ~~are required~~require limits to activities in order to achieve grassland or forest goals and objectives. Site-specific deviations from standards must be analyzed and documented in management plan amendments.

Standard Lease Terms (SLT) – The terms incorporated into every oil and gas lease. Standard lease terms require compliance with all laws and regulations to ensure protection of other energy, mineral, and surface resources, such as soil, water, vegetation, cultural, and threatened and endangered species. It is important to recognize that the authorized officer has the authority to modify the siting and design of facilities, control the rate of development and timing of activities as well as require other mitigation under Sections 2 and 6 of the standard lease terms (BLM Form 3100-11 and 43 CFR 3101.1-23).

State Historic Preservation Officer (SHPO) - A person appointed by a state's governor to administer the State Historic Preservation Program.

Step-out Well - A well drilled adjacent to or near a proven well to ascertain the limits of the oil or gas reservoir. An outpost is a well drilled a farther distance (a couple of miles) from a step-

out well, but still on the same structural trend.

Stewardship - Caring for land and associated resources and passing healthy ecosystems to future generations.

Stipulation (Oil and Gas) - A provision that modifies standard lease rights attached to and made a part of the lease.

Stocking Rate (Livestock Management) - The actual number of animals, expressed in either animal units or animal unit months, on a specific area for a specific time.

Stream Health - The condition of a stream, relative to robust health, for that stream type and landscape, considering indicators such as channel pattern, slope, particle size, pool frequency and depth, bank vegetation, and woody debris, which reflect the stability and habitat quality of the stream.

Stream Order - A classification of the relative position of streams in a channel network. Each nonbranching channel segment is designated as a first-order stream. The channel segment below the confluence of the two first-order tributaries. The channel segment below the confluence of two second-order streams is designated a third-order stream, etc.

Stream Type - A class of stream reach having a discrete combination of valley geomorphology and climate, flow regime, stream size, and channel morphology, which differs from other stream types in its ability to support biota and respond to management.

Structural Stages (Silviculture) - Any of several developmental stages of tree stands described in terms of tree age and the extent of canopy closure they create.

Structural Stage 1 (Grass/Forb): Forest openings created by disturbances, such as fire or wind throw. Meadows and prairies are also modeled as grass/forb, although succession will not move beyond this stage.

Structural Stage 2 (Shrubs/Seedlings): Developmental stage dominated by tree seedlings (less than one-inch diameter breast height) and shrub species.

Structural Stage 3 (Sapling/Pole): Developmental stage dominated by young trees up to seven inches diameter breast height, 10 to 50 feet tall, and usually less than 50 years old. This stage is subdivided into three canopy closure classes: 1) less than 40 percent, b) 40 to 70 percent, and c) greater than 70 percent.

Structural Stage 4 (Mature): Consists of trees larger and older than Structural Stage 3. Also classified by the same canopy closure categories as Structural Stage 3.

Structural Stage 5 (Old Growth): This structural stage is characterized by trees 160 years of age and older.

Structure - See Vegetation Structure.

Submarginal Land - Land that is either physically or economically incapable of indefinitely sustaining a certain use.

Subsection (Ecological) - An ecological unit which is characterized by a combination of climate, geomorphic process, topography, and stratigraphy.

Subspecies - A genetically distinct subunit of a species.

Succession - The progress of vegetational development where different plant communities successively occupy an area.

Successional Stages (Seral Stages) - The relatively transitory communities that replace one another during development toward a potential natural community.

Suitable Lands - Lands that are appropriate for the application of certain resource management practices as determined by an analysis of the economic and environmental consequences and the alternative uses foregone.

Suitable Rangeland - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Sundry Notice (Oil and Gas) - Standard form to notify and/or approve well operations subsequent to an Application to Permit to Drill in accordance with Forest Service regulations.

Suppress a Fire - To extinguish a fire or contain it within specified boundaries.

Surface Occupancy (Minerals) - The occupancy of the surface with mining activities. When approved, occupancy will be identified in the operation plan.

Suspended Sediment - The very fine soil particles that remain suspended in water for a considerable period of time without contact with the bottom of the channel.

Sustainability - Continuation of a desired level of productivity, quality, or variability, generally of organisms.

Sustained Yield - The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources on National Forest System lands, including National Grasslands, without impairment of the productivity of the land.

Swale - An area of low, sometimes wet, land.

Swing Pasture - A pasture that is not used by livestock unless climatic conditions, such as drought, fire, or hail affect other pastures and warrant the use of the pasture

Tailings (Minerals) - The parts or a part of any incoherent or fluid material separated as refuse or separately treated as inferior in quality or value, also leavings; remainders; dregs. The sand, gravel and cobbles that pass through the sluices in hydraulic mining were formerly designated as tailings; more recently, they have been called mining debris or simply debris in states and U.S. legislative documents.

Tailings Disposal - The act of disposing or placing of ore materials after completion of processing.

Tallgrass - Grasses that normally grow over 36 inches tall, as in big bluestem.

Tallgrass prairie - Native prairie grassland characterized by tall and midgrasses, located primarily in the Eastern Great Plains; synonymous with true prairie.

Talus Slopes - The accumulation of broken rocks that occurs at the base of cliffs or other steep slopes.

Target Surveys - Surveys that are strategically designed to determine the presence or absence or to monitor selected plant or animal species.

Targets - Objectives assigned to the Forest by the Regional Plan.

Temporary Facility - Any structure or other human-made improvement that can be readily and completely dismantled and removed from the site when the authorized use terminates.

Terrestrial - A land-based ecosystem. (See ecosystem). An interacting system of soil, geology, and topography with plant and animal communities.

Thermal Cover (Wildlife) - Cover used by animals to ameliorate the effects of weather. Optimally, thermal cover is provided by a stand of coniferous trees, 30 to 60 acres in size, at least 40 feet tall, with a canopy cover of at least 70 percent.

Thinning - The practice of removing some of the trees in a stand to meet desired conditions. Two types of thinning may be done:

Pre-commercial/Non-commercial: Removing trees that are too small to make a merchantable product.

Commercial: Removing trees that have reached sufficient size to be manufactured into a product and to improve tree spacing and promote more rapid growth.

Threatened Species - Any species likely to become endangered within the foreseeable future throughout all or a significant portion of its range and that has been designated in the Federal Register by the Secretary of Interior as such.

Tiering - Refers to the elimination of repetitive discussions of the same issue by referencing the general discussion in an environmental impact statement of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan ~~Environmental impact statement~~.

Timber - A general term applied to tree stands that provide a wood-fiber product.

Timber Base - The lands within a ~~N~~ational ~~F~~orest or ~~N~~ational ~~G~~rassland suitable for timber production.

Timber Production - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use, except fuel wood.

Timing Limitation (Seasonal Restriction) - Prohibits surface use during specified time periods to protect identified resource values. The stipulation does not apply to the operation or maintenance of production facilities unless the finding analysis demonstrates the continued need for such mitigation and the insufficiency of less stringent, project-specific mitigation measures.

Title Claim - A claim of land as a person's own, based on any reasonable evidence that establishes the person's actual use of the land as though the person had obtained ownership in fee (FSH 5509.1105). A claim of land as a person's own, based on any reasonable evidence that establishes the person's actual use of the land as though the person had full title from the time the person obtained ownership of the abutting land.

Topography - The configuration of a land surface including its relief, elevation, and the position of its natural and human-made features.

Toxic Waste - Poisonous residues that may be harmful to plants, animals, and humans.

Trace Fossils - A sedimentary structure consisting of a fossilized track, trail, burrow, or tube resulting from the life activities of an animal, such as a mark made by an invertebrate or vertebrate creeping, feeding, hiding, or resting on or in soft sediment.

Traditional Practitioners - American Indians who practice traditional cultural life ways and belief systems.

Traditional Use Areas - An area that is significant to a living community because of its association with cultural practices or beliefs that are rooted in the community's history and are important in maintaining the continuing cultural identity of the community.

Trail - The general term denoting a way for purposes of travel by foot, stock, or trail vehicle.

Trailhead - The parking, signing, and other facilities available at the terminus of a trail.

Trampling - Treading underfoot. The damage to plants or soil brought about by movements or congestion of animals.

Transitory Range - Land that is suitable for grazing use for a period of time. For example, on particular disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

Transportation Corridor - A strip of land that includes up to a maximum of 1,000 feet for major roads (500 feet either side of the road's centerline) or 500 feet for major trails (250 feet either side of the trail's centerline). Transportation corridors form a passageway that allows travelers to experience and interact with the quality and character of the landscape. Also called travel corridor.

Transportation Facility - Any developed facility to enhance or allow travel between two points. Transportation facilities include airports, highways, trails, railroads, and other facilities.

Transportation System - All roads needed to manage and administer Forest resources. A road network.

Transportation/Utility Corridor - A linear strip of land identified for the present location of transportation or utility rights-of-way within its boundaries.

Travel Corridor - A strip of land that includes up to a maximum of 1,000 feet for major roads (500 feet either side of the road's centerline) or 500 feet for major trails (25 feet either side of the trail's centerline). Travel corridors form a passageway that allows travelers to experience and interact with the quality and character of the landscape.

Travel Management - Travel management is the movement of people and products to and through National Forests and National Grasslands. It connects many different varieties of users and multiple uses on National Forest System lands.

Travel Order - A travel management decision issued by the responsible official to restrict, prohibit, or allow the use of a described area or facility to entry or mode of travel.

Travelways - A way of passage of vehicles, conveyances, persons, or domestic livestock (stock driveways), developed by construction or use; may be referred to as a road or trail.

Treated Area - An area on which management, like timber harvesting or prescribed burning, occurs.

Trespass - The act of going on another's land or property unlawfully.

Unclassified Road - A road that is not constructed, maintained, or intended for long-term highway use, such as roads constructed for temporary access and other remnants of short-term use roads, associated with fire suppression, timber harvest, and oil, gas, or mineral activities, as well as travel ways resulting from off-road vehicle use.

Understory (Vegetation) - The lowest layer of vegetation in a forest or shrub community composed of grass, forbs, shrubs and trees less than 10 feet tall. Vegetation growing under the tree canopy.

Undesirable Species - 1) Species that conflict with or do not contribute to the management objectives. 2) Species that are not readily eaten by animals.

Ungulate - A hoofed animal, including ruminants (cattle, but also horses, tapirs, elephants, rhinoceroses, and swine).

Universal Soil Loss Equation (USLE) - The USLE is an erosion model designed to predict average soil losses from sheet and rill erosion. The USLE does not predict deposition nor compute sediment yields from gully, stream-bank, and stream-bed erosion. USLE was developed by the Agricultural Research Service in cooperation with the Natural Resources Conservation Service ~~(formerly the Soil Conservation Service)~~ and state experiment stations.

Unpalatable Species (Range Management) - Plant species that are not readily eaten by an ungulate animal.

Unplanned Ignition - A fire started at random by either natural or human causes or a deliberate incendiary fire. Acceptance of unplanned ignitions as a prescribed fire must be within an approved plan.

Utility Corridors - Utility rights-of-way designated as corridors are normally based on the following specifications, except for areas of heavy concentration of smaller utilities on the Little Missouri National Grassland.

- Electrical Transmissions - 45 kilovolts or larger
- Pipelines - 8 inches or larger for crude oil; 12 inches or larger for all others
- Telecommunications - All fixed communication sites
- Telephone Lines - Main trunk lines and fiber optic

Utilization Levels (Livestock Grazing) - The portion of the current year's forage production by weight consumed or trampled by livestock. Utilization levels are usually expressed as a percentage.

Valid Existing Rights (Minerals) - Legal interest that attaches to a land or mineral estate and that cannot be divested from the estate until that interest expires or is relinquished.

Values at Risk (Fire Management) - Any or all natural resources, improvements, or other values that may be jeopardized if a fire occurs.

Vegetation Structure - The vertical characteristics of vegetation.

Vegetation Treatment - Any activities undertaken to modify the existing condition of the vegetation.

Vegetative Buffer Zones - Strips of grass or other erosion-resisting vegetation between areas of ground disturbance and areas needing protection from sedimentation.

Vegetative Management - Any activities undertaken to modify the existing condition of the vegetation.

Vertebrate Fossils - The fossilized remains of animals that had a bony skeleton or backbone.

Viable Population - A group of individuals of a particular species that produces enough offspring for long-term persistence and adaptation of the species or population in a given place. For planning purposes, 36 CFR 219.19 defines a viable population as one that has the estimated numbers and distribution of reproductive individuals to ensure that a continued viable population is well-distributed in the planning area. A planning area is further defined by 36 CFR 219.3 as the "area of the National Forest System covered by a regional guide or forest plan." Direction estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area.

Viewshed - Total visible area from a single observer's position or the total visible area from multiple observer positions. View sheds are accumulated seen areas from highways, trails, campgrounds, towns, cities, or other view locations. Examples are corridors, features, or basin view-sheds.

Visitor Information Service (VIS) Site - A site that provides interpretive information (directional, historical, statistical) located at National Forest or National Grassland historical sites, over-look sites, or Special Interest Areas.

Visual Absorption Capability (VAC) - The inherent capability of the landscape to support management activities without significantly affecting its visual character. Rated as high, moderate and low:

- **High:** High visual capability to absorb change.
- **Moderate:** Moderate visual capability to absorb change.
- **Low:** Low visual capability to absorb change.

Visual Obstruction Reading – A measurement of the height that herbaceous vegetation obscures 100% a round pole placed vertically in grassland vegetation.

Waiver (Oil and Gas) - Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Walk-in Fishery - Areas managed for semi-primitive, no motorized access to fishing in order to protect riparian ecosystems. Areas managed in such manner will be designated on the recreation map and at the specific sites.

Wallow - A depression, pool of water, or wet area produced or utilized by elk, moose, or bison during the breeding season.

Warm-Season Plant - A plant that makes most or all its growth during the spring, summer, or fall and is usually dormant in winter. A plant that usually exhibits the C4 photosynthetic pathway.

Warm-water Fishery - Stream and lake waters that support fishes with a maximum summer-temperature tolerance of about 80 degrees Fahrenheit. Bluegills, perch, and largemouth bass are examples of warm-water fish.

Waste Dumps (Minerals) - The area where the overburden or non-ore material is placed. This material is derived from materials removed in gaining access to the targeted ore. Any dirt or rock that has been removed from its original location by mining operations.

Water Development - A facility constructed or placed to hold water for livestock use.

Water Influence Zone - The water influence zone (WIZ) includes the geomorphic floodplain, riparian ecosystem, and inner gorge. Its minimum horizontal width (from top of each bank) is the greater of 100 feet or the mean height of mature dominant late-seral vegetation. It includes adjacent unstable and highly-erodible soils. The WIZ protects interacting aquatic, riparian, and upland functions by maintaining natural processes and resilience of soil, water, and vegetation systems (Reid and Ziemer, 1994).

Water Rights - Rights given by state and federal governments for the diversion and use of water.

Water Table - The upper surface of the ground water or that level below which the soil is saturated with water.

Water Yield - 1) The measured output of surface water, usually measured in acre-feet. 2) The runoff from a watershed, including groundwater outflow.

Water Yield Treatments - Land management methods that affect the amount and/or timing of water yield. For example, certain harvest methods increase the likelihood that there will be increased water yield. Other management approaches, such as protecting and enhancing riparian areas, increase the likelihood that water flow will be sustained for a longer period of time.

Waters of the United States - Waters used for navigation and all other waters such as lakes, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and their tributaries as defined by the U.S. Environmental Protection Agency.

Watershed - The area of land, bounded by a divide, that drains water, sediment, and dissolved materials to a common outlet at some point along a stream channel (Dunne and Leopold, 1978), or to a lake, reservoir, or other body of water. Also called drainage basin or catchment.

Watershed Class - defined as follows:

- **Class I:** The watershed has high soil and water integrity relative to its natural potential condition. Disturbance does not compromise soil-hydrologic function of soil/stream resilience. No stream segment is damaged by physical, chemical, or biological impacts such that any designated beneficial use is not fully supported or any resource value is seriously degraded.
- **Class II:** The watershed has moderate soil and water integrity relative to its natural potential condition. Disturbance partly compromises soil-hydrologic function or soil/stream resilience. Recovery can occur naturally or through revised management with minimal capital investment. A minor part (less than 20%) of the stream segment miles are damaged by physical, chemical, or biological impacts such that any designated beneficial use is not fully supported or any resource value is seriously degraded.
- **Class III:** The watershed has low soil and water integrity relative to its natural potential condition. Disturbance widely compromises soil-hydrologic function or soil/stream resilience. Recovery requires capital investments and revised management. Land-disturbing actions are precluded, but must complement recovery. A major part (more than 20%) of the stream segment miles are damaged by physical, chemical, or biological impacts such that any designated beneficial use is not fully supported or any resource value is seriously degraded.

Watershed Order - The number assigned to an entire drainage basin contributing to the stream segment of a given order and bearing an identical designation; for example, a first-order watershed contains all of the drainage area of a first-order stream. Also called basin order.

Water-Use Facilities - These are facilities and structures which include diversion and discharge structures, ditches, and pipes.

Weed - Any plant growing where unwanted and having a negative value.

Weeding (Silviculture) - A silvicultural operation eliminating or suppressing undesirable vegetation, mainly herbaceous, during the seeding state of a forest crop so as to reduce competition with the seedling stand.

Wet Meadow - A meadow where the surface remains wet or moist throughout the growing season, usually characterized by sedges and rushes.

Wetland Communities - Plant communities that occur on sites with soils typically saturated with or covered with water most of the growing season.

Wetlands - Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds.

Wild and Scenic Rivers - Rivers or sections of rivers designated by Congressional actions under the 1968 Wild and Scenic Rivers Act, as wild, scenic, or recreational by an act of the legislature of the state or states through which they flow. Wild and Scenic Rivers may be classified and administered under one or more of the following categories:

- **Wild River areas:** Rivers or sections of rivers that are free of impoundments with watersheds still largely primitive and shorelines largely undeveloped but accessible in places by roads.
- **Scenic River areas:** Rivers or sections of rivers that are free of impoundments, with watersheds still largely undeveloped but accessible in places by roads.
- **Recreational River areas:** Rivers or sections of rivers that are readily accessible by road or railroad that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

Wildcat Well (Oil and Gas) - A well drilled in an area where oil and gas have not been previously discovered.

Wilderness - Areas designated by Congressional action under the 1964 Wilderness Act or subsequent acts. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to be affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable. Wilderness areas have outstanding opportunities for solitude or for a primitive and confined type of recreation. They include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; they may contain features of scientific, educational, scenic, or historic value, as well as ecologic and geologic

interest.

Wildfire - Any wild land fire not designated and managed as a prescribed fire within an approved prescription. An appropriate suppression action will be applied to all wildfires.

Wildland/Urban Interface - This references those lands that are intermingled private and National Forest System lands where one encounters residential developments.

Wildlife - Collectively the no domesticated vertebrate animals, except fishes. The natural community of animals.

Windthrow - The act of trees being uprooted by the wind.

Winter Feeding - Providing supplemental feed for livestock on National Forest System lands during the winter.

Winter Range - Rangeland that is grazed during the winter months.

Withdrawal (Minerals) - An action that restricts the use of public land and segregates the land from the operation of some or all of the public land and mineral laws.

Wooded Draws - A classification of areas, particularly in grassland settings, where an over story of woody vegetation in small drainages creates habitat for many animal species and shade, wind protection, and forage for livestock and wildlife. The vegetation is a result of higher moisture conditions than in the surrounding area, but surface water, if any, running through the area is generally short term.

Woodlot - A small area of land occupied by trees.

Workover - One or more of a variety of remedial operations on a producing well to try to increase production. Examples of workover operations are deepening, plugging back, pulling and resetting liner, squeeze cement, and so on. (*University of Texas at Austin, Petroleum Extension Service, 1979, Dictionary of Petroleum Terms*)

Workover rig - A portable servicing unit consisting of a hoist and engine mounted on a wheeled chassis with a self-erecting mast and substructure, with rotary, pump, pits, and other auxiliaries that permit handling and working a drill string or production string. (*Modified from definition of "production rig" in Dictionary of Petroleum Terms*)

Xeric - Having very little moisture. Tolerating or adapted to dry conditions.

Zone of Influence - A delineated geographic area within which the present and proposed actions exert an important influence on residents and visitors.

Zoological Area - Part of a national grassland or forest of high value for a native animal species or community.

APPENDIX H HABITAT DESCRIPTIONS

HIGH STRUCTURE GRASSLANDS

~~Management Indicator Species~~**Focal Species: Plains Sharp-tailed Grouse (*Tympanuchus phasianellus jamesi*)**

The plains sharp-tailed grouse is selected as a ~~management indicator species~~**focal species** for the biological community most often found in grasslands with a diversity of structural stages, including an abundance of high structure grasslands. Interspersed shrubs and shrub communities also contribute to habitat suitability for this species and many other wildlife species. Habitats that are grazed lightly by livestock and/or periodically rested from annual livestock grazing generally benefit sharp-tailed grouse and many sensitive species including but not limited to short-eared owl, upland sandpiper, and long-billed curlew. Several species of upland nesting waterfowl also respond favorably to high structure levels resulting from lighter grazing intensities and periodic rest from annual grazing. A more complete list of other wildlife species that typically benefit from management for high vegetation structure, structurally diverse grasslands, and maintenance and enhancement of shrubs on grasslands is provided in the supporting ~~FEIS~~**final environmental impact statement (FEIS)**.

Northern Mixed Grass Prairie

Hens on northern mixed grass prairie tend to select areas with the tallest and densest cover available for their nests in the spring. Most nest-site selection and initiation occurs in April and early May before or just as spring green-up is beginning. At this time most of the available cover is residual from previous growing seasons. In addition to being the primary cover available at the onset of nesting, residual cover also helps to offset the negative effects of a lack of current-year nesting cover during drought years when new vegetative cover is reduced or unavailable.

Cover height and density at nest sites in the spring frequently exceed average visual obstruction readings (Robel et al. 1970) of 6 inches. Average visual obstruction readings (VORs) of 11 inches have been reported at nest sites in some study areas. Hens frequently select clumps of herbaceous cover taller than the surrounding vegetation for their nest sites. Although it's dependent on the uniformity of livestock grazing within an area, average VORs of 4 inches or more across pastures or range sites in the spring typically provide patches of suitable cover for nest sites. Average VORs of 3 inches or more in the spring will provide suitable cover for a few nest sites but only if forage utilization by livestock has been patchy rather than uniform. If cover levels are being monitored in the fall or early winter after livestock grazing, loss of cover over the winter to wind, snowpack and other natural factors has to be considered to reasonably predict nesting cover conditions the following spring. Long-term monitoring of over-winter loss of cover will help better determine the relationships between fall and spring cover levels.

Another important consideration in the management of nesting cover for this species is the size of the grassland patches providing quality cover for nest sites. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, predation may reduce nesting success in the quality habitat. Under these conditions, nest densities may also be substantially lower than what could be expected where quality habitat is provided across a higher percentage of the landscape. Within sharp-tailed grouse habitat, at least 25% of the area around display grounds or across potential habitat should be managed as quality nesting cover to establish or maintain populations. To maximize sharp-tailed grouse populations, approximately 80% or more of an area should be managed as quality nesting habitat. Most nests are located within 1 mile of display grounds. Individual patch sizes of quality nesting cover across pastures or range sites should be at least 160 acres in size.

Quality nesting cover on mixed grasslands occurs where mid and/or tall grass species are dominant, and ungrazed or lightly grazed cover has accumulated over a few years. On more productive grasslands (17 or more inches of average annual precipitation) where mid and/or tall grass species are dominant, hens commonly find quality cover on upland sites. On less productive mixed-grass prairies that receive an average of 14 to 16 inches of precipitation, less quality nesting cover is typically found on upland sites and the taller and denser cover patches in run-in sites and along drainages become more important for nesting. Where long-term grazing has reduced the composition of mid and/or tall grass species, quality nesting cover is sometimes unavailable regardless of the grazing intensity.

Although residual cover is an important factor influencing sharp-tailed grouse productivity, maintaining adequate levels of current-year vegetation as nesting and brood cover is also critical. Also, a diversity of plant species composition and cover levels across the landscape helps provide quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high vertical grassland structure remaining through August as escape cover from predators, especially raptors.

To provide quality nesting and brooding habitats, herbaceous vegetation and litter should be allowed to accumulate over a period of years. However, to maintain optimum breeding and foraging habitats over time requires periodic burning or intensive grazing once every 3 to 5 years to maintain vigor of native grasses and forbs. This interval should be extended when drought conditions occur.

Preferred winter habitats include structurally diverse grasslands with interspersed shrubs. Tree buds and fruits of buffaloberry, rose, snowberry, and juniper are common winter foods in many areas. Small grains and croplands on intermingled private croplands are also heavily utilized when available.

Sandhills Prairie

Much of the information presented above can be used to describe quality sharp-tailed grouse habitat in the Nebraska Sand Hills. However, some adjustments are needed in the recommended VORs for quality nesting cover. Because sandhill prairies are more characteristic of a bunchgrass community with patchy vegetation and frequent bare ground in the hills, VORs are typically less than those from sod-forming grasslands with more continuous vegetative cover.

The average VOR of residual cover in the general vicinity of nest sites in the sandhills most often exceeds 3 inches. Nests are frequently positioned against or within clumps of little bluestem or sand lovegrass. Suitable patches of residual cover for nest sites in the spring are usually provided by maintaining average VORs of 2 inches or more across the steeper hills (sands and choppy sands range sites). If cover levels are being monitored in the fall or early winter after livestock grazing, loss of cover over the winter to wind, snowpack and other natural factors has to be considered to reasonably predict nesting cover conditions the following spring. Long-term monitoring of over-winter loss of cover will help better determine the relationships between fall and spring cover levels. Quality nesting habitat conditions across 25% or more of an area is generally needed to maintain grouse populations over time. Resting approximately 15% of an area from annual livestock grazing is also recommended for enhancing sharp-tailed grouse habitat and populations in the sandhills.

Maintaining cover through July as shade for broods is also critical since surface temperatures on the sandy soils during the brooding season can be extreme.

Preferred winter habitats include grasslands with moderate and heavy amounts of herbaceous cover interspersed with shrub and forb patches for foraging. Fruits of snowberry, rose, juniper, and poison ivy are common winter foods. Insects, including beetles and grasshoppers, are also common food items throughout much of the year.

HIGH STRUCTURE GRASSLANDS

~~Management Indicator Species~~Focal Species: Greater Prairie Chicken (*Tympanuchus cupido pinnatus*)

The greater prairie chicken is selected as a ~~management indicator species~~focal species for the biological community most often found in grasslands with a diversity of structural stages, including an abundance of high structure grasslands. A list of other wildlife species that typically benefit from management that emphasizes high grassland structure and structurally diverse grasslands is provided in the supporting FEIS. Some of these species include sharp-tailed grouse, short-eared owl, upland sandpiper, and long-billed curlew and Dakota skipper. Several species of upland nesting waterfowl also respond favorably to higher grassland structure levels resulting from lighter livestock grazing intensities and periodic rest from annual grazing.

Northern Mixed Grass Prairie

Hens on mixed-grass prairie tend to select undisturbed (no livestock present) areas with the tallest and densest cover available for their nests. Most nest-site selection and initiation occurs in April and early May, and the availability of sufficient quality and quantity of residual cover at that time is critical. Residual cover also helps to offset the negative effects of a lack of current year nesting cover during drought years when new growth to serve as cover is reduced or unavailable.

Like sharp-tailed grouse, prairie chicken hens frequently select clumps of herbaceous cover taller than the surrounding vegetation for their nest sites. Average VORs at prairie chicken nests on the Fort Pierre National Grassland generally exceed 6 inches and may exceed 10 inches at some nests. Average VORs of 4 inches or more across the more productive range sites in the spring typically provide suitable cover for nest sites. If cover levels are being monitored in the fall or early winter after livestock grazing, loss of cover over the winter to wind, snowpack and other natural factors has to be considered to reasonably predict nesting cover conditions the following spring. Long-term monitoring of over-winter loss of cover will help better determine the relationships between fall and spring cover levels.

Another important consideration in the management of nesting cover for this species is the size of area providing quality nesting cover. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, predation may reduce nesting success in the quality habitat. Under these conditions, nest densities may also be substantially lower than what could be expected where quality habitat is provided across a higher percentage of the landscape. A range of 30 to 50% of the habitat around display grounds or across potential prairie chicken habitat should be managed as quality nesting cover to establish or maintain populations. Most nests are located within 1 mile of display grounds. Individual patch sizes of quality nesting cover across pastures or range sites should be a minimum of 160 acres.

Minimum grassland areas for prairie chicken populations ~~are~~^{is} considered several thousand acres, but this figure shouldn't be assumed to support viable prairie chicken populations. In the northern part of the chickens range, over 13,000 to 26,000 acres of quality nesting, brooding, wintering and roosting habitat are likely needed to support a viable prairie chicken population.

Nesting cover for early nests is initially provided by residual herbaceous cover but quality nesting cover, both residual and current year, is important throughout the nesting and brooding season. A diversity of plant species composition and cover levels across the landscape helps provide quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high, vertical grassland structure remaining through August as escape cover from predators, especially raptors.

To provide quality nesting and brooding habitats, herbaceous vegetation and litter should be allowed to accumulate over a period of years. However, to maintain optimum breeding and foraging habitats over time requires disturbances including burning or intensive grazing once every 3 to 5 years to maintain vigor of native grasses and forbs. This interval should be extended when drought conditions occur.

Preferred winter habitats include grasslands with heavy cover for roosting and interspersed shrub patches for winter foraging. Fruits of buffaloberry, rose, snowberry, and juniper are common winter food items. Small grains on intermingled private croplands are also heavily utilized and are especially important.

Sandhills Prairie

Quantitative information on the height and density of residual cover at prairie chicken nests in the sandhills is limited, and it's assumed that quality nesting habitat descriptions presented for prairie chicken in mixed grass prairie habitats would largely apply to prairie chicken nests in sandhill valleys. However, average spring VORs of 3 inches or more across the more productive range sites typically provide suitable nesting cover in the large valleys.

Greater prairie chicken nests occur in the hills, valleys and meadows. Prairie chicken nests on the Valentine National Wildlife Refuge in the Nebraska Sand Hills are commonly found in tall and dense subirrigated meadow vegetation. Because more cover can be produced in the valleys than in the hills, higher nest densities are more likely in the valleys, but the hills still should not be discounted as nesting habitat.

The nesting seasons for greater prairie chicken in the sandhills coincides with that of the sharp-tailed grouse with most nest-site initiation beginning in mid-April. Residual cover provides most of the nest concealment for the first part of the nesting season. The importance of residual cover is further emphasized during drought years when current year cover is reduced or unavailable.

A diversity of plant species composition and cover levels across the landscape provides quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high vertical grassland structure remaining through August as escape cover from predators, especially raptors. The heavier cover is especially critical in the sandhills where soil surface temperatures on the sand can be extreme during the brooding season. The heavier cover provides critical shade for broods.

Preferred winter habitats include grasslands with moderate and heavy amounts of cover interspersed with shrub and forb patches for foraging. The forb patches occur primarily where livestock congregate. Fruits of snowberry, rose, juniper, and poison ivy are common winter foods. Insects, including beetles and grasshoppers, are also common food items throughout much of the year.

~~Sagebrush Habitats With Tall, Dense and Diverse Understories~~

~~Management Indicator Species: Greater Sage Grouse (*Centrocercus urophasianus*)~~

~~The sage grouse is selected as a management indicator species for sagebrush habitats that have tall, dense and diverse herbaceous understories. These areas typically have a history of lighter livestock grazing intensities. A list of other wildlife species that typically favor these habitat conditions is provided in the supporting FEIS. Some of these species include sage thrasher, Brewer's sparrow, pronghorn and sage vole. Several species of upland nesting waterfowl also respond favorably to these habitat conditions that result from lighter grazing intensities and periodic rest from annual grazing.~~

~~Sagebrush stands with relatively tall and dense sagebrush and an abundance of residual herbaceous cover are preferred by sage grouse for nesting. Nest success and sage grouse productivity have been reported to increase with increased sagebrush height and residual cover levels in the herbaceous understory. Once again, the importance of residual cover is noted, and its importance undoubtedly increases during drought years when current year herbaceous cover is reduced or unavailable.~~

~~Most nesting in Wyoming occurred in sagebrush cover of 20 to 40 percent, which is comparable to what is reported in other states. Other investigators suggested that sage cover over 30 percent may be too thick, and nesting suitability for sage grouse may begin declining beyond that level. Quality habitat is described as a sagebrush stand with 15 to 25% canopy cover of sagebrush and a tall and dense understory of native grasses and forbs. The tallest sagebrush available on Wyoming sites is reported as being preferred for nesting and is also valuable as winter habitat. Tall (>7 inch height) and dense residual herbaceous cover of native grasses and forbs from the previous growing season provides the cover available at the onset of the nesting season when most nest sites are selected and egg laying and incubation begins. Most nests are within 2 to 3 miles of display grounds.~~

~~Brooding habitat is found in sagebrush communities of 10 to 30 percent sagebrush cover with small grassland openings or intermingled meadows that support an abundance of bugs and forbs like dandelions and yarrow for foraging by young grouse. Like other prairie grouse species, grasshoppers and other insects are also important diet items, especially for broods.~~

PRAIRIE DOG COLONIES AND LOW STRUCTURE GRASSLANDS

~~Management Indicator~~Focal Species: Black-tailed Prairie Dog (*Cynomys ludovicianus*)

The black-tailed prairie dog is selected as a ~~management indicator~~focal species for low structure grasslands and the biological community associated with prairie dog colonies. A list of other wildlife species that typically benefit from management for low structure grasslands and maintenance or expansion of prairie dog colonies is provided in the supporting FEIS. Some of these species include burrowing owl, ferruginous hawk, and mountain plover. Average VORs across prairie dog colonies are typically less than 1 or 2 inches.

Black-tailed prairie dogs occupy prairies (shortgrass and mixed grass) and shrublands dominated by sagebrush on the northern plains. Most soils on the NFS lands in the planning area are suitable for prairie dog burrowing. Some of the sandy soils in the valleys of the Nebraska sandhills can support burrowing activities. Even soils with shallow bedrock are known to support prairie dog colonies. Some soils may be preferred by prairie dogs but few soils in the planning area preclude prairie dog burrowing.

Forested and wetlands vegetation types are considered unsuitable for prairie dogs. Grassland vegetation types including those with minor shrub components are considered preferred habitat. Since black-tailed prairie dogs also occur in shrublands and modify shrublands by removing shrubs in and around their colonies, shrublands are considered secondary but, none-the-less, potential habitat.

Slopes with suitable soils and vegetation that are less than 10 percent slope are considered preferred habitat. Slopes ranging from 10 to 30 percent are classified as secondary or suitable habitat. Areas with average slopes exceeding 30 percent are identified as unsuitable.

All water and wetlands are classified as unsuitable for prairie dog colonization. Areas with shallow water tables are also classified as unsuitable.

On mixed grass prairie and to a lesser extent on shortgrass prairie, colonies frequently originate on sites that have been disturbed from previous farming or other soil disturbances and on areas grazed by livestock. Heavily grazed sites where livestock concentrate are more likely to be colonized by prairie dogs. Soil disturbances in the form of water developments, pipelines, range ripping and furrowing, and past cultivation are also good predictors of suitable prairie dog habitat and potential sites likely to be colonized by prairie dogs.

OPEN MATURE AND LATE SUCCESSIONAL PONDEROSA PINE FORESTS

~~Management Indicator~~**Focal** Species: Pygmy Nuthatch (*Sitta pygmaea*)

The pygmy nuthatch is selected as a ~~management indicator~~**focal** species for open mature and late successional ponderosa pine forests that have a relative abundance of snags and large, tall trees. A list of other wildlife species that typically benefit from management for these forest conditions is provided in the supporting FEIS. Some of the species on this list include Lewis woodpecker and merlin.

Quality habitat for this yearlong resident is simply described as open mature and late successional (structural stages 4a, 4b and 5) ponderosa pine forests with snags and relatively large and tall trees. Ideal habitat includes tall pines with broken-off branches or tops (towering stubs). Pygmy nuthatches generally use stands with less than 70% canopy cover. This species is a primary cavity nester preferring soft snags, but they occasionally use deserted woodpecker cavities.

This species is primarily insectivorous with bark and leaf beetles being some of the important diet items.

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APPENDIX I SUGGESTED STOCKING RATES

Monitoring information and suggested stocking rates (AUMs/Acre) are used to help design livestock grazing strategies for meeting plant species composition and vegetation structure objectives presented in Chapter 2. Livestock grazing intensity¹ is a primary factor influencing both plant species composition and vegetation structure on rangelands. For the purposes of this Land and Resource Management Plan, the suggested stocking rates presented below define light, moderate and heavy grazing intensities that, in turn, are expected to help provide the desired mosaic of seral stages and vegetation structure on rangelands. A diverse mosaic of vegetation conditions will help ensure quality habitats for ~~management indicator~~focal species and a wide variety of native plant and animal species.

The suggested stocking rates are as follows:

Light Grazing Intensity: A level of herbage utilization that allows palatable plant species (decreasers) preferred by livestock to maximize their herbage producing ability. The dominance of these plant species and the lower forage utilization levels help provide quality habitat for ~~management indicator~~focal species (see Appendix H Habitat Descriptions) and other plant and animal species that benefit from diverse and high vegetation structure on rangelands. It also helps reduce the impacts of drought on these species. This grazing intensity reduces habitat suitability for wildlife species requiring low structure grasslands. The suggested stocking rate for this grazing intensity is 30 to 40% lighter than the suggested stocking rates used by the Natural Resources Conservation Service (NRCS) in the local area.

Moderate Grazing Intensity: A level of herbage utilization that allows the preferred plant species to maintain themselves but usually does not permit them to improve in herbage producing ability. When growing conditions are normal or better, this grazing intensity typically results in a limited amount of quality habitat, usually restricted to run-in sites and other favorable micro-sites, for the ~~management indicator~~focal species and other plant and animal species that benefit from high structure grasslands or sagebrush understories. The suggested stocking rate for this grazing intensity is the ~~Natural Resource Conservation Service (NRCS)~~ stocking rate for the local area.

Heavy Grazing Intensity: A level of herbage utilization that does not permit the preferred plant species to maintain themselves. This grazing intensity encourages early successional stages and does not permit movement toward late successional stages. This grazing intensity typically provides no quality habitat for the plant and animal species requiring diverse and high structure rangeland vegetation, but provides quality habitat for those species that use low structure (average visual obstruction readings or stubble heights < 2 inches) grasslands. The suggested stocking rates for this grazing intensity is 10 to 20% heavier than the NRCS stocking rate for the local area.

The suggested stocking rates and local NRCS stocking rates apply only to those portions of a pasture or allotment that are considered suitable for livestock grazing.

¹ Hanson et al. 1970, Hanson et al. 1978, Hart and Ashby 1998, Holechek et al. 1999, Jasmer and Holechek 1984, Lewis et al. 1956, Olson et al. 1985

Monitoring will be conducted to validate that the suggested stocking rates are meeting or making measurable progress in meeting the desired vegetation objectives (Chapter 2) and providing quality habitat for the management indicator/focal species identified for the local area. If they are not, adjustments in the suggested stocking rates will be made. Suggested stocking rates may ~~be~~ also be adjusted for individual allotments or pastures where monitoring information on vegetation and habitat conditions support an adjustment. The monitoring information must have been collected using standard methods of determining composition, structure (height and density), production or utilization. Photographs and videography are also useful in supplementing monitoring information.

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APPENDIX J PALEONTOLOGY

Probable Fossil Yield Classification - (PFYC)

Developed by the Paleontology Center of Excellence and the R-2 Paleo Initiative, 1996.

Introduction

This is a planning tool wherein geological units, usually at the formation or member level, are classified according to the probability of yielding paleontological resources that are of concern to land managers. Existing statutes and policies regulate the collection and disposition of vertebrate fossils, but not nonvertebrate fossils except in special circumstances. Therefore, this classification is based largely on how likely a geological unit is to produce vertebrate fossils. The classes are described below, with some examples of corresponding management considerations or actions. Useful references are the Paleo_resources Use and Management Action Spectrum (PUMA), Criteria for Scientific Significance--Specimen, Criteria for Sensitivity Ranking-- Locality.

NOTE: This system is based on **probabilities**, not certainties or special circumstances. There will be exceptions to each criterion used as the basis for classification. These are expected and should be handled as unique cases.

Paleo Classes

Class 1

Description: Igneous and metamorphic (volcanic ashes are excluded from this category) geologic units that are not likely to contain recognizable fossil remains.

Basis:

- Fossils of any kind known not to occur except in rare circumstances.
- Igneous or metamorphic origin.

Example: Vishnu Schist

Management examples:

- Paleo acres not weighted on the Geology Resource Base Acres budget allocation criterion.
- No Class 1 paleo acres included in Geology Management Acres budget allocation criterion.
- Acres with this classification are not included in paleontological reconnaissance work plans.

The land manager's concern for paleo_resources on Class 1 acres is negligible. Ground-disturbing activities will not require mitigation except in rare circumstances. Budgets do not need to allocate dollars for paleo-weighted geology acres. Much of the acreage of high altitude, mountainous districts will be determined Class 1.

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Class 2

Description: Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils.

Basis:

- Vertebrate fossils known to occur very rarely or not at all.
- Age greater than Devonian.
- Age younger than 10,000 years before present.
- Deep marine origin.
- Aeolian origin.
- Diagenetic alteration.

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Example: Mancos Shale

Management examples:

- Paleo acres are not weighted in the Geology Resource Base Acres budget allocation criterion.
- Paleo acres generally are not included in Geology Management Acres, but rare exceptions are likely to be scientifically significant and require some management prescription.
- Class 2 Paleo generally not included in paleontological reconnaissance work plans. There may be rare exceptions.

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The land manager's concern for paleo resources on Class 2 acres is low. Ground-disturbing activities are not likely to require mitigation. Management alternatives should tend toward the middle of the PUMA [high access--low management], in all but exceptional cases. Recreational fee-based or user-based opportunities are unlikely.

Class 3

Description: Fossiliferous sedimentary geologic units whose fossil content varies in significance, abundance, and predictable occurrence. Also, sedimentary units of unknown fossil potential.

Basis:

- Primarily marine origin with sporadic known occurrences of vertebrate fossils (other than fish scales and shark teeth).
- Vertebrate fossils and significant nonvertebrate fossils are known to occur inconsistently-- predictability known to be low.
- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Example: Chinle Formation

Management examples:

1. Some Class 3 paleo acres may be weighted in the Geology Resource Base Acres budget allocation criterion.
2. Some Class 3 paleo acres may be included in Geology Management Acres budget allocation criterion and reported in MAR:
 - Opportunity Areas--see below
 - Highly sensitive areas needing special protection (see Criteria for Sensitivity Ranking--Locality).
 - Areas actively being researched
3. Acres with this classification may be included in paleontological reconnaissance work plans, if this designation is made on the basis of criterion 3 above.
4. Fee-based and/or user based recreational opportunities possible.

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The land manager's concern for paleo resources on Class 3 acres may extend across the entire PUMAS, with some areas requiring very little budget and management and providing high levels of unregulated access, while other areas may require annual budget allocations for intense management. Ground-disturbing activities will require sufficient mitigation to determine whether significant paleo resources occur in the area of a proposed action. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action. Recreational opportunities should be identified where appropriate and utilized under recreation fee authorities to produce revenues that can be applied to paleo resource management.

Class 4

Description: Class 4 geologic units are Class 5 units (see below) that have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation.

Basis:

- Significant vegetative cover; outcrop is not exposed.
- Areas of exposed outcrop are smaller than 2 contiguous acres
- Outcrop forms cliffs of sufficient height that are most-is out of reach by normal means.
- Other characteristics that lower the sensitivity of both known and unidentified fossil sites (see Criteria for Sensitivity Ranking--Locality).

Example: Covered acres of Morrison Formation.

Management examples:

1. Class 4 paleo acres are weighted in the Geology Resource Base Acres budget allocation criterion.
2. Some Class 4 paleo acres may be included in Geology Management Acres budget allocation criterion and reported in MAR:
 - Opportunity Areas:
 - Highly sensitive areas needing special protection (see Criteria for Sensitivity Ranking--Locality).
 - Areas actively being researched.
 - Paleo reports likely to be counted in Geology Reports MAR (permits, agreements, contracts, etc.).
 - Acres with this classification should be included in paleontological reconnaissance work.
 - Scientific and educational use likely. Paleo special use permits and Challenge Cost Share agreements likely.
 - and
 - Ongoing curation agreements with regional accredited museums recommended.
3. Fee-based and/or user based recreational opportunities most likely.

The land manager's concern for paleo resources on Class 4 acres is toward management and away from unregulated access. Ground-disturbing activities will require mitigation to determine whether significant paleo resources occur in the area of a proposed action. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action. Class 4 paleo acres are the most likely to yield appropriate recreational opportunities. These should be identified and optimized under recreation fee authorities. Class 4 paleo acres are the most likely to generate revenues that can be applied to managing highly sensitive Class 5 paleo resources.

Class 5

Description: Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils and/or scientifically significant nonvertebrate (plant and invertebrate) fossils, and that are at risk of natural degradation and/or human-caused adverse impacts.

Basis:

- Vertebrate fossils and/or scientifically significant nonvertebrate fossils are known and documented to occur consistently, predictably, and/or abundantly.
- Outcrop is exposed: little or no vegetative cover.
- Extensive exposed outcrop; discontinuous areas are larger than 2 contiguous acres.

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- Outcrop erodes easily, may form badlands.
- Easy access to extensive outcrop in remote areas (increased potential for illegal collection; damage by vandals).
- Other characteristics that increase the sensitivity of both known and unidentified fossil sites (see Criteria for Sensitivity Ranking - Locality).

Example: White River Formation/Group**Management examples:**

1. Class 5 paleo acres *are* weighted in the Geology Resource Base Acres budget allocation criterion.
2. Some Class 5 paleo acres may be included in Geology Management Acres budget allocation criterion and reported in MAR:
 - Opportunity areas:
 - Highly sensitive areas needing special protection (see Criteria for Sensitivity Ranking--Locality).
 - Areas actively being researched.
 - Paleo reports likely to be counted in Geology Reports MAR (permits, agreements, contracts, etc.).
 - Paleontological reconnaissance work should focus only on poorly known areas of Class 5 acres because they are already considered a management priority.
 - Scientific and education use highly likely and.
 - Highest number of paleo special use permits expected for Class 5 acres. Challenge Cost Share agreements with a broad spectrum of professional and avocational paleontologists expected.
3. Fee-based and/or user based recreational opportunities possible.
 - Ongoing curation agreements with regional accredited museums recommended.

The land manager's highest concern for paleo resources should focus on Class 5 acres. These areas are likely to be poached. Mitigation of ground disturbing activities is required and may be intense. Frequent use by the full range of interested publics is to be expected. Areas of special interest and concern should be designated and intensely managed. Field-based, technical training in paleo resource management should be provided to Forest and District staff and to Law Enforcement Officers. Memoranda of Understanding, Challenge Cost Share, and/or Participating agreements with professional academic paleontologists should be sought and maintained in order to provide a consistent source of outside expertise. Curation Agreements should be maintained with area museums so that there is always a repository for fossils collected and turned over to the Forest. Class 5 paleo acres are likely to yield appropriate recreational opportunities, though it is more difficult to isolate opportunity acres from surrounding critical acres and therefore access must be more intensely regulated. These should be identified and utilized under recreation fee authorities, but the delicate balance between opportunity and potential degradation of critical Class 5 paleo resources must be recognized and addressed in planning for such use.

Predictive Modeling and the Designation of Paleo Classes

The Rocky Mountain Region of the Forest Service is currently experimenting with the PFYC in

Paleontology

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partnership with the University of Wyoming and Bureau of Land Management. The model that develops out of this experiment will predict where paleo_resource management and dollars should be concentrated in the Northern Great Plains. Paleo classes are assigned to geologic units in the Northern Great Plains Planning area on the basis of empirical data gathered through on line

searches of the GeoRef Geological Database. Classes are recommended by the investigator based on the number of “hits” produced by search strings optimized to capture most references to vertebrate fossils in the key unit being investigated. Calibration of the parameters employed will be preliminary and probably subject to continuous refinement as designated classes are validated through actual paleo_resource management. This method does not allow designation of Class 4 Paleo acres, because in most cases the physical characteristics of the surficial outcrop will not be known from the literature alone. Therefore, these units will, by default, be designated as Class 5, until other methods allow separation of Class 4 units or areas on units. Other methods would include aerial reconnaissance, interpretation of remote-sensed data, and on-the-ground field reconnaissance.

The ~~Fossil Yield Potential Classification~~FYPC is a tool developed for the Forest Service by the Paleontology Center of Excellence and funded by the Paleo Initiative, as is paleontological assessment of the Northern Great Plains Planning area which will be the first test of the FYPC.

The management examples and narrative recommendations are not to be considered directives, or standards and guidelines for planning purposes. They are informal guidelines to supplement policies, regulations, and directions in draft for the national paleontology program. These guidelines are not exhaustive; many other factors are considered in management decisions.

The criteria given as the basis for classification are not exhaustive either. They are designed to guide the outside expert who may be recommending classification as part of a partnership, contract, or permit. Final designations will be made by the reviewing Forest Service paleontologist or one of our qualified colleagues from another Federal agency. Designations are not final and are expected to change as we gain understanding about the paleo_resources of National Forests and Grasslands.

Locality/Site Sensitivity Rankings For Fossil Resources

Paleontological sensitivity rankings are composite evaluations derived from individual consideration of the following factors. Sensitivity rankings apply to paleontological sites and localities, not to individual specimens.

1. **Scientific significance** of specimens associated with the site.
2. **Probability of yield** based on likelihood that geologic strata at the site are fossiliferous. This factor may be evaluated by direct reconnaissance or by consulting the pertinent literature; preferably both methods will be employed.
3. **Values** of an educational, interpretive, or recreational nature.

Public education, interpretive, and recreational values are those that utilize the power of fossil resources to provoke insight into ancient lifeways and ancient ecology, and to reveal their connections to the present and future. Educational values also enhance a stewardship ethic towards legacy resources; and stress the importance of environmental and scientific literacy.

4. **Risk** of resource degradation at the site.

Risk factors include:

Biotic agents: vandalism, theft, destruction; grazing impact; trail-use impact.
Abiotic agents: chemical and mechanical destruction of fossils exposed by erosion; landslides; inundation; fluvial transport; etc.

Each factor above should be ranked individually on a scale of 1 to 5, where 1 is the lowest sensitivity ranking and 5 the highest. The composite ranking of sensitivity for a locality or site is the arithmetic mean of the individual rankings.

Example 1. A category: vertebrate site is identified in rocks of the Orellan Land Mammal Age on the Pawnee National Grassland.

1. Scientific Significance ranking = 5.

See Scientific Significance Criteria below. Specimen-based criterion 3 is met. Criteria 1, 2, and 3 are likely to be met by many specimens in this geologic formation. Context-based criterion 2 is met--the mammalian fauna of the Pawnee National Grassland is critically important for constraining age correlations in the Orellan.

2. Probability of Yield ranking = 4.

The formation is known to be fossiliferous. Mammal fossils are likely to be found following erosional events.

3. Values ranking = 4.

The mammalian fauna of the Orellan in the Western Interior is informative to questions of paleoecology and biogeography. Interpretive materials that utilize this paleontological resource would be good examples of the way scientists interpret ancient ecosystems, and how that information can be applied to modern-day problems of global change.

Risk factor ranking = 5.

Biotic agents: Significant and sensitive sites are located near or on trails. These trails are advertised in area guides as "good places to pick up fossils."

Abiotic agents: Sites are located in geologic strata that erode very easily and rapidly, especially during the spring and early summer. Fossils may be easily washed out of their informative context, or removed altogether and re-buried downstream by ephemeral flows.

4. Composite ranking: $5 + 4 + 4 + 5 = 18$; divided by 4 = **4.5 sensitivity ranking for this site.**

Appropriate management strategies for this site would include: designation as a Research Natural Area. Allowable activities on an Opportunity Spectrum would include: research by qualified investigators, technical educational field work by non-specialists overseen by qualified technicians, guided interpretive tours for the public.

Example 2: A category: vertebrate site is identified in Cretaceous marine rocks on the Buffalo Gap National Grassland.

1. Scientific Significance ranking = 1.

The only identified fossils at and near the site are shark teeth and an occasional fish vertebra.

2. Probability of Yield ranking = 5.

Shark teeth are exceedingly abundant, and in places form a deflation surface.

3. Values ranking = 2.

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The recreational public is likely to enjoy picking up shark teeth in this area, and to consider the past environment in which they were deposited --without interpretive aids. The area does not lend itself to formal interpretive displays or activities.

4. Risk factor ranking = 2.

Biotic agents: The likelihood that sufficient collecting by the general public will deplete the supply of shark teeth is low for the foreseeable future; however, the possibility that other, more significant fossils will be found and carried away exists and cannot be easily monitored. The area is heavily grazed, but the fossils are fairly evenly distributed on the landscape, so areas where cattle do not congregate are fairly free of impact.

Abiotic agents: The outcrop area is low, flat-lying, and heavily vegetated, so the chances that erosion, landslides, floods, or flash floods will threaten the fossil resource is low.

5. Composite ranking: $1 + 5 + 3 + 2 = 10$; divide by 4 = 2.5 sensitivity ranking for this site.

Appropriate management strategies for this site would be: no permit required for picking up shark teeth; mention in a Forest/District brochure on paleontological resources as an educational and interpretive tool to promote understanding of represented ancient environment; request that the public report any unusual fossil finds; occasional reconnaissance to determine if collecting of shark teeth is threatening other resources in the area or affecting the scenic and aesthetic values of the site.

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Significance Criteria for Paleontological Resources -- Vertebrate, Invertebrate, and Plant Fossils, including Ichnofossils

Scientific significance may be attributed to a fossil specimen or trace and/or to its context (e.g., location in time and space; association with other relevant evidence; or association with cultural resources).

The scientific significance of a paleontological specimen or trace and/or its context is determined by meeting any one of the following criteria:

Specimen-based criteria:

- Represents an unknown or undescribed/ unnamed taxon.
- Represents a rare taxon, or rare morphological/ anatomical element or feature. The "rareness" criterion comprises either absolute rareness in the fossil record, or relative or contextual rareness as described below.
- Represents a vertebrate taxon.
- Exhibits an exceptional type and/or quality of preservation.
- Exhibits remarkable or anomalous morphological/anatomical character(s) or taphonomic alteration.
- Represents "soft tissue" preservation or presence.
- Exhibits cultural affiliation; e.g., alteration or use by ancient man.

Context-based criteria:

- Is associated in a relevant way with other evidence of scientific interest, providing

taphonomic, ecologic, environmental, behavioral, cultural, or evolutionary information.

- Is evidence that extends and/or constrains the stratigraphic, chronologic and/or geographic range of a taxon or functional paraphyletic group.

Paleontological Survey Process

Once a ground-disturbing project is identified to take place and during the [National Environmental Policy Act \(NEPA\)](#) process, a series of steps are taken to determine if paleontological resources will be impacted and what process will be needed for mitigation:

Step 1. Determine if the area to be disturbed will impact paleontological resources:

- Each unit will determine if the project area contains fossils by consulting ~~the~~ maps delineating the geologic formation classifications.
- If the formation is Class 1, fossils are not likely to be discovered; document in NEPA project file.
- If the formation is Class 2, significant fossils are not likely to be discovered; notify the Forest Service Paleontologist and proceed with Step 2.
- If the formation is Class 3-5, significant fossils will likely be discovered; notify the Forest Service Paleontologist and proceed with Steps 2-5.

Step 2. The Forest Service Paleontologist will conduct a literature search of paleontological information for the project area that may be contained in permitting documents, scientific literature, geological maps, libraries, and museums. This information will become of the NEPA project file. Surveying will not be required when no scientifically important specimens or sites are discovered in the literature. Go to Step 3 if the literature review indicates scientifically important fossils may be impacted.

Step 3. Forest Service Paleontologist, and/or qualified consultant will conduct a pedestrian survey of proposed project area and document findings. If paleontological sites are discovered then go to Step 4. If survey reveals no surface indication of fossils, then document in the NEPA project file.

Step 4. The Forest Service Paleontologist or qualified consultant will determine the sensitivity ranking for the sites to be impacted. (A Class 5 geologic formation may contain sites of low sensitivity.) The paleontologist on site will have to make this determination based on professional judgment and according to the process outlined in the Sensitivity Ranking.

Step 5. In sites with Class 3, 4, or 5 and a high sensitivity ranking, a Forest Service Paleontologist shall develop a protection and mitigation plan prior to project initiation and periodically monitor for compliance with the mitigation plan throughout the project.

Note: Units with formations ranked as Classes 3-5 should have repository agreements in place with agencies or institutions collecting fossils as part of mitigation in order for the fossils to be cared for in perpetuity.

APPENDIX K NATIONAL GOALS

National goals relevant to land and resource management (based on Forest Service manual objective statements)

American Indians - 1563

1. Maintain a governmental relationship with federally recognized tribal governments.
2. Implement programs and activities honoring treaty rights and fulfill legally mandated trust responsibilities to the extent that they are determined applicable to National Forest System lands.
3. Administer programs and activities to address and be sensitive to traditional native religious beliefs and practices.
4. Provide research, transfer of technology and technical assistance to American Indian governments.

Noxious Weed Management - 2080.2

To use an integrated weed management approach to control and contain the spread of noxious weeds on National Forest System lands to adjacent lands. Specific objectives to be achieved through noxious weed management include:

1. Prevention of the introduction and establishment of noxious weed infestations.
2. Containment and suppression of existing noxious weed infestation.
3. Formal and informal cooperation with sState agencies, local landowners, weed control districts and boards, and other Federal agencies in the management and control of noxious weeds.
4. Education and awareness of employees, users of National Forest System lands, adjacent landowners, and sState agencies about noxious weed threats to native plant communities and ecosystems.

Solid Waste Management - 2130.2

1. Program objectives are to design, operate, and maintain all solid waste systems under Forest Service jurisdiction in such a manner ~~so~~as to meet all federal, state, and local requirements; promote public health and safety; protect Forest resource and environmental qualities; and complement and support the total land-use management process.

Pesticide Management - 2150.2

1. To ensure the proper use of pesticides.

Energy Management - 2170.2

1. Conserve energy in the conduct of Forest Service programs and in the operation of Forest Service programs and facilities, and to improve efficiency in the production and use of wood products.
2. Minimize undesirable consequences associated with development of renewable and non-renewable energy source extracted from [National](#) Forest System lands.
3. Facilitate recovery of fuels from [National](#) Forest System lands and implement programs to support production and use of alternative fuels.
4. Provide leadership and support for environmentally acceptable and scientifically sound development, production, and use of all energy resources from lands.

Range Management - 2202.1

1. To manage range vegetation to protect basic soil and water resources, provide for ecological diversity, improve or maintain environmental quality, and meet public needs for interrelated resource uses.
2. To integrate management of range vegetation with other resource programs to achieve multiple-use objectives contained in [National](#) Forest System land and resource management plans.
3. To provide for livestock forage, wildlife food and habitat, outdoor recreation, and other resource values dependent on range vegetation.
4. To contribute to the economic and social well-being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood.

Grazing and Livestock Use Permit System - 2230.2

1. To administer the grazing permit system consistent with range resource management objectives found in Forest land management plans, and to best serve the public's long-term economic and social needs.

Range Improvements - 2240.2

1. Without impairing land productivity or water quality, implement and maintain range improvements to the extent benefits are commensurate with cost and demand for livestock forage.
2. Provide information and advice through the Range Technical Information System and the Rangeland Technology Equipment Council to enhance restoration, improvement, and quality of rangeland.

Structural Range Improvement - 2242.02

1. Install structural range improvements to obtain proper livestock management and to meet objectives contained in Forest land and resource management plans and allotment management plans.

Maintenance of Improvement - 2244.02

1. To maintain in operable condition all range improvements on the National Forest System and other lands controlled by the Forest Service.

Range Improvement Investment - 2246.02

1. Invest in cost-effective range improvements to achieve objectives established in Forest land and resource management plans and allotment management plans.

Recreation - 2302

1. To provide non-urbanized outdoor recreation opportunities in natural-appearing forest and rangeland settings.
2. To protect the long-term public interest by maintaining and enhancing open-space options, public accessibility, and cultural, visual, and natural resource values.
3. To promote public transportation and/or access to National Forest recreation opportunities.
4. To shift landownership patterns as necessary to place urbanized recreation setting into other ownerships to create more public open space and/or natural resource recreation values.

National Wilderness Preservation System - 2320.2

1. Maintain and perpetuate the enduring resource of Wilderness as one of the multiple uses of National Forest System land.
2. Maintain Wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces.
3. Minimize the impact of those kinds of uses and activities generally prohibited by the Wilderness Act, but specifically exempted by the Act or subsequent legislation.
4. Protect and perpetuate Wilderness character and public values including, but not limited to, opportunities for scientific study, education, solitude, physical and mental challenge and stimulation, inspiration, and primitive recreation experiences.

Recreation in Wilderness - 2323.11

1. Provide, consistent with management of the area as Wilderness, opportunities for public use, enjoyment, and understanding of the Wilderness, through experiences that depend on a Wilderness setting.
2. Provide outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Range in Wilderness - 2323.21

1. Manage Wilderness range in manner that utilizes the forage resource in accordance with established Wilderness objectives.

Wildlife and Fish Management in Wilderness - 2323.31

1. Provide an environment where the forces of natural selection and survival rather than human actions determine which and what numbers of wildlife species will exist.
2. Consistent with objective #1, protect wildlife and fish indigenous to the area from human-caused conditions that could lead to federal listing as threatened or endangered.
3. Provide protection for known populations and aid recovery in areas of previous habitation, of federally listed threatened or endangered species and their habitats.

Soil and Water in Wilderness - 2323.41

1. Maintain satisfactory natural watershed condition within Wilderness.

Forest Cover in Wilderness - 2323.51

1. Manage forest cover to retain the primeval character of the environment and to allow natural ecological processes to operate freely.

Air Resource in Wilderness - 2323.61

1. Protect air quality and related values, including visibility, on Wilderness land designated Class 1 by the Clean Air Act as amended in 1977.
2. Protect air quality in Wilderness areas not qualifying as Class 1 under the same objectives as those for other national Forest System lands.

Minerals in Wilderness - 2323.72

1. To preserve the Wilderness environment while allowing activities for the purpose of gathering information about mineral resources.
2. To ensure that mineral exploration and development operations conducted in accordance with valid existing rights for federally owned, locatable, and leasable minerals (FSM 2810 and FSM 2820) and for non-federally owned minerals (FSM 2830) preserving the Wilderness resource to the extent possible.
3. To ensure the restoration of lands disturbed during exploration and development activities as nearly as practicable promptly upon abandonment of operations.

Insects and Disease in Wilderness - 2324.11

1. To allow indigenous insect and plant diseases to play, as nearly as possible, their natural ecological role within Wilderness.
2. To protect the scientific value of observing the effect of insects and diseases on ecosystems and identifying genetically resistant plant species.
3. To control insect and plant disease epidemics that threaten adjacent lands or resources.

Fire Management in Wilderness - 2324.21

1. Permit lightning-caused fires to play, as nearly as possible, their natural ecological role within Wilderness.
2. Reduce, to an acceptable level, the risks and consequences of wildfire within Wilderness or escaping from Wilderness.

Structures and Improvements in Wilderness - 2324.31

1. To limit structures and improvements for administrative purposes or under special-use permit to those actually needed for management, protection, and use of the Wilderness for the purpose for which the Wilderness was established.

Research in Wilderness - 2324.41

1. To provide appropriate opportunity for scientific studies that are dependent on a Wilderness environment.

Motorized Equipment in Wilderness - 2326.02

1. To accomplish management activities with non-motorized equipment and non-mechanical transport of supplies and personnel.
2. Exclude the sight, sound, and other tangible evidence of motorized equipment or mechanical transport within Wilderness except where they are needed and justified.

Public Managed Recreation Opportunities - 2330.2

1. To maximize opportunities for visitors to know and experience nature while engaging in outdoor recreation.
2. To develop and manage sites consistent with the available natural resources to provide a safe, healthful, aesthetic, non-urban atmosphere.
3. To provide a maximum contrast with urbanization at National Forest sites.

Privately Provided Recreation Opportunities - 2340.2

1. To provide, under special-use authorization, sufficient, suitable facilities and services that supplement or complement those provided by the private sector, state, and local government on private land and the Forest Service on National Forest System land to meet public needs, as determined through land and resource management planning.
2. To facilitate the use, enjoyment, understanding, and appreciation of the National Forest, natural resource setting.

Concession Uses Involving Privately Developed Facilities - 2343.02

1. To provide a diversity of recreation activities that emphasize the Forest setting and rustic, natural-resource-based recreation opportunities.

Group Use By Institutions or other Entities - 2345.02

1. To allow group recreation opportunities, facilities, and service at camps on National Forest System land when suitable private lands are not available.

Trail, River, and Similar Recreation Opportunities - 2350.2

1. Provide recreation opportunities for users of the general forest, water, and cave resources.
2. Provide opportunities for a variety of recreation pursuits with emphasis on activities that are in harmony with the natural environment and consistent with the recreation role of the National Forest.
3. Mitigate adverse impacts of users on the natural resources, cultural and historical resources, and on other users.

Forest Development Trails - 2353.02

1. Provide trail-related recreation opportunities that serve public needs and meet land management and recreation policy objectives.
2. Provide trail recreation opportunities that emphasize the natural setting of the National Forest and are consistent with land capability.
3. Provide trail access for National Forest management and protection.

Scenic and Historic Trails - 2353.41

1. To develop and administer National Scenic or National Historic Trails to ensure retention of the outdoor recreation experience for which the trail was established and continued production of maximum benefits from the land.

National Wild and Scenic Rivers System - 2354.02

1. Provide river and similar water-recreation opportunities to meet the public needs in ways that are appropriate to the National Forest recreation role and are within the capabilities of the resource base. Protect the free-flowing conditions of designated Wild and Scenic Rivers and preserve and enhance the values for which they were established.

Off-Road Vehicle Management - 2355.02

1. Provide off-road vehicle recreation opportunities that are in concert with the environmental setting, minimize off-road vehicle effects on the land and resources, promote public safety, and control conflicts with other uses of National Forest System lands.

Cave Management - 2356.02

1. Provide cave-related recreational, cultural, educational, and scientific study opportunities that serve public need. Balance surface resource management and cave use with the protection of cave values.

Special Interest Areas - 2360.2

1. To protect and, where appropriate, foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, paleontological, or other special characteristics. To classify areas that possess unusual recreation and scientific values so that these special values are available for public study, use, or enjoyment.

Cultural Resources - 2361.02

1. Complete an inventory of cultural resources on all National Forest System land by 1985 sufficient to provide a database for land management planning.
2. Complete an inventory of all cultural resources on National Forest System land by 1990.
3. Until these inventories are complete, exercise caution to ensure cultural resources are not damaged, destroyed or transferred by meeting the coordination requirements outlined in FSM 2361.3.
4. As part of the decision-making process, document inventory and evaluation procedures to ensure adequate participation by cultural resource professionals.
5. Perform inventories at appropriate levels prior to initiating project actions.

National Registry of National Landmarks - 2373.02

To cooperate with the U.S. Department of Interior National Park Service:

1. Encourage the preservation of sites illustrating the geological and ecological character of the United States.
2. Enhance the scientific and educational value of sites thus preserved.
3. Foster a greater concern in the conservation of the Nation's natural heritage.

Visual Quality - 2380.2

1. To manage all National Forest System lands to attain the highest possible visual quality commensurate with other appropriated public uses, costs, and benefits.

Interpretive Services/Visitor Information - 2390.2

1. To assist those visitors in the National Forest, research projects, and state and private forestry locations in gaining a greater appreciation of the role of conservation in the development of the nation's heritage and culture.
2. To promote visitor understanding of the Forest Service, the National Forest System, forestry research, and state and private forestry programs.
3. To inform visitors of recreation opportunities and facilities on the National Forests.
4. To help visitors know and experience the natural environment.
5. To implement an interpretive program that helps solve management problems and aids in the development of public understanding of Forest Service management.
6. To expand the number of interpretive associations that contribute to public understanding of Forest Service practices, support interpretive services objectives, increase public awareness, and aid in management of National Forest resources.
7. To increase visitor understanding of natural and cultural history principles and their relation to land management techniques.

Timber Management - 2402

1. Provide a continuous supply of National Forest timber for the use and necessities of the citizens of the United States.
2. To provide, as far as feasible, an even flow of National Forest timber in order to facilitate the stabilization of communities and opportunities for employment.
3. Manage and provide for regeneration of tree stands.
4. Maintain a diversity of forest vegetation types and resources consistent with the Forest Plan.
5. Plan and conduct cost-effective timber sales and other timber management activities.

Personal Use Firewood - 2431.6

1. Make existing firewood available to all potential users consistent with protection of other resources values and budget and personnel constraints.

Commercial Timber Sales - 2430.2

1. To provide an orderly program of timber sales from each National Forest in accordance with the Forest Plan or approved interim plans.
2. To offer for sale the ASQ and other sales specified in Forest Plans, subject to financing levels or other modification during their implementation.
3. To coordinate the timber sales program with planning, management, and use of other Forest resources.
4. To provide a continuous flow of raw material to local forest industries.
5. To ensure the Government only conducts business with responsible persons and in a manner which protects the interest of the Government and public.

Salvage Sales - 2435.02

1. Provide for the removal of damaged or dead timber as soon as practically possible to avoid unnecessary loss of value and volume and to respond to potentially serious catastrophes such as wildfire, windthrow or hurricane.
2. Manage timber stands at high risk of spreading disease or insect epidemics to prevent volume loss.
3. Manage the use of the salvage sale fund to provide for the rapid, optimum practical use of wood material damaged through natural events such as insects, windstorms, wildfires, hurricanes and tornados.

Silvicultural Practices - 2470.2

1. To prescribe, implement, and monitor silvicultural practices that develop forest stand conditions, which meet land management objectives designated in Regional Guides and Forest Plans.

Harvest Cutting - 2471.02

1. Manage timber and other forest resources for protection, enhancement, and sustained yield of those resources through the sale or permitted use of forest products with the long-term intent to regenerate the stand.

Reforestation - 2472.02

1. Maintain all forest lands within the National Forest System in appropriate forest cover.
2. Improve the quality and yield of new timber stands.
3. Achieve desired time and stocking level goals in a cost-efficient manner.
4. Develop and demonstrate successful reforestation methods and techniques and encourage their use by private landowners.

Timber Stand Improvement - 2476.02

1. Maintain or increase the growth rate, health, species composition, and/or improve the quality of stands for timber or other resource uses according to direction in the Forest Plan.
2. Develop and demonstrate the benefit of improved methods and techniques of timber stand improvement for all resource uses as an encouragement for private landowners to apply timber stand improvement practices on their own land.

Watershed Management - 2502

1. To protect and, where appropriate, enhance soil productivity, water quality and quantity, and timing of waterflows.
2. To maintain favorable conditions of streamflow and continuous production of resources from National Forest System watersheds.

Watershed Planning – 2510.2

1. To identify and evaluate watershed condition or damage producing events that cause threat to live or property, site deterioration, water pollution, or ~~unsatisfactory~~ unsatisfactory water yield, and plan appropriate corrective action on the contributing watershed.
2. To ensure appropriate liaison in connection with our ~~Service~~ Service water resource development projects.

3. To identify and evaluate the potential use and enhancement opportunities of the soil and water resources by:
 - Ensuring the timely availability of soil and water resource information needed for the Forest and Rangeland Renewable Resources Planning Act (RPA) assessment and program in land resource management planning.
 - Developing and fully integrating watershed management goals and objectives into RPA and into land and resource management planning.

Watershed Data Management – 2513.02

1. To program complex analyses efficiently and accurately
2. To facilitate the storage and retrieval of technical soil and water data.

***Refer to FSM 6602 for overall objective in management of Forest Service Systems

Watershed Protection and Management - 2520.2

1. To protect National Forest watersheds by implementing practices designed to retain soil stability, improve or maintain site productivity, secure favorable conditions of water flow, and preserve or enhance aquatic values.

Watershed Improvement - 2522.02

1. Restore hydrologic balance of degraded watershed areas by stabilizing soil, controlling surface runoff and erosion, reducing flood potential, and improving long-term soil productivity.
2. Improve soil and water quality.

Burned Area Emergency Rehabilitation - 2523.02

1. To determine if emergency watershed conditions exist.
2. To alleviate emergency watershed conditions following wildfire to help stabilize soil, control water, sediment, and debris movement, and to prevent threats to life, property, and other downstream values, both on-site and off-site.

Riparian Areas - 2526.02

1. To protect, manage, and improve riparian areas while implementing land and resource management activities.
2. To manage riparian areas in the context of the environment in which they are located, recognizing their values.

Floodplain Management Wetland Protection - 2527.02

1. To reduce risk of flood loss.
2. To minimize impacts of floods on human safety, health, and welfare.
3. To minimize destruction, loss, and degradation of wetlands.
4. To preserve and restore the natural and beneficial values of floodplains and wetlands.

Water Quality Management - 2532.02

1. To protect and, where needed, improve the physical, chemical, biological, and aesthetic quality of the water resource consistent with the purposes of the National Forests and national water-quality goals.

2. To provide water of a quality suitable for the beneficial uses identified in the land and resource management planning process. (FSM 1920)
3. To ensure safe drinking water subject to public use on National Forests, whether the source is a natural or developed water supply. (FSM 7420. Where state standards do not exist, observe EPA water-quality criteria.)
4. To ensure safe water quality for designated primary contact recreation areas. (Where ~~S~~state standards do not exist, observe EPA water quality criteria)

Municipal Supply Watersheds - 2542.02

1. To manage National Forest System lands for multiple uses by balancing present and future resource use with domestic water-supply needs.

Soil Resource Improvement - 2553.02

1. To improve soil quality to selected levels for specific purposes by mechanical treatment, chemical, or other soil additives, irrigation, or vegetative manipulation.
2. To rehabilitate soils that are in unsatisfactory condition.

Soil Quality Monitoring – 2554.02

1. To meet direction in the National Forest Management Act of 1976 and other legal mandates. To manage National Forest System lands under ecosystem management principles without permanent impairment of land productivity and to maintain or improve soil quality.

Air Quality - 2580.2

1. Protect air-quality-related values within Class 1 areas, as described in 42 U.S.C. 7475 (d)(2)(b) and (c) and section 2580.5.
2. Control and minimize air-pollutant impact from land management activities.
3. Cooperate with air regulatory authorities to prevent significant adverse effects of air pollutants and atmospheric deposition on forest and rangeland resources.

Fish and Wildlife - 2602

1. Maintain ecosystem diversity and productivity by:
 - a. Recovering threatened or endangered species.
 - b. Maintaining at least viable populations of all native and desired non-native wildlife, fish, and plants in habitats distributed throughout their geographic range on National Forest System lands.
 - c. Producing habitat capability levels to meet sustained yield objectives relative to demand for featured management indicator species identified in Forest and Rangeland Renewable Resources Planning Act (RPA) and Forest Plans.
2. Provide diverse opportunities for aesthetic, consumption, and scientific uses of wildlife, fish, and sensitive plant resources in accordance with national, regional, state and local demands.

Animal Damage Management - 2650.2

1. The objective of animal damage management activities is to protect National Forest System resources, to protect activities taking place on National Forest System lands, and

to reduce threats to human health and safety.

Threatened and Endangered Species - 2670.21

1. Manage National Forest System habitats and activities for threatened and endangered species to achieve recovery objectives so that special protection measures provided under the Endangered Species Act are no longer necessary. Promote recovery efforts through research and State and Private Forestry programs.

Sensitive Species - 2670.22

1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions.
2. Maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands.
3. Develop and implement management objectives for populations and/or habitat of sensitive species.

Special Uses - 2702

1. To manage special uses of National Forest System lands in a manner which protects natural resource values and public health and safety, consistent with the Forest land and resource management plans;
2. To administer special uses based on resource management objectives and sound business management principles; and
3. To develop and maintain a well-trained workforce to properly manage and administer special uses.

Special Use Administration - 2721.02

1. To issue and to administer special-use permits for recreation uses that serve the public, promote public health and safety, and protect the environment.

Special Uses Management - 2730.2

1. Provide rights-of-way for the public road system, including the federal-aid system, when such roads cross National Forest System lands or interest in lands.
2. Accommodate the access needs for the protection, development, and utilization of lands and resources owned by private interests or administered by public agencies when the planned Forest Development Road System and public road system do not meet those needs adequately.
3. Protect and enhance the quality of air, water, soil, and natural beauty of Forest Service administered lands in the granting of any right-of-way.
4. Cooperate with intermingled and adjacent landowners in developing roads that serve the needs of both parties through the exchange of rights-of-way.
5. Provide access across National Forest System land to private land that is adequate to secure the owners thereof reasonable use and enjoyment of their land without unnecessarily reducing the management options of the Forest Service or damaging National Forest lands or resources.

Withdrawals - 2761.02

1. Protect the United States' improvements and other unique values that are subject to disposition or destruction under the public land laws.
2. Provide a consistent and efficient withdrawal program that meets land and resource management objectives.
3. Ensure cooperation and coordination with the Secretary of the Interior and the Bureau of Land Management.
4. Encourage mineral activity where mineral extraction is the best use of the site.

Federal Power Act Projects - 2770.2

1. To ensure hydroelectric production where it is compatible with National Forest purposes. ~~2~~To ensure that planning, construction, and operation of hydroelectric projects are performed in such a manner to protect or effectively utilize National Forest System land and resources.

Minerals and Geology - 2802

1. Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources within the National Forest System in order to maintain a viable, healthy minerals industry and to promote self-sufficiency in those mineral and energy resources necessary for economic growth and ~~the~~ national defense.
2. Ensure that exploration, development, and ~~2~~production of mineral and energy resources are conducted in an environmentally sound manner and that these activities are integrated with the planning and management of other National Forest resources.
3. Ensure that lands disturbed by mineral and energy activities are reclaimed for other productive uses.

Minerals Reservations Outstanding Mineral Rights - 2830.2

1. To administer mineral reservations and outstanding mineral rights consistent with the rights reserved or outstanding and the acquired rights of the United States in a manner that minimizes damage to National Forest System resources.

Reclamation - 2840.2

1. Minimize the environmental impacts resulting from such activities.
2. Ensure that disturbed lands are returned to a use that is consistent with long-term Forest land and resource management plans.

Mineral Materials - 2850.2

1. To meet the demand for mineral materials consistent with the management of other surface resources.

Rural Development - 3602

1. To utilize Forest Service programs and authorities to provide more jobs and income opportunities, to improve rural living conditions, to enrich the cultural life of rural America, and to maintain and protect the environment and natural resources of rural areas.
2. Participation in the Rural Conservation and Development Program (RC&D) is to improve the ability of state and local units of government and local sponsors to accelerate the

conservation, development, and use of forest resources with the aim of improving the social, economic, and environmental conditions in an authorized RC&D area.

Rural Development - 3610.2

1. To protect and manage the natural resources including scenic, Wilderness, and other special values of forest and range environments in rural areas.
2. To promote research to expand the technological base for forestry and the use of forest products and to lend support for rural housing goals.
3. To encourage the development and transfer of technological improvements to protect and improve the quality of the rural environment, and to extend the supplies of natural resources.
4. To maintain or increase the forest land base, improve its productivity, and improve forest landownership patterns.
5. To promote orderly development and wise use of forest resources consistent with sound stewardship to develop and increase rural employment and income with the aim of improving or stabilizing rural social and economic conditions.
6. To expand public understanding of environmental conservation and natural resource planning, protection, and management and how stewardship is related to these activities.
7. To provide information and analysis for determining forest resource potentials and opportunities to enhance rural development.

Resource Conservation and Development Program - 3620.2

1. To help provide the people of the area with employment and other economic opportunities through the orderly development, improvement, conservation, and utilization of forest land and related resources in the RC&D areas.
2. To provide state and local leadership with the opportunity to coordinate and use the facilities and techniques available under current agricultural programs and any applicable new programs as may be instituted to aid in planning and carrying out a balanced program of development, conservation, and protection of natural resources to meet local, state, and national needs.
3. To develop a level of state and local leadership that can assume independent programs in forest and related resource management and achieve state and local forestry and related resource goals and objectives.

Research Natural Areas - 4063.02

1. Preserve a wide spectrum of representative areas that typify important forest, shrubland, grassland, alpine, aquatic, geological, and similar natural situations that have special or unique characteristics of scientific interest and importance that in combination form a national network of ecological areas for research, education, and maintenance of biological diversity.
2. Preserve and maintain genetic diversity.
3. Protect against serious environmental disruptions.
4. Serve as reference areas for the study of succession.
5. Provide on-site and extension educational activities.

6. Serve as baseline areas for measuring long-term ecological changes.
7. Serve as control areas for comparing results from manipulative research.
8. Monitor effects of resource management techniques and practices.

Fire Management - 5102

1. To integrate consideration of fire protection and use into the formulation and evaluation of land and resource management objectives, prescriptions, and practices.
2. To provide a cost-efficient level of wildfire protection on National Forest System lands commensurate with the threat of life and property and commensurate with the potential for resource and environmental damage based on hazard, risk, values, and management objectives.
3. Consistent with land and resource management objectives, to minimize the sum of (a) the fire program cost, plus (b) the net change in value of planned resource outputs due to fire.
4. To protect, maintain, and enhance the production and quality of National Forest and Grassland resources through fire protection and use of prescribed fire.

Fire Suppression - 5130.2

1. To safely suppress wildfires at minimum cost consistent with land and resource management objectives and fire management direction as stated in fire management action plans.

Prescribed Fire - 5140.2

1. To use prescribed fires, from either management ignitions or natural ignitions, in a safe, carefully controlled, cost-effective manner as a means of achieving management objectives defined in the Forest and Grassland Plan.

Fuel Management - 5150.2

1. To identify, develop, and maintain fuel profiles that contribute to the most cost-efficient fire protection and use program in support of land and resource management direction in the Forest and Grassland Plan.

Landownership Adjustment - 5402

1. Achieve the optimum landownership pattern to provide for resource uses to meet the needs of the people now and in the future.
2. Settle land title claims equitably and promptly.
3. Provide resource administrators readily accessible and understandable title information affecting the status and use of lands and resources they administer.

Land Purchases and Donations - 5420.2

1. Enhance the multiple use and sustained yield of the goods and services from the National Forest System.
2. Protect and improve the quality of renewable resources.
3. Protect and preserve important historic, cultural, and natural aspects of the national heritage.
4. Provide for access, use, and enjoyment of the forest resources by the public.
5. Improve administrative efficiency and effectiveness of the National Forest System.

Land Exchange - 5430.2

1. To implement land management and resource planning directions to attain an optimum National Forest System landownership pattern that provides for resource uses that best meet the present and future needs of the people.

Partial Interest Acquisition - 5440.2

1. Provide for acquisition of only those interests in land necessary to meet planned program objectives.
2. Provide for continuance of private land uses which are consistent with planned program objectives.

National Forest System Modification - 5450.2

1. The objectives of National Forest System modifications are to:
 - a. Obtain National Forest status for all appropriate lands within the National Forest System.
 - b. Modify existing National Forest System unit boundaries as needed to provide logical exterior boundaries.
 - c. Establish purchase units as needed to meet program objectives.
 - d. Establish National Forest or other boundaries as needed to facilitate management and administration.
2. The objectives of land transfers are to:
 - a. Improve management efficiency of federal lands.
 - b. Improve service to the public.
 - c. Result in net benefits to the government, to the public, or both.

Right-of-Way Acquisition - 5460.2

Rights-of-way acquisition objectives are to acquire:

1. Road and trail rights-of-way that are adequate for the protection, administration, and utilization of the National Forests System;
2. Rights-of-way in time to meet road and trail construction and resource development program schedules;
3. All interests needed for use of roads and trails to meet the long-term management and multiple use objectives of National Forest System lands as set out in Forest land and resource management plans; and
4. When compatible with National Forest System needs, the utilization and development of resources in other ownerships on which communities within or adjacent to the National Forests depend.

Reservations and Outstanding Rights - 5470.2

1. To accomplish real property adjustments free of encumbrances that would detract from present or future uses of National Forest System land or that would needlessly restrict private land use and impose an unwarranted management obligation on the Forest Service.

Condemnation - 5480.2

1. To acquire real property or interests in property by condemnation when all other methods of acquisition fail and the property or interest is required for the protection, administration, or utilization of National Forest System lands.

Land Surveying - 7151.02

1. Provide legal land surveys and related services to locate, mark, post, and maintain land corners, property corners, and property lines between National Forest System land and other ownerships for the protection and management of National Forest System lands and resources.

Landline Location Program - 7152.02

1. Provide the land manager and public with visible and legally defensible administrative and property boundary lines on the ground, and to accurately depict the location of landownership lines on administrative maps produced by the Forest Service.

Sign and Poster Program - 7160.2

1. Support accomplishment of ~~management area~~Management Area direction contained in the Forest Plan for the administration, protection, management, and use of National Forest System lands.
2. Provide information for the safety, enjoyment and convenience of National Forest and National Grassland visitors, users, cooperators, and employees.
3. Provide information about geographic and historical features, and the use, management, and research activities on the National Forest and National Grasslands.
4. Identify National Forest and National Grassland facilities and lands.

Potable Water Supply - 7420.2

1. Protect the health of the public and Forest Service personnel by ensuring that water provided by the Forest Service for human consumption at any administrative site or public use area is both safe and protected.

Wastewater Collection Systems and Treatment Works - 7430.2

1. Avoid creating health hazards or nuisance conditions.
2. Restore and maintain the chemical, physical, and biological quality of water resources.
3. Prevent future pollution or degradation of surface or groundwater.

Effluents - 7440.2

1. The objective of this program is to plan, design, construct, operate, and maintain wastewater disposal facilities and other related effluent-disposal activities to ensure that discharge and/or infiltration of pollutants do not create health hazards or nuisance conditions, nor alter the quality or characteristics of either groundwater or surface water beyond applicable federal and/or state water-quality and effluent-discharge standards. Where no standards exist, the quality of characteristics of surface and groundwater shall:
 - a. Be maintained as near to their existing conditions as measurable.
 - b. Not be degraded to adversely affect either present or projected beneficial uses (FSH 7409.11 Ch. 20).

- c. Not be allowed to degrade the quality of subsequent ground- or surface-receiving waters beyond the standards when such have been established.

Transportation System - 7702

1. To plan, develop, and operate a network of transportation facilities and transportation modes that provide user safety, convenience, and efficiency of operations.
2. To provide access to National Forest System lands in order to accomplish management direction and protection objectives.
3. To coordinate access to National Forest System lands with national and statewide transportation needs.
4. To minimize the total transportation present-worth costs including user, maintenance, construction, reconstruction, rehabilitation, restoration, realignment, and betterment costs.

Transportation Planning - 7710.2

1. To efficiently provide facilities that will achieve Forest management direction and that are appropriate for their intended purpose.
2. To direct the orderly development and management of the transportation system and to ensure the documentation of decisions affecting the system.

Development - 7720.2

1. To locate, survey, design, and construct transportation facilities in accordance with FSM 7702.

Operation and Maintenance - 7730.2

1. Operate and maintain the Forest Development Transportation System in a manner to provide cost effective support of resource management direction and safe travel for users of the system while protecting the environment, adjacent resources and the public investment.

Highway Safety Program - 7733.02

1. To reduce traffic accidents, deaths, injuries and any resulting property damage.

Federal Lands Highway Program - 7740.2

1. To assist the Federal Highway Administration with the administration of the Forest highway program to plan and develop access roads to:
 - a. Enhance the value of National Forest System resources.
 - b. Protect, develop, and use the National Forest System and its renewable resources.
 - c. Enhance economic development at the local, regional, and national levels.
 - d. Serve local needs and communities dependent on the National Forest System activities.
 - e. Provide for economy of operation and maintenance and the safety of the users.
 - f. Provide safe and adequate rural highways connecting the National Forest System with major highway systems.

APPENDIX L NATIONAL AND REGIONAL POLICIES

Following is a partial listing of national and regional Forest Service policy relevant to this Land and Resource Management Plan. A complete listing can be found in the Forest Service Manual and the Forest Service Handbook. The Forest Service Manual and the Forest Service Handbook are both quite lengthy—each comprising nearly 100 three-ring binders. They are both indexed by subject matter. The national direction is printed on white pages, and can be supplemented by Regional direction printed on blue pages, and Forest direction printed on green pages.

AMERICAN INDIANS (FSM 1563)

On October 22, 1992, the United States Department of Agriculture issued a policy statement on Indian tribes. The outlined policies include:

- a. Supporting the principles of self-government delineated in the Indian Self-determination Act and Education Assistance Act.
- b. Consulting with tribal governments regarding the influence of USDA activities on water, land, forest, air and other natural resources of tribal governments.
- c. Seeking input from tribes on USDA policies and issues affecting tribes and reconciling Indian needs with the principles of good resources management.
- d. Observing the American Indian Religious Freedom Act.
- e. Working with tribal governments, high schools and universities to encourage the development of agribusiness skills and sharing of information through exchange of technical staff and skills.
- f. Encouraging early communication and cooperation between agencies with responsibilities to tribal governments.
- g. Consistent with applicable law or regulation, facilitating tribal participation in program planning and activities.

BIOLOGICAL DIVERSITY (FSM 2670)

Sensitive Species

Manage sensitive species habitat as directed in interim directive 2600-95-7.

CAVES (FSM 2356)

1. Caves will be protected and evaluated under provisions of the Federal Cave Resources Protection Act of 1988. Caves determined to be significant under the Act or being evaluated are exempt from locational disclosure under the Freedom of Information Act. The location of caves will be kept confidential when needed to protect important archeological resources, habitat for endangered wildlife, sensitive cave biota, and unique geological features.
2. Management plans will be prepared for caves determined to be significant.

3. Coordinate the management of cave and surface resources.
 - a. Manage the cave resource in partnership with caving organizations, other governmental agencies, scientists, researchers, and outdoor recreationists.
 - b. Interpret cave resources and provide public evaluation for increased public understanding and awareness of the need to protect and preserve these unique ecosystems.
 - c. Provide for public health and safety while recognizing that no cave is completely safe and that risk-taking is part of the caving experience.
4. Adjust silvicultural prescriptions to protect caves.
 - a. Retain a vegetative buffer area around cave entrances.
 - b. Do not alter cave entrances with timber harvest activities.
 - c. Do not dispose of slash, refuse, or burn slash at cave entrances.
5. Road or trail signs should not direct public attention to wild caves.
6. Access for exploration and development of locatable mineral resources will be analyzed in response to a proposed operating plan.
7. Potential impacts to cave resources will be considered in reviewing any project.²
8. The water, sediment, nutrient and temperature regimes of caves and karst features will be protected so these environments can function naturally.

DAMS (FSM 7500)

1. For administrative Class A, B, C and high hazard Class D dams located on National Forest System lands, annually update the National Inventory of Dams (PL99-662) in accordance with data elements required by the Federal Emergency Management Agency (FSM 7514).
2. Maintain a record for all dams on National Forest System lands over six feet high (vertical difference between the lowest point on the crest of the dam and the lowest point in the original stream bed). As a minimum, the record should include the dam identification, location, purpose, owner, administrative classification, hazard-potential classification, height, and maximum storage (FSM 7514).

FIRE AND FUELS (FSM 5100)

Fire Suppression

1. Structural firefighting is the responsibility of local fire service agencies. Structural fire protection from advancing wildfire within the National Forest and Grassland Protection Boundary is the responsibility of local fire service agencies and the Forest Service (FSM 5138.1).

Fuel Treatment

2. Cooperate with state and local governments and fire protection districts in the development of fire hazard reduction plans and ordinances by providing technical assistance (FSM 3172, 3173, 3174).

3. Provide a level of protection from wildfire outside of incorporated towns that minimizes the risk of building damage or firefighter exposure. A fire management plan will be written for all facilities on National Forest and Grassland lands and will be maintained in the Forest's and Grassland Fire Management Action Plan. National Fire Protection Association (NFPA) standards will be used as guidelines for the development of individual plans. Each plan will provide guidance for structural, vegetative, and infrastructure management of the facilities on the Forest and Grassland. Planning standards will be used to provide guidance for private landowners requesting direction for wildland fire-protection improvements.

Prescribed Fire

4. Use prescribed fire to accomplish resource management objectives, such as reducing fuel load buildup, wildlife habitat improvement, etc. Identify objectives in conjunction with a burning plan approved by a line officer. Prescribed burns adjoining private or other federal or state lands will be coordinated with the adjoining landowner² (FSM 5140).
5. Use prescribed fire where it will meet management objectives in the most economically and ecologically acceptable way (FSM 5140).

GEOLOGY (FSM 2800)

1. Permit appropriate prospecting and collecting proposals for fossils and minerals by non-commercial, scientific, and/or educational institutions, and provide appropriate opportunities for recreational collection of mineral and fossil materials, where consistent with Forest Plan goals and objectives (FSM 2860.3).
2. Prevent unauthorized removal of fossil and mineral resources (FSM 5302).
3. Propose significant paleontologic^{al} sites for designation as special interest areas or geologic areas² (FSM 2360, 2372, 4063).
4. Identify special geologic^{al} hazards and problems that affect land and resource management and encourage research in those areas (FSM 2880, 2883, 2884).

HERITAGE RESOURCES (FSM 2360)

Locate, evaluate, protect and foster public use and enjoyment of heritage resources.

- a. Protect all heritage resources listed on or eligible for the National Register of Historic Places (NRHP).
- b. Nominate all eligible heritage resources to the NRHP.
- c. All projects will be reviewed by a Forest Service professional heritage resources specialist for complete heritage resource inventories, evaluations and mitigation measures for a project's area of potential effect prior to issuing environmental decision notices (FSM 2361).
- d. Avoid effects to heritage resources until evaluated and determined ineligible for the NRHP.
- e. Implement appropriate mitigative measures in consultation with the State Historic Preservation Officer (SHPO) and/or the President's Advisory Council on Historic Preservation (ACHP) when eligible heritage resources will be affected.

- f. Maintain, stabilize, or enhance all eligible heritage resources.

INTEGRATED PEST MANAGEMENT (FSM 4500)

Use only chemicals registered with the Environmental Protection Agency and follow label instructions.

LANDS (FSM 5400)

Landownership Adjustments

1. Work with other federal agencies to consolidate ownership and propose jurisdictional transfers that achieve the following objectives:
 - a. Develop more effective and efficient work units.
 - b. Reduce administrative costs.
 - c. Improve, maintain and simplify user access to public lands.
2. Adjust National Forest System and private lands to create a landownership pattern that meets objectives of the Forest Service and other landowners.
3. Manage National Forest System lands identified for exchange or sale consistent with surrounding ~~management area~~ **Management Area** goals and in accordance with the following:
 - a. Terminate special-use permits on an opportunity basis and in compliance with applicable regulations and Forest Service policy.
 - b. Renew or extend special-use permits on an annual basis only with specific notice of the potential sale or exchange included in the authorization.
 - c. Do not authorize construction of additional permanent facilities.
 - d. Do not adversely affect land values by management activities.
 - e. Do not adversely affect land values through issuance of special-use permits.
 - f. Acquire unrestricted rights-of-way whenever possible to maintain the value of the public land.
 - g. Ensure needed public rights-of-way are retained across all lands conveyed out of public ownership (FSM 5403.1).
4. Convey lands only if:
 - a. Flood hazards on and downstream from conveyed lands are not increased.
 - b. Natural and beneficial values of acquired wetlands equal or exceed those of conveyed wetlands.
 - c. Natural water regimes in wetlands downstream from conveyed lands are not disrupted.
 - d. Lands have been evaluated for the presence of hazardous materials and known hazardous materials have been removed.
 - e. Lands do not contain habitat identified by the U.S. Fish and Wildlife Service as necessary for recovery of federally listed threatened and endangered species.
 - f. Lands do not contain unique resource characteristics (FSH 5409.13, Chapter 30).

5. Effect jurisdictional transfers that achieve the following objectives:
 - a. Reduce duplication of efforts by users and agencies in terms of time, cost and coordination.
 - b. Improve or maintain user access to the administering agency.
 - c. Decrease travel and enhance management.
 - d. Improve public understanding of applicable laws, regulations, policies and procedures.
 - e. Develop more effective and efficient work units.

Property Boundary Administration (FSM 7150)

6. Locate, mark and post landlines according to the following priorities:
 - a. Lines needed to meet planned activities;
 - b. Lines needed to protect National Forest System lands from encroachment, and
 - c. All other lines (FSM 7152).

MINERALS (FSM 2800)

General

1. Require an operating plan for each significant proposed mineral action that may disturb surface resources (FSM 2817, 2818, 2820).
2. In areas of active, producing sites or areas containing known reserves, consider only surface resource programs compatible with mineral activities.
3. Provide reasonable access to outstanding and reserved mineral rights (FSM 2830.5).
4. In designated Wilderness areas, provide for reasonable access to proposed operations and for restoration of disturbed lands as near as practical to their natural condition when they are no longer needed for operation.
5. Consider significant cave discoveries for mineral withdrawal and other protection measures (FSM 2761, 5302).
6. Deny drilling, mining or production on withdrawn lands, with the exception of valid existing rights at the time of withdrawal (FSM 2811, 2818).
7. Resolve suspected abuse of the mining laws such as occupancy of the land for purposes other than prospecting, mining and related operations.
8. Avoid placing or proposing capital investments or other surface resource activities in areas where they would interfere with operating sites or known mineral resources (FSM 2761).
9. Request mineral leasing withdrawals in situations, such as for classified lands.
10. Cover mining activity by an operating plan and performance bond of the appropriate amount.
11. Reclamation will return disturbed lands to the planned uses.

Leasable Minerals

12. Approve Surface Use Plan of Operation (36 CFR 228.107) in conformance with all stipulations included in the lease and necessary conditions of approval determined during review of the applications (FSM 2800).

Geophysical Operations

13. Permit geophysical operations on withdrawn, classified lands where the operations do not interfere with purposes for which the lands are withdrawn. Do not permit such operations if significant adverse effects cannot be prevented (FSM 2860).

Coal, Uranium and Non-Energy Common Materials

14. In designated Wilderness, Congressionally designated Wilderness study areas, and areas recommended for Wilderness in RARE II upon which Congress has not taken final action:
 - a. Prospecting for and disposals of common varieties of mineral materials will not be authorized.
 - b. Coal mining in the National Wilderness Preservation System is prohibited by the Coal Leasing Amendments Act of 1975.
 - c. Unless there is statutory language to the contrary, in which case the statutory provisions control, recommend, or consent to BLM for issuance of leases or permits where operations, including surface-based access, product transportation and other necessary ancillary facilities, will not cause irreversible and irretrievable damage to surface resources and where the lands disturbed can be restored as near as practical to natural conditions.
15. In classified lands other than Wilderness (Wild and Scenic River Systems, RARE II Further Planning areas, National Recreation Areas, National Historic Sites, Natural Areas, Special Areas: such as geological, scenic and zoological, and some other specific classifications):
 - a. Authorize common variety exploration and disposals under terms and conditions to protect the purposes for which the lands were classified. The objective of reclamation requirements will be to return lands to a condition suitable for the purposes for which they were classified.

For special areas classified under 36 CFR 294 and 251.23 for specific management purposes, the regulatory provisions permit no use or occupancy inconsistent with the classification.

- b. Coal mining is prohibited by the Coal Leasing Amendment Act of 1975, within the National System of Trails and the Wild and Scenic Rivers System, including study rivers designated by that Act.
- c. Recommend or consent to BLM for issuance of leases, permits or licenses only when terms and conditions can be applied that will protect the purposes for which the lands were classified.

RANGE (FSM 2200)

1. Allotment management plans (AMPs) need to provide for threatened, endangered and sensitive species (FSM 2203, 2211, 2212).
2. When updating AMPs, display forage utilization factors by type of management, the season of use, and the ecological type by condition and seral stage within the AMP (FSM 2210, 2211).
3. Construct structural improvements to maintain or improve rangeland conditions within classified Wilderness, consistent with Wilderness values (FSM 2323.26).
4. Riparian utilization or stubble-remaining standards are to be developed and included in AMPs. Consider season of use to minimize impacts on riparian zones (FSM 2211, 2212, 2526).
5. Give emphasis to developing livestock management strategies that are economically efficient, environmentally sound and compatible with other resources (FSM 2212.03 - 2212.8).
6. Structural and non-structural improvements to maintain or improve rangeland conditions will be designed to benefit livestock and wildlife and minimize impacts on wildlife and recreation users (FSM 2240).

RECREATION (FSM 2300)**Developed**

1. Where terrain allows and demand exists, facilities will be considered for development to accommodate people with disabilities. Different challenge levels will be planned, depending upon the nature of the improvement and the principal form of recreation being provided.
2. The customer will be recognized as a spectrum of our society interested in a wide array of dispersed, sedentary, adventure, developed, guided, self-determined, motorized and non-motorized activities in controlled and uncontrolled environments. Potential customers will be recognized as those who might use National Forest resources if appropriate services and resources were available (FSM 2330)
3. Sites will be managed and maintained according to the needs of our customers using the site. Safety and cleanliness are of utmost importance. Remove hazardous and/or dead trees in developed sites (FSM 2331 R-2 Supplement 2300-93-6, FSM 2332).
4. The type and level of development sophistication in developed sites may vary, depending upon the situation and need. They are developed by the Forest Service, concessionaires or cooperators and may be managed by any or a mix of these (FSM 2303).

Recreation Opportunity Spectrum

5. A recreation opportunity spectrum (ROS) table is included in Chapter 1 of this Forest Plan. A decision to change an ROS class will be documented in a NEPA decision document (FSM 1922.15, 2310.3).

RESEARCH NATURAL AREAS (FSM 4060)

1. Discourage or prohibit any public use that contributes to impairment of research or natural values (FSM 4063.02,4063.3).
2. Use special-use permits or cooperative agreements to authorize and document scientific activity (FSM 4063.3).

RIGHTS-OF-WAY (FSM 5460)**Acquisition**

1. Acquire rights-of-way on existing and proposed Forest System roads and trails that cross other than National Forest System lands.
2. Acquire rights-of-way using the following criteria:
 - a. Legal access for existing roads and trails that provide general access to the National Forest.
 - b. Legal access to support planned projects and high priority activities at least two years prior to project implementation (FSM 5461.2).

SOILS (FSM 2550)

1. Soil should not be displaced more than a continuous area of 100 square feet or more (FSH 2509.18 R-2 Supplement).
2. Soils should not be compacted more than (FSH 2509.18 R-2 Supplement):
 - a. A 15 percent increase in bulk density from the average undisturbed density, or
 - b. Bulk density values that exceed the following threshold values:
 - 1.25g/cc - silt and clay
 - 1.30 g/cc - silty clay, silty clay loam and silt loam
 - 1.40 g/cc - loam and clay loam
 - 1.50 g/cc - sandy loam, sandy clay loam and sandy clay
 - 1.60 g/cc - sand and loamy sand
3. Maintain adequate plant cover to protect the watershed and maintain plant health consistent with the soil type.
4. Management practices will be designed and implemented to maintain or improve the long-term soil productivity potential of the National Forest (FSH 2509.18 R-2 Supplement).
5. Soil quality monitoring will be conducted to determine if soil management goals, objectives and standards are being achieved (FSH 2509.18 R-2 Supplement).
6. Monitoring results will be used to adjust management activities and mitigating measures where necessary to prevent significant impairment of the long-term soil productivity (FSH 2509.18 R-2 Supplement).

SPECIAL LAND USES (FSM 2700)

1. Act on special-use applications according to the following priorities:
 - a. Those required by law or regulation, or national in scope.
 - b. Those in the public interest, mainly local or regional in nature.
 - c. All others.
2. Do not approve any special-use applications that can be reasonably met on non-federal ²or other federal lands unless it is clearly in the public interest (FSM 2703.2).
3. Do not approve special-use applications for areas adjacent to developed sites unless the proposed use is compatible with the purpose and use of the developed site.
4. Utilize approved electronic sites where feasible.
5. Do not approve applications for use of federal land that involve any hazardous materials as defined in U.S.C. 9601 et seq., 40 CFR 261.30 and 40 CFR 302.4. The hazardous materials listed are individual chemicals. These references do not relate to hazardous waste dumps (FSM 2703).

TIMBER (FSM 2400)

General

1. Forests are to be managed to provide net public benefits. Many different philosophies and strategies are used that provide benefits desired in the areas of urban interface, those areas used for recreation and viewing, for wildlife habitat, watershed protection, water-yield enhancement, and others, as well as for wood and fiber products. In most cases, these must be integrated. Managers are to develop and use a wide variety of prescriptions to meet these public priorities and to accept that traditional economic considerations must be supplemented with both the empirical and subjective ones² (FSM 2470.3).
2. Plan areas for timber harvest only if assured, based on existing technology and knowledge, that long-term soil productivity will not be degraded (FSH 2409.26 Chapter 10).
3. Provide for wildlife habitat improvement and enhancement of other renewable resources in sale area improvement plans.

Tree Stand Improvement (Precommercial Thinning)

4. Provide for accelerated growth, create specific stocking, and improve quality and vigor of timber stands.

Silvicultural Prescriptions

5. Silvicultural prescriptions for tree-stand improvement, including thinning, should evaluate the tradeoffs associated with alternative treatments in terms of increased timber yields, economic efficiency, enhanced wildlife habitat, increased wood-products yield and quality, improved long-term forest health, increased species and structural diversity and the desired future condition for the stand (FSH 2409.17 Chapter 6).

6. Silvicultural prescriptions will be prepared for all vegetation management activities proposing the management of forested vegetation to work toward achieving the desired future condition (FSH 2409.26).
7. Apply a variety of silvicultural systems and harvest methods that best meet resource management objectives.
8. Prepare individual silvicultural prescriptions for areas or site-specific practices.
9. Use thinning practices that consider genetic diversity, competition among the trees for water, nutrients and light. The frequency of thinning should depend upon the tree species, financial efficiency, and the site's growing conditions (as commonly measured by site index) (FSH 2409.17 Chapter 6).
10. Where appropriate, reduce competition between desired trees and other vegetation (FSH 2409.17 Chapter 6).
11. If the silvicultural system being applied to a particular area of the landscape is uneven-aged, harvest trees designated for commercial timber production based on the desired density as determined by age class or size, and the objective for the area (FSH 2409.26).
12. In most circumstances, rely on or make primary use of those silvicultural systems that ensure regeneration of forest stands through natural seeding and suckering (FSH 2409.26b Chapter 70).
13. Use artificial regeneration methods when we cannot rely on the natural sequence of events and/or environmental conditions to regenerate the forests within five years or earlier (FSH 2409.26b Chapter 70).
14. Inventory improvement needs in sale areas during sale reconnaissance. Use KV funds as applicable after sale closure to accomplish needed improvements including education and interpretation (FSH 2409.19).

TRANSPORTATION AND TRAVEL

Transportation System Management (FSM 7700)

1. Unless a proposed road is determined necessary as a permanent addition to the National Forest Transportation System, close it and revegetate it. Revegetation will be achieved within six months. Close or obliterate temporary roads immediately when use ends (FSM 7703).
2. Retain access rights (FSM 7712.31).
3. Establish the specific purpose and intended use for each existing and proposed road, based on management direction. Document this purpose by writing specific road management objectives, which include appropriate design, operation, and maintenance criteria. Employ traffic (travel) management strategies of encourage, accept, discourage, eliminate, unrestricted, or prohibit on all roads (FSM 7712.31).
4. Develop road management programs to require commercial users to pay their share of road maintenance.

5. Propose state and county roads as Forest Highways where the use and development of National Forest System lands affect the public road system, thus necessitating federal investments to ensure that these roads are safe and adequate. Such designation identifies state and local government roads that qualify for construction and reconstruction funding under the Forest Highway program. Designate and develop Forest Development Roads as Forest Highways when use of the road meets requirements for Forest Highway designation (FSM 7740.3).
6. Coordinate Forest information and directional signs with appropriate transportation agencies (FSM 7103).

Trails (FSM 2300)

7. Provide for a wide range of recreational opportunities, both motorized and non-motorized. The trail system on each National Forest will:
 - a. Consider barrier-free opportunities for all new construction or rehabilitation proposals.
 - b. Not be dedicated to single use unless clearly necessary to resolve conflicts or create unique opportunities.
 - c. Have documentation on the purpose and use of each trail (FSH 2309.23).
8. Trail systems will be integrated across administrative boundaries, including adjacent Forest Service units, other federal agencies, state, and municipal trails (FSM 2353).
9. Maintain each trail to the standard required for the intended user types.
10. The permanent Forest Trail system will be determined and identified in the Forest Trail Development Plan. This plan will include the existing and future trail system, trail use type, trail management objectives, and ROS and visual quality constraints as they apply to trail experiences (FSM 2353).
11. National Historic, Scenic, or Recreation Trails will receive higher priority than other trails for reconstruction, operation and maintenance (FSM 2353).
12. Maintain all trails to established Forest standards.
 - a. Maintain trails in accordance with standards in the Trail Handbook.
 - b. Schedule trail maintenance in accordance with Regional acceptable work standards.
13. Construct or reconstruct trails when needed as part of the transportation system.

VISUAL QUALITY (FSM 2380)

1. Management activities must be consistent with the visual quality objectives (VQO) in this Forest Plan unless a decision is made to change the VQO. A decision to change the VQO will be documented in project NEPA decision documents (FSM 2382.21).
2. At the project implementation stage, the VQO should be refined to the project scale.
3. As new viewer platforms (such as roads, trails, recreation areas or major housing developments outside National Forests) are developed, the VQOs should be reassessed (FSM 2382.32).

4. For areas which do not currently meet the VQO, use landscape rehabilitation as a short-term alternative to restore landscapes containing undesirable visual impacts to a desired visual quality (FSM 2383).

Since the previous Management Plan was published, the Forest Service has updated the old visual management system into the new Scenery Management System. The Chief of the Forest Service has directed all field units to implement the new system.

WATER (FSM 2520)

Water Quality

1. Develop integrated soil/water/fishery improvement schedules for watersheds, coordinated with other resources. Coordinate with state wildlife agencies. Apply treatment and land-use controls as needed to restore soil productivity, water quality, channel stability and aquatic habitat. (FSM 2522.03, 2522.2)

WILDLIFE AND FISH (FSM 2600)

1. Manage animal damage in cooperation with the state wildlife agencies and the Animal and Plant Health Inspection Service to prevent or reduce damage to other resources and direct control toward preventing damage or removing only the offending animal.
2. Provide forage for big game. Allocate forage to big game based on direction in ~~management-area~~ **Management Area** prescriptions and FSM 2210, range analysis and allotment management planning.

Endangered or Threatened Species

3. Provide habitat for federally listed or proposed endangered or threatened species on National Forest System lands (FSM 2672.24, 2676).
4. Complete biological evaluations on actions authorized through NEPA decision documents, funded or carried out by the Forest Service to determine the effects on federally listed or proposed endangered or threatened species (FSM 2672.4).
5. Carry out consultation, "informal" or "formal" as appropriate, with the U.S. Fish and Wildlife Service when biological assessments determine that Forest Service actions may affect federally listed or proposed endangered or threatened species (FSM 2671.45).

APPENDIX M ACCIDENTAL DISTURBANCE OF HUMAN REMAINS

Human remains will be treated with dignity and respect for the wishes of the deceased individuals they represent. For all activities undertaken on National Forest System lands covered by this Management Plan, the general policy shall be strict avoidance of all human burials, whether marked or unmarked, whenever possible.

Reinterment in place and avoidance of further disturbance through project redesign will be conducted where feasible. Programmatic Agreements with the appropriate tribal entities will be fashioned detailing the proper procedure, contacts and respectful treatment of Native American human remains as per the Native American Graves Protection and Repatriation Act (NAGPRA) Sec 10.5 (f).

In the case of accidental disturbance of historic graves or interment sites and in the absence of a Programmatic Agreement, the following steps will be taken:

1. All activities that may further disturb the remains will cease immediately in the area of the discovery and the appropriate line officer and Forest Service archaeologist notified. The remains are to be secured and protected until the discovery has been evaluated.
2. Non-destructive, in situ evaluation by Forest Service archaeologist will be made immediately to determine if the skeletal remains are human. Local law enforcement will then be contacted to determine if burial contains a victim of a recent prosecutable crime or accidental death.
3. Within 24 hours, the line officer will notify the appropriate Historic Preservation Office of the discovery of human remains and then consult with this office regarding proper treatment.
4. ~~Should~~ the remains be of Native American ancestry, the appropriate tribal entity will be notified within 24 hours of the discovery as specified in NAGPRA Subpart 10.4 and 10.51a.
5. Should the remains be of Native American ancestry, the Forest Service archaeologist and line officer, in consultation with the appropriate tribal entity, shall make a determination as to whether the burial can be adequately and safely restored in situ or whether the burial should be disinterred completely and reinterred in another location.
 - In cases where reinterment in place is possible, the Line Officer, in consultation with the appropriate tribal entity, shall cause the burial to be backfilled, stabilized and protected from further disturbance by human activities or natural processes which caused the disturbance in the first instance.
 - In cases where reinterment in place is not prudent or feasible, the appropriate tribal entity will be consulted regarding proper reinterment as per NAGPRA Subpart 10.4.