

APPENDIX A

WESTERN MONTANA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING

Standards for Rangeland Health and Guidelines for Livestock Grazing

Introduction

The following policies, practices, and procedures developed in concert with the Western Montana RAC will be implemented in order to ensure that Bureau of Land Management (BLM) lands are healthy. The concept of healthy rangelands expresses the BLM's desire to maintain or improve productivity of plant, animal (including livestock), soil, and water resources at a level consistent with the ecosystem's capability.

In order to meet society's needs and expectations for sustained production and conservation of natural resources from BLM rangelands, use of these lands must be kept in balance with the land's ability to sustain those uses. Identifying that balance requires an understanding and application of ecological principles that determine how living and non-living components of rangelands interact. Recognition of the inter-dependence of soil, water, plants, and animals (including livestock) is basic to maintaining healthy rangelands and is the key element in BLM's Standards for Rangeland Health and Guidelines for Livestock Grazing.

Standards describe desired ecological conditions that the BLM intends to attain in managing BLM lands, whereas Guidelines define practices and procedures that will be applied to achieve Standards. While Standards will initially be applied to grazing, it is the BLM's intent to eventually apply these Standards to all rangeland uses that have the ability to affect or be affected by the ecological characteristics of rangelands.

Fundamentals of Rangeland Health

The BLM has defined four Fundamentals of Rangeland Health that are basic ecological principles underlying sustainable production of rangeland resources. These Fundamentals are embodied in the BLM's Grazing Regulations (43 CFR, Part 4100), which became effective in August of 1995. These four Fundamentals of Rangeland Health served as the basis for developing Standards for Rangeland Health and are as follows:

1. Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian/wetland, and aquatic components; soil and plant conditions support water infiltration, soil moisture storage, and release of water that are

in balance with climate and landform, and maintain or improve water quality, water quantity, and timing and duration of flow.

2. Ecological processes, including the hydrologic cycle, nutrient cycles, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.
3. Water quality complies with state water quality standards and achieves, or is making progress toward achieving, established BLM management objectives, such as meeting wildlife needs.
4. Habitats are, or are making significant progress towards being, restored or maintained for Federal threatened and endangered species, Federal proposed, Federal candidate, other special status species, native species, and for economically valuable game species and livestock.

By developing Standards and Guidelines based on the Fundamentals listed above, it is the BLM's intent to achieve the following:

1. Promote healthy, sustainable rangeland ecosystems that produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, wild horse and burro habitat, clean water, clean air, etc.
2. Accelerate restoration and improvement of public rangelands to properly functioning condition, where appropriate.
3. Provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy rangelands.
4. Ensure that BLM land users and stakeholders have a meaningful voice in establishing policy and managing BLM rangelands.

Standards and Guidelines

Standards are descriptions of the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- are measurable and attainable;
- comply with various Federal and state statutes, policies, and directives applicable to BLM rangelands; and
- establish goals for resource condition and parameters for management decisions.

Indicators are features of an ecosystem that can be measured or observed in order to gain an understanding of the relative condition of a particular landscape or portion of a landscape. Indicators will be used by the rangeland man-

ager to determine if Standards are being met. The indicators proposed for use are commonly accepted and used by members of the rangeland management profession in monitoring rangelands. Methods and techniques for evaluating these indicators are also commonly available. In using these terms, it should be recognized that not every indicator applies equally to every acre of land or to every ecological site. Additional indicators not listed below may need to be developed for some rangelands depending upon local conditions.

Similarly, because of natural variability, extreme degradation, or unusual management objectives, discretion will be used in applying Standards. Judgments about whether a site is meeting or failing to meet a Standard must be tempered by a knowledge of the site's potential. Site potential is determined by soil, geology, geomorphology, climate, and landform. Standards must be applied with an understanding of the potential of the particular site in question, as different sites have differing potentials.

Guidelines are management approaches, methods, and practices that are intended to achieve a Standard.

Guidelines:

- typically identify and prescribe methods of influencing or controlling specific public land uses;
- are developed and applied consistent with the desired condition and within site capability; and
- may be adjusted over time.

It should be understood that these Standards and Guidelines are to be applied in making specific grazing management decisions. However, it should also be understood that they are considered the minimum conditions to be achieved. Flexibility must be used in applying these policy statements because ecosystem components vary from place to place and ecological interactions may be different.

Standards and Guidelines used on BLM Land in the Dillon Field Office are described in the following pages.

STANDARD #1:

Uplands are in proper functioning condition.

This will be determined by:

- Erosional flow patterns;
- Surface litter;
- Soil movement by water and wind;
- Soil crusting and surface sealing;
- Compaction layer;
- Rills;
- Gullies;
- Cover amount; and
- Cover distribution

Biotic environment

- Community diversity;
- Community structure;
- Exotic plants;
- Photosynthesis activity;
- Plant status;
- Seed production;
- Recruitment; and
- Nutrient cycle.

The determination of rangeland health should be based on the evaluation of three criteria: degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms.

Indicators to assess soil stability and watershed function relate to two fundamental processes of watershed degradation: 1) Soil erosion by wind and water; and 2) infiltration or capture, and utilization of precipitation. Indicators such as rills, gullies, flow patterns, pedestaling and compaction, may be used to assess watershed condition.

Indicators that can be used to evaluate nutrient cycles and energy flows relate to distribution of plants, litter, roots, and photosynthetic period; i.e. plant community diversity and structure, exotic plants, photosynthetic activity and plant status.

Recovery mechanisms or plant demographic indicators may include increasing vegetative cover, plant vigor, kind and number of seedlings, and changes in plant age distribution.

Physical environmental features of a proper functioning watershed are indicated by:

- Little evidence of soil erosion by wind and/or water;
- Rills, gullies, pedestaling, flow patterns are not present (significant);
- Surface sealing and soil crusting is not evident;
- Plant (ground) cover and litter accumulation is adequate to protect site; and
- Natural disturbance events are integral to proper ecosystem function.

Biotic environment features of a proper functioning watershed are indicated by:

- Variety and number of plant life-forms (grass, forb, shrub, tree, succulent) across the site;
- Plants exhibit a good diversity of size, height, distribution, and age/class well distributed;
- Exotic plants, weeds are absent or sparse on site;
- Plants display normal growth and root development;
- Photosynthesis activity occurs throughout the site;
- Plants are alive, productive with well developed root systems;

- Seed stalks/seed adequate for stand maintenance for all life-forms;
- Litter distribution and incorporation is uniform across site; and
- Nutrient/energy cycle mechanisms are adequate for plant maintenance.

STANDARD #2:

Riparian and wetland areas are in proper functioning condition.

This will be determined by:

Hydrologic

- Flood plain inundated in relatively frequent events (1-3 years);
- Amount of altered streambanks;
- Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region);
- Riparian zone widening; and
- Upland watershed not contributing to riparian degradation.

Erosion Deposition

- Flood plain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy;
- Point bars are vegetating;
- Lateral stream movement is associated with natural sinuosity;
- System is vertically stable;
- Stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition); and
- Bare ground.

Vegetation

- Reproduction and diverse age structure of vegetation;
- Diverse composition of vegetation;
- Species present indicate maintenance of riparian soil moisture characteristics;
- Streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events;
- Utilization of trees and shrubs;
- Riparian plants exhibit high vigor;
- Adequate vegetative cover present to protect banks and dissipate energy during high flows; and
- Plant communities in the riparian area are an adequate source of large woody debris.

Broadly, “proper functioning condition” may be defined as the ability of a stream to perform its riparian functions. These

functions include sediment filtering, bank building, water storage, aquifer recharge, and hydrologic energy dissipation.

No single factor or characteristic of a riparian site can provide a complete picture of either that site’s condition or the direction of its successional change. Things considered “negative” in traditional evaluations of ecological sites may not be such for riparian sites. For example, the percent of exposed soil surface, which often reflects overgrazing or erosion on upland sites, may be a result of normal riparian activity; sediment deposition resulting after spring runoff, or a high water event.

Hydrology/Streambanks

The hydrology of a riparian area is perhaps its most important characteristic. Changes in hydrology may result in short and long-term vegetative changes. In some situations, construction (rip rap, roads, railroads, etc.) has influenced the streambanks and stability has been increased over the natural levels. These streambanks may eventually lose their stability, and become altered. This generally occurs if the problems which caused the weak streambanks have not been remedied. Also, constructed streambanks (especially those with rip rap) will often disrupt the normal energy dissipation of the stream and eventually the meandering of a stream can result in the erosion of streambanks downstream.

Lateral Cutting

Lateral cutting is indicated by new stream-caused bank disruption along the outside of stream curves, and much less commonly along the straight portions of a stream. A high degree of active lateral cutting can indicate a degraded watershed.

Altered Streambanks

In many instances, land uses have degraded streambanks, accelerating stream movement across the flood plain. We define altered streambanks as those having impaired structural integrity (strength or stability) due to human-caused activities such as exposed soil surfaces from cattle trails and wallows, hiking and ATV trails, roads, logging skid trails, mining activities, etc.

Deep Binding Root Mass

Properly functioning streambanks are “armored” by both vegetation and bank rock materials (e.g. boulders and cobbles). There have been few studies documenting the depth and extent of root systems of various plant species. Despite this lack of documented evidence, some generalizations can be made. All tree and shrub species are considered to have deep, binding root masses. Among riparian herbaceous species, the first rule is that annual plants do not

have deep, binding root mass qualities. Perennial species offer a wide range of root mass qualities. Some rhizomatous species, such as the deep-rooted sedges, are excellent streambank stabilizers. Other rhizomatous species such as Kentucky bluegrass, have only shallow root systems and are poor streambank stabilizers. Still others such as Baltic rush, appear to be intermediate in their ability to stabilize banks.

Downcutting

Active downcutting of a stream is often hard to recognize. Perched wetland vegetation and streambank features, plus the lack of a separate layer of channel bottom materials (i.e., the stream flows directly on the substrate material), can be clues to downcutting. A stream is incised when downcutting of the stream has resulted in a width to depth ratio so low that average 2-year floods do not come out of the banks.

Soils/Geology

The soils and geology (landform and parent material) of a riparian site influence how the site reacts to disturbances and changes over time. Changes in physical characteristics are often (but not always) more difficult to remedy through management actions than are vegetative changes. The depth and texture of soil, of a riparian site, influences the capacity of that site to hold water (act as a sponge) for prolonged late season flows and support desired vegetation.

Bare Ground

Exposed soil surface is important in evaluating the health of riparian areas for several reasons:

- Vulnerability to erosion;
- It may contribute to, as well as reflect, streambank deterioration;
- The more exposed soil, the less vegetation is available for soil protection and sediment entrapment; and
- Exposed soil provides opportunity for invasion by noxious weeds and undesirable species.

Vegetation

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health.

Reproduction of Trees and Shrubs

One of the clearest indicators of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists.

Dead and Decadent Trees and Shrubs

The amount of dead and decadent material in trees and shrubs is another indicator of the overall “health” of riparian areas. Large amounts of decadent and dead woody material may indicate fluctuations in climate, such as severe winter temperatures, spring freezes, or insect infestations. In all cases, the overall biotic health is effected and may have implications on physical features of a stream such as streambank integrity, channel incisement, and lateral cutting.

Utilization of Trees and Shrubs

Heavy utilization by livestock and/or wildlife can prevent the regeneration or establishment of woody species and thus block succession of the plant community toward a later seral stage. As with herbaceous species, excessive use of these woody species may cause their elimination from the site and their replacement by disturbance-induced species or undesirable invaders.

Plant Composition

The presence of disturbance-induced herbaceous plants (either native or introduced) may indicate that the site could be more healthy and thus is not performing its optimum riparian functions. Most of these species provide less soil holding and sediment trapping capability, and less desirable forage for livestock and wildlife.

STANDARD #3:

Water quality meets State standards.

This will be determined by:

- dissolved oxygen concentration;
- pH;
- turbidity;
- temperature;
- fecal coliform;
- sediment;
- color;
- toxins; and
- other parameters: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

When discussing rangeland health, water quality is a relative term which must be associated with water-use to become meaningful. Since the beginning of time, natural processes have influenced the chemical, physical, and biological characteristics of water. The natural quality of water varies from place to place, with the season of the year, with the climate, and with the kind of rock and soil through or-

ganic materials such as roots and leaves, and reacts with living things such as microscopic organisms like plankton and algae. Natural water quality is changed by stream sediments; it is modified by temperature, soil bacteria, and evaporation. These and other factors determine the quality of nature's "impure" water.

Water quality criteria specify concentrations of water constituents which, if not exceeded, are expected to support an aquatic ecosystem suitable for higher uses of water. Water quality criteria are intended to protect essential and significant life in water, as well as the direct users of water, and also to protect life that is dependent on life in water for its existence.

Some of the common indicators of water quality are:

- Dissolved oxygen concentration (DO) is a function of temperature of the water, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increases in temperature, altitude and dissolved solids. This is important in fish spawning areas where DO levels must be maintained at specific levels for good growth and general well being of fish and associated biota.
- pH (hydrogen-ion concentration) is an indicator of acidity and/or alkalinity and an index of hydrogen-ion activity. Lower values indicated acid, higher values indicated alkaline. Fresh water organisms function properly if the pH ranges from 6.0 to 9.0 units. pH concentrations below the recommended level are toxic to fish and other aquatic organisms.
- Turbidity is the disturbance of water due to the presence of suspended matter such as clays, silt, organic matter, and various effluents. It is the expression of the optical property of water. Excess turbidity reduces light penetration, which reduces photosynthesis by phytoplankton, and submerged vegetation.
- Temperature is an important function which affects aquatic productivity. Temperature changes may result from natural climatic conditions due to man's manipulation of the riparian environment. Temperature is a function of location, season, time, duration of flow, depth, and many other variables. Aquatic biota are adapted to certain thermal conditions existing in the habitat for their survival and well being. The interrelationship between these conditions is so great that small changes in temperature may have far-reaching effects.
- Coliform groups include bacteria organisms in their natural habitat and sources, i.e., feces, soil, water, vegetation, etc. Fecal coliform may be an indicator of recent fecal pollution. Other coliform organisms may be the result of plant and soil runoff water.
- Sediment is a measure of suspended sand, silt, colloid and organic matter which will settle in time to the stream

bottom. They originate from sources such as erosion, mine waste, plowed fields, construction projects, natural erosion, or vegetative manipulation. They may affect fisheries by covering the bottom of the stream or lake with a blanket of material that destroys the bottom fauna or spawning grounds for fish.

- Color is attributed to substances in solution after the suspensoid have been removed. It may be organic or inorganic substances that affect photosynthesis activity in the water. Organic substances include humic materials, peat, aquatic plants, etc. Inorganic sources include iron and manganese compounds, chemicals, industrial waste, etc.
- Toxins are those compounds or substances which are found in by-products or waste of the various industries or activities that make their way into water sources which produce a variety of effects of fish or alter the biological productivity of water sources.

Acceptable water quality is indicated by:

- Dissolved oxygen concentrations – DO concentrations are being maintained at or near saturation levels.
- pH concentrations are at or near recommended State levels.
- Turbidity readings do not exceed Jackson Turbidity Unit readings for the water source.
- Water temperature readings meet State standard preferred for good growth and productivity.
- Coliform – organisms of the coliform group do not exceed State standard.
- Sediment – water normally contains suspended solids that do not exceed State standard.
- Color – water color does not limit or significantly restrict photosynthesis processes.
- Toxins – levels are in conformance with State standard.

STANDARD #4:

Air quality meets State standards.

This will be determined by:

Section 176 (c) of the Clean Air Act, which states that activities of all Federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:

- Cause or contribute to any violation of ambient air quality standards;
- Increase the frequency of any existing violations; and
- Impede the State's progress in meeting its air quality goals.

Montana Air Quality Standards

PM-10	50 ug/m ³ annual ave. 150 ug/m ³ 24-hr. ave.*
Sulfur Dioxide	0.02 ppm annual ave. 0.10 ppm 24-hr. avg.* 0.50 ppm 1-hr. avg.**
Carbon Monoxide	23 ppm hourly avg.* 9.0 ppm 8-hr avg.*
Nitrogen Dioxide	0.05 ppm annual avg. 0.30 ppm hourly avg.*
Ozone	0.10 ppm hourly avg.*
Lead	1.5 ug/m ³ 90 day avg.
Foliar Fluoride	35 ug/g grazing season avg. 50 ug/g monthly avg.
Settled Particulate Matter (dustfall)	10mg/m ² 30-day avg.
Hydrogen Sulfide	0.05 ppm hourly avg.*
Visibility	particle scattering coefficient of 3x10 ⁻⁵ per meter annual average.***

* Not to be exceeded more than once per year.

** Not to be exceeded more than 18 times per year.

*** Applies to PSD mandatory Class I areas.

The Clean Air Act established the Prevention of Significant Deteriorations (PSD) regulations which set limits for increases in ambient pollution levels and established a system for preconstruction review of new major air pollution sources. Three PSD classes have been established: Class I, Class II, and Class III. Class I areas consist of all international parks, national parks greater than 5,000 acres, national wilderness areas greater than 5,000 acres, and national wildlife refuges which existed on August 7, 1977, when the amendment was signed into law.

Protection of air quality is provided to Class I areas by severely limiting the amount of additional human-caused air pollution which can be added. All other areas, except non-attainment areas, are classified as Class II in which a greater amount of additional human-caused pollution may be added. In no case, however, may pollutant concentrations exceed the National or State ambient air quality standards.

STANDARD #5:

Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including special status species.

This will be indicated by:

- Plants and animals are diverse, vigorous and reproducing satisfactorily, noxious weeds are absent or insignificant in the overall plant community;

- Spatial distribution of species is suitable to ensure reproductive capability and recovery;
- A variety of age classes are present;
- Connectivity of habitat or presence of corridors prevents habitat fragmentation;
- Diversity of species (including plants, animals, insects, and microbes) are represented; and
- Plant communities in a variety of successional stages are represented across the landscape.

BLM is charged with managing and developing habitat for a large variety of fish, wildlife, and special status species of plants. Basic habitat considerations can be categorized as including food, water, cover, and space. Specific habitat requirements often vary depending on what geographic area is being considered, species which are present, and the nature and extent of other uses which may be competing. A review of components of the above listed standards (Proper Functioning Riparian-Wetland areas, Uplands and Water Quality) will provide much of the requirements needed to achieve, fish, wildlife, and special status plant habitat.

Guidelines**GUIDELINE #1:**

Manage grazing to maintain or improve watershed vegetation, biodiversity, and flood plain function. Maintain or improve riparian vegetative cover and structure to trap and hold sediments during run-off events to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Promote deep-rooted herbaceous vegetation to enhance streambank stability. Where potential for woody shrub species (willows, dogwood, etc.) exists, promote their growth or expansion to aid in controlling access to streambanks, and to provide wildlife cover.

GUIDELINE #2:

Pastures and allotments will be periodically inventoried to determine their relative suitability for livestock grazing. Topography, slope, distance from water, or vegetation habitat types, wildlife, channel types, soil types, and other resource values must be considered when determining grazing potential. Specific areas could be excluded from grazing, fenced into separate management pastures, or managed more intensively.

GUIDELINE #3:

Management strategies for livestock grazing should produce sustainable hydrological, vegetative, and soil conditions. Thresholds for acceptable streambank alteration and vegetation utilization can be site-specific, and they should be the basis for establishing terms and conditions for allotments. These thresholds should be consistent with standards and

result from application of scientifically acceptable hydrological and biological principles. Each allotment must have a monitoring plan, and monitoring results should be critical input to grazing system design. Long-term analysis of trend shall be the primary monitoring information. Monitoring plans should address rangeland standards including hydrologic, vegetative, and soil conditions.

Long-term and short-term monitoring attributes may include:

Hydrologic

- Stream morphology; and
- Streambank alteration.

Vegetative

- Species composition;
- Plant density;
- Demographics;
- Stubble height; and utilization

Soils

- Percent bare ground;
- Compaction; and
- Pedestaling.

Self-monitoring by permittee should be encouraged, but with these sideboards:

- Permittee's data and BLM's data should be comparable;
- BLM must perform some level of compliance monitoring for each self monitored allotment to ensure the permittee's monitoring is being done and it is valid;
- There should be regular reporting of self-monitoring data; and
- When appropriate, monitoring should include the use of reference sites (such as exclosures).

Permittees and interested members of the public should be able to participate in the development of monitoring plans.

GUIDELINE #4:

Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities, should be designed and implemented to ensure that standards are achieved.

GUIDELINE #5:

The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, processes and native species of those sites.

GUIDELINE #6:

Locate facilities (e.g. corrals, water developments) away from riparian areas and wetlands when possible.

GUIDELINE #7:

Supplement salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas. Placement of salt in upland sites should consider critical winter wildlife habitat.

GUIDELINE #8:

Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical). Butte RAC has addressed weeds in a Resolution dated May 8, 1996.

GUIDELINE #9:

Native species are preferred. Non-native species, where contributing to proper ecosystem function, are acceptable.

GUIDELINE #10:

Livestock management should utilize Best Management Practices for livestock grazing that meet or exceed those approved by the State of Montana in order to maintain, restore or enhance water quality.

GUIDELINE #11:

Grazing management practices should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

APPENDIX B

BEST MANAGEMENT PRACTICES

The publications referenced in this appendix are sources of “Best Management Practices” (BMPs). BMPs are measures that have been developed by agency, industry, scientific, and/or working groups as voluntary methods for reducing environmental impacts associated with certain classes of activity. BLM typically uses these measures as guidelines or “project design features” during implementation planning at the activity and/or project-specific levels.

The list included in this appendix is not limiting, but references the most frequently used sources. As new publications are developed, BLM may consider those BMPs. In addition, many BLM handbooks (such as BLM Manual 9113-Roads and 9213-Interagency Standards for Fire and Aviation Operation) also contain BMP-type measures for minimizing impacts. These BLM-specific guidance and direction documents are not referenced in this appendix.

Planning implications: Use of Best Management Practices is not mandatory, since individual measures may not be appropriate for use in every situation. They may be added, dropped or modified through plan maintenance.

NEPA implications: Only the wind energy development BMPs have been analyzed in a NEPA process. The use of other BMPs should be analyzed on a case-by-case basis in NEPA documents associated with projects on the public lands. These case-by-case analyses should not “tier to” the BMP publication as a way to dismiss environmental impacts (i.e., must still analyze and disclose the environmental considerations and effects associated with use of the BMP).

Montana Best Management Practices for Grazing

Developed by: Working group with representation from: MSU College of Agriculture, Society of American Fisheries, Montana Stockgrowers Association, Montana Woolgrowers Association, USDI Bureau of Land Management, USDA Forest Service, USDA Natural Resources Conservation Service, Montana Farm Bureau, and Montana Dept. of Natural Resources and Conservation.

Publication reference: N/A, first printed in 1999

Available From: Conservation Districts Bureau, DNRC, PO Box 201601, Helena MT 59620-1601 (406-444-6667).

Description: Describes BMPs for livestock grazing designed to protect and enhance water quality, soils, plant communities, and other rangeland resources. Explains how and why to use BMPs to manage upland rangeland, forested rangeland, and riparian areas; and describes how grazing BMPs fit into a grazing management plan.

Water Quality BMPs for Montana Forests

Developed by: Montana State University Extension Service

Publication reference: EB158, 2001

Available From: MSU Extension Forestry, 32 Campus Dr, Missoula MT 59812, OR MSU Extension Publications, PO Box 172040 Bozeman MT 59717

Description: Discusses methods for managing forest land while protecting water quality and forest soils. Intended for all forest land in Montana, including non-industrial private, forest industry, and state or federally-owned forests. These are preferred (but voluntary) methods that go beyond Montana State Law (Streamside Management Zones). Includes definitions, basic biological information, and BMPs for Streamside Management Zones; road design, use, planning and locating, construction, drainage, and closure; stream crossings, soil, timber harvesting methods, reforestation, winter planning, and clean-up.

Montana Placer Mining BMPs

Developed by: Montana Bureau of Mines and Geology
 Publication Reference: Special Publication 106, October 1993
 Available from: Montana Bureau of Mines and Geology, Main Hall, Montana College of Mineral Science and Technology, Butte MT 59701
 Description: Provides guidelines for planning, erosion control, and reclamation in arid to semi-arid, alpine, and subalpine environments, to prevent or decrease environmental damage and degradation of water quality.

BMPs for Fluid Minerals

Developed by: Bureau of Land Management
 Publication reference: n/a
 Available from: Online at: <http://www.blm.gov/bmp/>. Also see Washington Office IM No. 2004-194.
 Description: Uses information sheets and PowerPoint presentations to demonstrate measures that can be used to decrease the effects of fluid mineral development on visual and wildlife resources. Some measures as presented as “applicable to nearly all circumstances,” and others are to be considered by individual field offices on a case-by-case basis. Also includes examples of proper and improper applications.

BMPs for Wind Energy

Developed by: Bureau of Land Management
 Publication reference: Draft Wind Energy Development Programmatic EIS (additional BMPs from the FEIS would also be incorporated)
 Available From: DEIS Chapter 2 (section 2.2.3.2) at <http://windeis.anl.gov/>
 Description: As part of the proposed action, BLM developed BMPs for each major step of the wind energy development process, including site monitoring and testing, plan of development preparation, construction, operation, and decommissioning. General BMPs are available for each step, and certain steps also include specific BMPs to address the following resource issues: wildlife and other ecological resources, Visual resources, Roads, Transportation, Noise, Noxious Weeds and Pesticides, Cultural/Historic Resources, Paleontological Resources, Hazardous Materials and Waste Management, Storm Water, Human Health and Safety, monitoring program, air emissions and excavation and blasting activities.

Montana Guide to the Streamside Management Zone Law

Note: The Montana Guide to the Streamside Management Zone Law is a field guide to compliance with State of Montana Law 77-5-301[1] MCA.

Developed by: Montana Department of Natural Resources and Conservation Service Forestry Bureau, in cooperation with Montana Department of Environmental Quality, Montana Logging Association, Montana Wood Products Association, Plum Creek Timber LP, USDA Forest Service, USDI Bureau of Land Management
 Publication reference: Revised August 2002
 Available From: Montana Department of Natural Resources and Conservation, 2705 Spurgin Road, Missoula MT 59801-3199, (406)542-4300, or local MT DNRC field office.
 Description: MT State Law (77-5-301[1] MCA). Complementary BMPs are found in the Water Quality BMPS for Montana Forests (also referenced in this appendix). Provides definitions, stream classifications, and guidelines on the seven forest practices prohibited by Montana law in SMZs (broadcast burning, operation of wheeled or tracked vehicles except on established roads, the forest practice of clearcutting, the construction of roads except when necessary to cross a stream or wetland; the handling, storage, application, or disposal of hazardous or toxic materials in a manner that pollutes streams, lakes, or wetlands, or that may cause damage or injury to humans, land, animals, or plants; the side casting of road material into a stream, lake, wetland, or watercourse; and the deposit of slash in streams, lakes, or other water bodies.

APPENDIX C

CULTURAL RESOURCES

Cultural Resource Use Categories

Taken from BLM MANUAL GUIDANCE – 8110.4
(see also IB No. 2002-101 – Cultural Resource Considerations in Resource Management Plans)

Categorizing Cultural Resources as to Uses

Categorizing cultural resources according to their potential uses is the culmination of the identification process and the bridge to protection and utilization decisions. Use categories establish what needs to be protected, and when or how use should be authorized. All cultural resources have uses, but not all should be used in the same way. Cultural resources can be allocated to the various recognized use categories even before they are individually identified. The clear advantage in doing this is that it allows Field Office managers to know in advance how to respond to conflicts that arise between specific cultural resources and other land uses. Relative to the national Programmatic Agreement, categorizing resources to uses provides a mechanism for the Field Office manager and the SHPO to confer and concur on how to handle most routine cases of conflict in advance, enabling the Field Office manager to put decisions into effect in the most appropriate and most timely manner.

Allocations to Use Categories.

Field Office managers shall allocate to appropriate use categories all cultural properties known and projected to occur in a plan area. Allocations are made in regional plans, local interdisciplinary plans, or project plans, as relevant and timely, and may be applied either to individual properties or to classes of similar properties. Appropriately qualified staff professionals recommend suitable uses for each cultural property or class of properties, considering the properties' characteristics, condition, setting, location, and accessibility, and especially their perceived values and potential uses. A cultural property may be allocated to more than one use category. When allocations have not been made in other planning decisions they should be made during the compliance process for land use authorizations, to allow Field Office managers to analyze needs and develop appropriate mitigation and treatment options. Allocations should be reevaluated and revised, as needed, when circumstances change or new data become available. Allocations should be consistent with historic context documents and State Historic Preservation Plans.

Definitions of Use Categories

A. Scientific Use. This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research tech-

niques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

B. Conservation for Future Use. This category is reserved for any unusual cultural property which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future.

C. Traditional Use. This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well-being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

D. Public use. This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the general public. The category may also be applied to buildings suitable for continued use or adaptive use, for example as staff housing or administrative facilities at a visitor contact or interpretive site, or as shelter along a cross-country ski trail.

E. Experimental Use. This category may be applied to a cultural property judged well-suited for controlled experimental study, to be conducted by BLM or others concerned with the techniques of managing cultural

properties, which would result in the property's alteration, possibly including loss of integrity and destruction of physical elements. Committing cultural properties or the data they contain to loss must be justified in terms of specific information that would be gained and how it would aid in the management of other cultural properties. Experimental study should aim toward understanding the kinds and rates of natural or human-caused deterioration, testing the effectiveness of protection measures, or developing new research or interpretation methods and similar kinds of practical management information. It should not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential, if it would significantly diminish those uses.

F. Discharged from Management. This category is assigned to cultural properties that have no remaining identifiable use. Most often these are prehistoric and historic archaeological properties, such as small surface scatters of artifacts or debris, whose limited research potential is effectively exhausted as soon as they have been documented. Also, more complex archaeological properties that have had their salient information collected and preserved through mitigation or re-

search may be discharged from management, as should cultural properties destroyed by any natural event or human activity. Properties discharged from management remain in the inventory, but they are removed from further management attention and do not constrain other land uses. Particular classes of unrecorded cultural properties may be named and described in advance as dischargeable upon documentation, but specific cultural properties must be inspected in the field and recorded before they may be discharged from management.

G. Relationship between Evaluation and Allocation. Cultural properties are evaluated with reference to National Register criteria for the purpose of assessing their historical values and their public significance. Such evaluations should be carefully considered when cultural properties are allocated to use categories and decisions are made regarding the appropriateness of National Register nomination and/or long-term preservation. Although preservation and nomination priorities must be weighed on a case-by-case basis, the following table can serve as a general guide to illustrate the relationship between National Register evaluation and allocation to use categories.

APPENDIX D

FIRE MANAGEMENT ZONE DESCRIPTIONS

BACKGROUND

The Dillon Field Office is located in the southwestern corner of Montana. It includes approximately 910,000 acres of BLM lands. Grasslands and shrubs are the most common landcover categories. About 280,300 acres or 31 percent of the public lands are considered grasslands. About 440,500 acres or 48 percent of the public lands are considered shrublands. About 168,800 acres or 19 percent of the public lands are considered forestlands. About 4,400 acres or less than 1 percent of the public lands are considered riparian areas. The remainder of the area is made up of barren areas such as exposed rock or badlands.

The Dillon Field Office contains 17 fire management zones. It also contains ten WSAs (Ruby Mountains, Blacktail Mountains, East Fork Blacktail Deer Creek, Hidden Pasture Creek, Bell/Limekiln Canyons, Henneberry Ridge, Farlin Creek, Axolotl Lakes, Centennial Mountains, and Tobacco Root Tack on (Section 202)), and one Wilderness Area (Bear Trap Canyon).

BEAVERHEAD/JEFFERSON AND MADISON VALLEY

Area description: The Beaverhead/Jefferson area is a corridor of private agricultural land along the Beaverhead and Jefferson rivers. The area along with the Madison Valley, includes approximately 937,524 acres (4 percent BLM, 11 percent state, and 85 percent private). The Beaverhead/Jefferson includes approximately 500,919 acres (4 percent BLM, 16 percent state, and 82 percent private). The Madison area includes approximately 475,492 acres (5 percent BLM, 2 percent Forest Service, 7 percent state, and 86 percent private).

Wildland fire occurrence: Between 1980 and 1999, federal agencies responded to 25 fires in the Beaverhead/Jefferson area which burned an estimated 4,568 acres. Average fire size was 182.7 acres. Federal agencies have responded to 33 fires in the Madison Valley which burned an estimated 5,960 acres. Average fire size was 180 acres.

Interface: The majority of the population base of Beaverhead and Madison Counties lives within these areas. A large percentage of Beaverhead River drainage is irrigated for agricultural crops. As a result, wildfire risk is normally low during the growing season. Some portions of the Madison River drainage are also irrigated for crops, but it contains more dry land areas susceptible to wildfire. It also has a rapidly

growing urban interface. However, no priority interface areas with hazardous fuels buildup on public lands have been identified in this area.

Area concerns and constraints: Fire is generally not desired due to large amounts of private land and rural subdivisions.

Fire objective: Wildland fire is not desired due to large amount of private land and agricultural production along the Beaverhead and Jefferson rivers.

BEAVERHEAD MOUNTAINS

Area description: This area runs along the Continental Divide and contains primarily high elevation heavy conifer fuel types. The area includes approximately 951,650 acres (3 percent BLM, 3 percent state, 28 percent private, and 66 percent FS). BLM lands constitute a minor amount of Federal ownership along the west side of the Big Hole Valley.

Wildland fire occurrence: Between 1980 and 1999, federal agencies responded to 90 fires which burned an estimated 320 acres. Average fire size was 3.5 acres.

Interface: The towns of Wisdom and Jackson are the main concentrations of housing and are in defendable areas from wildfire. The remainder of the area is sparsely populated with isolated ranch operations and associated out buildings. Typical urban interface situations are uncommon. No priority interface areas with hazardous fuels buildup on public lands have been identified in this area.

Area concerns and constraints: Unplanned fire is likely to cause negative effects. High recreation use due to Continental Divide Trail, contains a Scenic Byway, and it is a wildlife migration corridor which provides important security and hiding cover. This entire area provides potential/occupied lynx habitat. The Lynx Conservation Strategy may modify or constrain salvage harvest and/or prescribed fire to protect lynx denning habitat.

Resource objectives: Restore and maintain healthy forest ecosystems with stocking density control.

Fire objectives: The use of fire as a management tool would primarily be designed to reach vegetation management objectives described above. Unplanned fire is likely to cause negative effects. Prescribed fire and other fuels management may be used to avoid or mitigate adverse impacts of wildland fire.

BIG SHEEP/MEDICINE LODGE BACK COUNTRY BYWAY

Area description: This area is primarily a sagebrush/grass fuel type. The area includes approximately 96,128 acres (48 percent BLM, 6 percent state, 40 percent private, and 6 percent FS).

Wildland fire occurrence: Between 1980 and 1999, federal agencies responded to 14 fires which burned an estimated 3,720 acres. Average fire size was 266 acres.

Interface: Interface areas are mostly scattered ranches and associated structures. The Medicine Lodge interface area is really two separate low priority interface areas with hazardous fuels buildup on public lands. They have low population density, low escaped fire potential, low to medium potential for loss of life or property from wildland fire, and relatively low community support for treating hazardous fuels.

Area concerns and constraints: Unplanned fire is likely to cause negative effects. This area contains high levels of public use for recreation and a large amount of private land.

Resource objectives: Maintain healthy grass/sagebrush plant community.

Fire objectives: Limit the use of fire as a management tool due to limited BLM ownership and heavy recreation use. Unplanned wildland fire is likely to cause negative effects. Prescribed fire and other fuels management may be used to avoid or mitigate adverse impacts of wildland fire.

CENTENNIAL

Area description: This area consists of open sagebrush/grass with numerous wetlands. The south end contains dense stands of conifers to the Continental Divide. North end is sagebrush dominated foothills. Frequent past fires have reduced sagebrush canopy cover in key winter range areas. The area includes approximately 505,027 acres (27 percent BLM, 17 percent state, 36 percent private, 8 percent National Wildlife Refuge, and 9 percent FS). It also contains the Centennial Mountains WSA (27,691 acres) which accounts for about one fifth of the BLM acreage in this fire management area.

Wildland fire occurrence: Federal agencies responded to 41 fires which burned more than 7,800 acres. Average fire size was 190 acres. Between 1980 and 1998 BLM responded to 10 fires that averaged about 410 acres.

Interface: Communities include Dell, Lima, Monida and Lakeview. There are also ranches and outbuildings scattered

throughout the area. Two priority interface areas with hazardous fuels buildup on public lands are Lakeview and Alaska Basin. Lakeview is considered to have medium population density, low to medium escaped fire potential, low potential for loss of life or property, and medium community support for treating hazardous fuels. Alaska Basin has low population density, medium escaped fire potential, low potential for loss of life or property, and community support for reducing hazardous fuels is unknown.

Area concerns and constraints: Loss of livestock forage on adjoining private land, cultural concerns, implementation of the Gravelly Landscape Plan, and coordination with Red Rock Refuge. This unit supports significant wildlife use on seasonal habitat and migrational corridors. The Centennial Mountains provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and/or prescribed fire to protect lynx denning habitat. Significant interstate movement of sage grouse, elk, wolverine, grizzly bear and wolf through this area emphasizes the need to maintain seasonal habitat and travel corridors. Sagebrush habitat has been substantially fragmented by private land vegetation treatments.

Resource objectives: Resource objects are to maintain healthy grass/sagebrush communities in the non-forested areas. In the forested portion of the Centennial Mountains, restore forest health conditions as outlined in the Gravelly Landscape Analysis (GLA). Specifically, the GLA stated that 700 acres of aspen should be restored, and the drier Douglas-fir habitat types should be restored to a savannah structure. In areas of extensive lodgepole pine, fire should be the primary means of establishing age class mix. In areas of subalpine fir, treatment should emphasize areas where there is enough lodgepole pine intermixed to restore earlier seral conditions or where there is sufficient whitebark pine seed source to re-establish this important species.

Fire objectives: Fire, subject to the constraints listed above, is desired to help manage the ecosystem. Fire/other methods may be used to open dense timber stands in the southern portion to move succession back to an early seral stage with increased aspen growth and to reduce conifers in riparian areas. Limit fire in the north portion of the valley to protect crucial sagebrush winter range.

BLACKTAIL MOUNTAINS

Area description: Approximately half the area consists of dense conifer stands at the upper elevations. The other half is a sagebrush/grass fuel type. The area includes approximately 34,566 acres (61 percent BLM, 13 percent state, and 26 percent private). The Blacktail Mountains WSA (17,497 acres) makes up about 80 percent of the BLM acreage in this Fire Management Area.

Wildland fire occurrence: Between 1980 and 1999, federal agencies responded to eight fires which burned an estimated 350 acres. Average fire size was 43.7 acres.

Interface: There is one ranch and several “cow camps” and outbuildings in the area. No interface areas with hazardous fuels buildup on public lands were identified as a priority.

Resource objectives: Mechanical forest management treatments are incompatible with WSA policy guidance. Low intensity fire (either unplanned or planned ignition) may be used to reduce current stocking levels of overcrowded conifer stands and re-establish earlier seral conditions. The Blacktail Mountains are part of a larger area identified in the GLA. Resource and fire objectives for grass/sagebrush are addressed in the Blacktail/Horse Prairie section.

Fire objectives: Fire, subject to the constraints listed above, is desired to help manage the ecosystem. Fire/other methods may be used to open the canopy of dense stands of conifers and to reestablish an earlier seral stage. Fire may be used at the conifer/sagebrush interface to reduce encroachment of young conifers into sagebrush on approximately 1,500 acres/year. Fire may be used on up to 300 acres to restore decadent aspen stands to earlier successional stages and reintroduce Douglas-fir savannah structures.

TENDROY MOUNTAINS

Area description: Approximately 70 percent of the area is sagebrush/grass fuel type. The other 30 percent of the area has dense conifers. The area includes approximately 131,655 acres (40 percent BLM, 2 percent state, 8 percent private, 50 percent FS). Hidden Pasture Creek WSA (15,509 acres) and Bell/Limekiln Canyon WSA (9,650 acres) account for about 45 percent of the BLM acreage.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 13 fires which burned an estimated 56 acres. Average fire size was 4.3 acres.

Interface: There are several ranches and outbuildings scattered throughout the area. No interface areas with hazardous fuels buildup on public lands were identified as a priority.

Area concerns and constraints: Protect remnant stands of Mountain Mahogany, protect scenic byway on west and south ends. Portions of the Tendroy Mountains provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and or prescribed fire to protect lynx denning habitat. The presence of major elk winter and calving ranges, and sage grouse breeding complexes and winter habitat emphasize the need to protect sagebrush habitat and security cover.

Resource objectives: Maintain healthy grass/sagebrush communities and restore forest health conditions in the Tendroy Mountains.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Fire/other methods may be used on up to 500 acres to maintain the current interspersion of habitat types. Fire is desirable to restore Aspen and Bitterbrush communities.

BLACKTAIL/HORSE PRAIRIE

Area description: This area is primarily an open sagebrush/grass fuel type. It contains small isolated timber stands in low to mid elevation foothills. The area includes approximately 593,283 acres (40 percent BLM, 19 percent state, 39 percent private, 1 percent FS, and 1 percent Bureau of Reclamation). The Henneberry Ridge WSA (9,806 acres) accounts for less than five percent of the BLM acreage.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 26 fires which burned an estimated 14,300 acres. Average fire size was 548 acres. An estimated 5 percent of the area has burned since the early 1980s.

Interface: The town of Grant contains the main concentrations of housing and is in a defendable area from wildfire. The town has low population density, escaped fire potential is considered low, and the potential for loss of life or property is considered low. Community support for hazardous fuels reduction actions is considered low. The remainder of the area is sparsely populated with isolated ranch operations and associated outbuildings. Interface situations are uncommon. Donovan Ranch was identified as an interface area with low population density, low potential for escaped fire, and low potential for loss of life or property. Community support for actions to reduce hazardous fuels is unknown.

Area concerns and constraints: Adjoining private lands limit fire management opportunities and require close coordination and consultation with landowners. The Horse Prairie area supports several major sage grouse breeding complexes, antelope and elk winter habitat. Sagebrush habitats also support several sensitive sagebrush-dependant species. Significant areas of sagebrush habitat have been fragmented, modified or converted by vegetation treatments. Areas adjoining Beaverhead-Deerlodge National Forest provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and/or prescribed fire to protect lynx denning habitat.

Resource objectives: Maintain existing grass/sagebrush cover on public lands. Arrest the loss of this habitat to Douglas-fir encroachment where it interfaces with Douglas-fir habitat types on sagebrush lands east of Interstate 15.

Fire objectives: Fire, subject to the constraints listed above, may be used to help manage the ecosystem. Protect sagebrush communities due to high diversity of sagebrush-dependant wildlife species.

SWEETWATER/RUBY

Area description: Approximately 70 percent of this area is sagebrush/grass fuel type. The remaining 30 percent consists of mixed conifer fuel type. The area includes approximately 295,336 acres (27 percent BLM, 27 percent state, 46 percent private). The East Fork Blacktail Deer Creek WSA (6,230 acres) accounts for about seven percent of the BLM acreage.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 26 fires which burned an estimated 8,400 acres. Average fire size was 321.5 acres. An estimated 25 percent of the sagebrush areas have burned since the early 1980s.

Interface: The area is sparsely populated with isolated ranch operations and associated outbuildings. Interface situations are uncommon. No interface areas with hazardous fuels buildup on public lands were identified as a priority.

Area concerns and constraints: Limit fire in sagebrush areas not being affected by Douglas-fir encroachment. Limit wildfire on the Blacktail Game Range in the southeast portion of the area. Sagebrush habitats supporting sage grouse breeding complexes, and sage grouse and antelope seasonal use have been fragmented and modified by vegetation treatments in Sweetwater Basin.

Resource objectives: Limit additional wildland and prescribed fire in the grass/sagebrush vegetation type on public lands for the next five years. Use of fire in the conifer vegetation types as opportunities permit would be beneficial by creating earlier seral conditions in these stands. NOTE: Gravelly Landscape Analysis objectives across all public lands in the Ruby Mountains recommended treating 400 acres of aspen, 6,600 acres of sagebrush/year, and 1,000 acres of grass, all over 10 years.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Protect sagebrush communities due to high diversity of sagebrush-dependant wildlife species. Limit the amount of fire on public grasslands (primarily composed of sagebrush) due to past fires and sagebrush control on private and public lands.

TOBACCO ROOT MOUNTAINS

Area description: Public lands in this unit are primarily on the outside fringe of the Tobacco Root Mountain Range. Approximately 50 percent of this area is sagebrush/grass fuel type. The remaining 50 percent consists of mixed conifer fuel type. The area includes approximately 289,867 acres (10 percent BLM, 2 percent state, 29 percent private, 59 percent FS).

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 42 fires which burned an estimated 1,800 acres. Average fire size was 42.5 acres.

Interface: The town of Pony and growing subdivisions are relatively common along the east and southern flanks of the Tobacco Root Mountains. These are commonly intermixed with public lands. Interface is also increasing on private lands along the the Tobacco Root Mountains. South Meadow Creek and Strawberry Ridge are interface areas near the Tobacco Root Mountains. South Meadow Creek is considered to have low population density, medium escaped fire potential, low potential for loss of life or property, and medium level of community support for hazardous fuel reduction actions. Strawberry Ridge is considered to have low population density, low to medium escaped fire potential, low potential for loss of life or property, and medium level of community support for hazardous fuel reduction actions.

Area concerns and constraints: Limit fire along the south and east borders due to development of subdivisions. Major elk and mule deer winter habitat surrounds much of this unit on public and private lands. Maintaining seasonal habitats and security cover is a concern. Portions of the Tobacco Root Mountains provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and or prescribed fire to protect lynx denning habitat.

Resource objectives: Reintroduction of fire is desired along the west flank of the Tobacco Root Mountains where Rocky Mountain Juniper and Douglas-fir are encroaching and beginning to dominate both riparian areas and former grass/sagebrush areas. Forest health issues such as overstocked stands and associated loss of vigor would also be rectified by use of mechanical thinning and recycling of nutrients by fire.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Fire/other methods may be used to restore dense timber stands to earlier seral stages and to open dense juniper stands, particularly in riparian areas.

GRAVELLY MOUNTAINS

Area description: Public lands in this unit are primarily on the Northern fringe of the Gravelly Mountain Range. Approximately 30 percent of this area is sagebrush/grass fuel type. The remaining 70 percent consists of mixed conifer fuel type. The area includes approximately 556,577 acres (6 percent BLM, 4 percent state, 13 percent private, 77 percent FS). The Axolotl Lakes WSA (7,804 acres) accounts for about one-fifth of the BLM acreage.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 52 fires which burned an estimated 1,500 acres. Average fire size was 28.3 acres.

Interface: The Alder Gulch Historic Mining District lies in the area's northern portion and there is increasing subdivision activity along the eastern portion of the area. Summit-Alder Gulch is considered to have medium to high population density, low to high escaped fire potential, low to medium potential for loss of life or property, and medium level of community support for hazardous fuel reduction actions.

Area concerns and constraints: These areas could be difficult to defend in a major wildfire event due to the prevailing wind direction. Significant elk and mule deer seasonal habitat and winter ranges occur in this unit, along with increasing use by grizzly bear and wolf. Locations of game ranges and winter sagebrush habitat. Areas adjoining Beaverhead-Deerlodge National Forest provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and or prescribed fire to protect lynx denning habitat. As a result of these concerns specific fire suppression decisions or prescribed fire opportunities will be made on a case-by-case basis with management staff input via a Resource Advisor.

Resource objectives: These are a direct outcome of the Gravelly Landscape Analysis completed in September 1999. These vegetation objectives are recommendations for all the public ownership and are the direct outcome of Desired Future Condition of vegetation tempered by public input over a 3 year process. Both fire and mechanical treatments could be used to achieve the following objectives across all public ownerships over a ten year period: 1) Restore 4,400 acres of Aspen/year, 2) Restore Douglas-fir savannah, multiple age lodgepole pine classes and promote whitebark pine in the subalpine fire habitat type group, and 3) Maintain a mix of sagebrush age classes through time by treating 2,800 acres/year.

Fire objectives: Fire, subject to the constraints listed above, is desired to help manage the ecosystem. Fire/other methods may be used to restore dense timber stands to earlier seral stages and to open dense stands of conifers.

EAST MADISON

Area description: The area is primarily the foothills on the west slope of the Madison Mountain Range. It consists of a scattered grass/timber fuel type and is characterized by steep terrain and topography. The area includes approximately 319,799 acres (3 percent BLM, 1 percent state, 24 percent private, 72 percent FS). The majority of the BLM ownership is in the northwest portion of this area in the Beartrap Wilderness Area. The remaining BLM land is in the southwestern portion of the area and are scattered tracts intermingled with larger private land and Forest Service lands. The Bear Trap Canyon WA (6,000 acres) makes up 54 percent of the BLM acreage in this area.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 70 fires which burned an estimated 8,000 acres. Average fire size was 114 acres.

Interface: Interface with private lands is high in the east portion of the Madison Valley. However, no interface areas with hazardous fuels buildup on public lands were identified as a priority.

Area concerns and constraints: The Lee Metcalf and the Bear Trap WSAs restricts the use of mechanical earthmoving equipment. Due to the configuration of BLM lands with other ownerships and the generally "flashy" fuels, use of prescribed "natural" fire is extremely difficult.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Fire/other methods may be used to restore dense timber stands to earlier seral stages and to open dense stands of conifers.

SE FOOTHILLS

Area description: The area is south of the Pioneer Mountain Range. About 70 percent consists of a scattered grass/timber fuel type and the remaining 30 percent is conifer type consisting mainly of Douglas-fir, juniper, and limber pine. The area includes approximately 199,154 acres (45 percent BLM, 6 percent state, 33 percent private, 16 percent FS). The Farlin Creek WSA (1,139 acres) is adjacent to the 93,859 acre Forest Service East Pioneer proposed wilderness. The Farlin Creek WSA accounts for only one percent of the BLM acreage in the area.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 30 fires which burned an estimated 803 acres. Average fire size was 26.7 acres.

Interface: The townsites of Argenta and Polaris as well as growing subdivisions are found within the area. Argenta is

considered to have medium population density, low escaped fire potential, low potential for loss of life or property, and medium level of community support for hazardous fuel reduction actions. Birch Creek is also an nearby intermix area that is considered to have low population density, medium escaped fire potential, low potential for loss of life or property, and an unknown level of community support for hazardous fuel reduction actions.

Area concerns and constraints: A FS wilderness proposal in the northern part of the area may influence suppression efforts. Major elk and mule deer winter habitat surrounds much of this unit on public and private lands. Maintaining seasonal habitats and security cover is a concern. Portions of the Pioneer Mountains provide potential/occupied lynx habitat. The lynx Conservation Strategy may modify or constrain salvage harvest and or prescribed fire to protect lynx denning habitat. Sagebrush habitat on the south end of the unit supports sage grouse breeding and winter. Past sagebrush treatments and habitat fragmentation have reduced habitat availability and suitability. As a result of these concerns specific fire suppression decisions or prescribed fire opportunities will be made on a case by case basis with management staff input via a Resource Advisor.

Planning guidance: Specific vegetation goals and objectives were developed in the PLA (Pioneer Landscape Analysis).

Resource objectives: On Federal lands, the restoration of 25 percent (or 9,000 acres) of Douglas-fir savannah, reduction of 1/3 or 2,000 acres of Douglas-fir encroachment into sagebrush, restoration of aspen, Mountain Mahogany and riparian communities were all objectives outlined in the PLA.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Use fire/other methods to limit the encroachment of Douglas-fir into existing sagebrush stands, to restore and improve stands of aspens (especially in drainages), and to change dense Douglas-fir stands back to savannah type communities.

PIONEER MOUNTAINS

Area description: The area includes the Pioneer Mountain range with the majority of lands in this zone administered by the Forest Service. The area is bisected from north to south by the Pioneer Mountains Scenic Byway. Forest types include lodgepole pine, dry site Douglas-fir, spruce with subalpine fir, and whitebark pine. The area includes approximately 558,567 acres (with less than 1 percent BLM, 2 percent state, 6 percent private, 91 percent Forest Service). BLM ownership is limited to small parcels of public land adjacent to Forest Service lands on the west face of the Pioneers.

Wildland fire occurrence: Not discussed due to limited amount of BLM land in this zone.

Interface: Interface situations are uncommon. No interface areas with hazardous fuels buildup on public lands were identified as a priority. The few scattered tracts of BLM lands adjacent to Forest Service lands on the west face lie several miles east of valley communities.

Area concerns and constraints: Wilderness Study Areas on Forest Service lands and the presence of the Pioneer Mountains Scenic Byway may influence suppression efforts. The forest interior provides secure habitat for carnivores like lynx and wolverine, which could constrain activities. Preserving the less developed character of the West Face may be an expectation of residents of the Big Hole Valley, and tourists visiting there.

Fire objective: Fire, subject to constraints, may be desired to help managed the ecosystem.

MCCARTNEY/ROCHESTER (ALSO IN THE BUTTE FIELD OFFICE)

Area description: The area is east of the Pioneer Mountain Range. About 70 percent consists of a scattered grass/timber fuel type and the remaining 30 percent is conifer type consisting of Douglas-fir, juniper, and limber pine. The area includes approximately 184,154 acres (47 percent BLM, 5 percent state, 37 percent private, and 11 percent FS). The area is also characterized by numerous roads from past mining activities.

Wildland fire occurrence: Between 1978 and 1999, federal agencies responded to 64 fires which burned an estimated 2,280 acres. Average fire size was 35.5 acres. Prescribed fires have been used on 2,000 acres in the McCarthy Mountain area since the 1980s.

Interface: This area contains isolated ranches, the community of Glen, and several fishing-related commercial operations.

Area concerns and constraints: The Humbug Spires WSA restricts the use of mechanical equipment. Fire management should be coordinated with the Forest Service. Protection of cultural resources (mining related) and private property requires careful consideration and consultation. The protection of mining-related cultural resources and private property are also concerns.

Resource objectives: Maintain/enhance lodgepole pine communities for a variety of size and age classes and stand structure. Protect the wilderness character of Humbug Spires WSA. Objectives would be similar to the Southeast Foot-

hills where aspen, Douglas-fir encroachment and Mountain Mahogany opportunities permit.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Prescribed fire/other methods may be used to limit conifer encroachment into the McCarthy Mountain area.

BIG HOLE RIVER CORRIDOR (ALSO IN THE BUTTE FIELD OFFICE)

Area description: About 50 percent consists of open sagebrush/grass parks. Another 45 percent is Douglas-fir. Mountain mahogany is scattered throughout the area occurring on steep-rocky south and west facing slopes. Much of this is overtopped by Douglas-fir. The remaining 5 percent of the area contains drainages dominated by lodgepole pine. The area is characterized by steep topography and close proximity to the highway. The area includes approximately 47,729 acres (15 percent BLM, 3 percent state, 16 percent private, 66 percent FS). The area is also characterized by numerous roads from past mining activities.

Wildland fire occurrence: From 1978 to 1999, federal agencies have responded to 34 fires which burned an estimated 463 acres. Average fire size was 13.6 acres.

Interface: Both individual home site development and subdivision activity are increasing. No interface areas with hazardous fuels buildup on public lands were identified as a priority.

Area concerns and constraints: Steep topography and proximity to the highway and private land limits suppression options.

Resource objectives: Objectives would be similar to the Southeast Foothills where aspen, Douglas-fir encroachment and Mountain Mahogany opportunities permit.

Fire objectives: Fire, subject to the constraints listed above, may be desired to help manage the ecosystem. Fire/other methods may be used to limit the encroachment of Douglas-fir into open sagebrush parks and areas of mountain mahogany.

NORTH RUBYS

Area description: Consists of dense stands of Douglas-fir. Terrain is very steep. The area consists of approximately 24,226 acres in and around the Ruby Mountains WSA (57 percent BLM, 7 percent state, and 36 percent private).

Wildland fire occurrence: No fires have been reported in this area. However, forest mosaic stands indicate a history of multiple stand replacement fires.

Interface: There is little interface within the Ruby Mountains WSA. Private agricultural and forestlands surround the WSA along the southeast border. Agricultural land, much of which is irrigated during the growing season, surrounds the rest of the BLM lands.

Area concerns and constraints: Fire control would be difficult due to poor access and steep terrain. Watershed damage and erosion could be concerns with large fires.

Resource objectives: The GLA recommended restoring 200 acres of aspen over 10 years, restoring 2,000 acres of sagebrush being lost to Douglas-fir encroachment and restoring Douglas-fir savannah stands by killing the competing understory of conifers.

Fire objectives: Generally fire/other methods are desired to open dense conifer stands and to reduce heavy fuels.

APPENDIX E

EMERGENCY STABILIZATION AND REHABILITATION PROCEDURES

INTRODUCTION

The purpose and need of a normal fire rehabilitation plan is to streamline the emergency fire rehabilitation process to enable on-the-ground treatments to be completed within time frames consistent with the urgent nature of fire rehabilitation. The normal fire rehabilitation plan facilitates the orderly and timely rehabilitation of burned lands by delineating the procedures to be followed and treatments to be used after wildland fires that occur on the DFO.

Appropriate use of emergency fire rehabilitation funds includes implementing the following practices to:

- Protect life, property, and soil, water and/or vegetative resources.
- Prevent unacceptable onsite or offsite damage.
- Facilitate meeting land use plan objectives and other Federal laws.
- Reduce the invasion and establishment of undesirable or invasive species of vegetation.

Emergency fire rehabilitation funds are not used for rehabilitation of wildland fire suppression efforts; this includes rehabilitating firelines, helispots, fire camp, etc. Costs for rehabilitating wildland fire suppression efforts will be funded by the wildland fire project code.

The terms *rehabilitation* and *restoration* are often used synonymously, especially in relationship to the use of native species to revegetate burned areas. Rehabilitation is the “repair” of a wildland fire area utilizing native and/or nonnative plant species to obtain a stable plant community that will protect the burned area from erosion and invasion of weeds. Restoration is the use of a diverse mixture of only native species to obtain a plant community that is similar in appearance and function to the historic vegetation.

Total restoration of a burned area is not within the scope of the emergency fire rehabilitation program, although the use of native plants to rehabilitate burned areas is strongly encouraged. Native plants are to be used on those soils and ecological sites where they are, (1) adapted, (2) able to establish and survive with weed competition and periodic drought; (3) compatible with other land uses, and (4) reasonably priced relative to the land use and emergency fire rehabilitation plan objectives. The application of emergency fire rehabilitation practices should be consistent with the S&G’s in as much as the constraints of emergency fire rehabilitation policy will allow.

This plan guides emergency wildland fire rehabilitation efforts in areas of the DFO that meet one or more of the following criteria:

- Areas that are highly susceptible to accelerated soil erosion, either because of soil characteristics, steep topography, or recurrent high winds.
- Areas where native grasses and forbs cannot reasonably be expected to provide soil and watershed protection within two years following fire.
- Areas where unacceptable vegetation, such as noxious weeds or invasive annuals, may readily invade and become established following fire.
- Areas where shrubs are a crucial wildlife habitat component for greater sage-grouse, mule deer, elk, and pronghorn.

The process for implementing emergency fire rehabilitation activities through a site-specific plan development process is described as follows:

- 1) Following a wildland fire, the area manager, consulting with resource specialists, will decide if fire rehabilitation is needed. If fire rehabilitation is needed, an interdisciplinary team reviews the burn and selects the proper rehabilitation prescription from this plan. (If the proper prescription does not fall under the scope of this plan, refer to the “Emergency Fire Rehabilitation Handbook” [H-1742-1] for guidance. Generally, rehabilitation efforts not covered in this plan would require an environmental assessment.)
- 2) The prescription identifies the appropriate seed mixture, application rates, planting methods, and costs. The prescription also describes any additional treatments that may be necessary including shrub planting, erosion control structures, protection fencing, and grazing adjustments beyond the normally prescribed minimum two growing seasons rest period.
- 3) A budget is created that summarizes the rehabilitation costs by fiscal year. This budget is sent to the State Director for funding approval.
- 4) For all rehabilitation projects covered by this plan, a site-specific rehabilitation plan will be prepared that is tiered to this plan. Additionally, each rehabilitation project requires a normal fire rehabilitation plan treatment form.
- 5) Cultural and T&E species clearances will be completed prior to project implementation. Known populations of

T&E plants will be marked and that area restricted from heavy equipment use. Cultural sites discovered during clearances or previously known sites will be marked and avoided by ground disturbing equipment.

Due to the broad spectrum of situations encountered in emergency fire rehabilitation, several options of possible treatments, either separately or in combination, must be considered. The list of activities that may be considered are outlined below.

NATURAL REVEGETATION

In many cases, successful reestablishment of native species occurs if the perennial plant species are not killed as a result of the fire, or if viable and desirable seed or root mass is present. Generally, in these areas it would be necessary to rest the burned area from livestock grazing for at least two growing seasons. In some situations, the area may be closed to vehicles by issuing a temporary emergency closure. The only rehabilitation that may be necessary is repairing damaged fencing and/or construction of temporary fencing around the burned area until the native vegetation is successfully reestablished.

SEEDING WITH RANGELAND DRILLS OR AERIAL SEEDING

Seeding of burned areas would only be considered if the emergency fire rehabilitation team determines that the burned area would not successfully reestablish to a native perennial plant community in a reasonable amount of time (generally two growing seasons under normal precipitation). Seed mixtures should be designed for specific soil types. Parameters such as soil properties, erosion potential, aspect, elevation, intended use, potential plant community, threat to existing watershed, and seed cost and availability would be evaluated in selecting seed mixtures.

The use of native plants for rehabilitation is strongly encouraged and is both BLM emergency fire rehabilitation policy and a standard for meeting rangeland health objectives. That policy is tempered, however, by the availability of native seed at a reasonable cost, its adaptation to the area proposed for treatment, impacts of competition on seeding establishment, and land use plan requirements. There are many areas where one or more of these criteria cannot be met, and the only choice is between seeding nonnative, such as crested wheatgrass and noxious weeds becoming established in the disturbed areas. Given these situations, the use of nonnatives is allowed to biologically and physically stabilize the burned area until the earliest possible time when

the introduced grass seedlings can be restored (converted) to a more diverse native plant community. Where available, native seed should be used in combination with nonnatives to complete a diverse mix of species to meet particular land use objectives for the site.

Seeding guidelines:

- Native species will be utilized over nonnative species as appropriate and based on seed availability.
- A project inspector will monitor all phases of implementation.
- The area to be seeded will be rested from grazing for at least two growing seasons or until vegetation is successfully established. Livestock will be excluded by using fencing, closing specific pastures, or closing entire allotments.
- Only native species will be seeded in WSAs.
- Monitoring will determine the effectiveness of seeding and to indicate when grazing will resume.
- Use only certified weed-free sources and collect seed samples for an All States Noxious Weed Test. Seed nonnatives only in areas of the burn where high erosion or unacceptable vegetation is expected to occur. This may include, but not be limited to, roads, gullies, noxious weed areas, or cheatgrass sites. This will allow refugia for native species where they can reestablish without competition from nonnative species.
- If nonnative species are used, a preference should be given to species that are not invasive and can be replaced naturally by native shrubs and grasses. If this is inappropriate or is ineffective, a commitment should be made for long-term secondary restoration of a site following planting of nonnatives.

CONSTRUCTION OF EROSION AND SEDIMENT CONTROL STRUCTURES

Where the possibility of damage is great, structures, such as retention dams, or land treatments, such as contour furrowing, may be needed to control erosion, sediment yield, and flood waters. In most cases, these treatments would be used in combination with seeding. Gully check dams or plugs may be required where headcutting erosion is occurring. Gully treatment may also include broadcast seeding and chaining to establish perennial vegetation on the channel sides and bottom. Planning, design, and construction of erosion and sediment control structures and flood water retarding structures will be implemented in accordance with BLM Manual 1972, Water Control Structures. Any erosion and sediment control structures proposed within a WSA must comply with wilderness IMP.

CONSTRUCTION OF SUPPORT FACILITIES

Fences, gates, cattle guards, and other control features will be constructed or repaired as needed to further natural revegetation, and to protect seedings or other improvements created for rehabilitation. Follow BLM Manual Handbook H-1741-1 for fencing specifications. Any construction of support facilities proposed within a WSA must comply with wilderness guidelines.

FIRE REHABILITATION GUIDELINES FOR WILDERNESS STUDY AREAS

Rehabilitation following wildland fire in a WSA will comply with wilderness IMP (H-8550-1). When a proposed rehabilitation project addresses an area covering land both within and outside a WSA, it will be treated as two separate projects. The area outside the WSA will be treated in accordance with this guide. The area inside the WSA will be treated in accordance with the wilderness IMP referenced above.

Interested parties will be allowed a 30-day comment period on the proposed treatment in WSAs, unless it is not possible to do so because of emergency conditions (i.e., the 30-day comment period would result in missing the optimum period for treatment). If a full 30-day period would result in missing the optimum period for rehabilitation, key contacts would be notified for immediate comment, and a follow up copy of the treatment prescription would be forwarded.

Disturbance caused by fire suppression actions will be evaluated in WSAs. If it is determined that wilderness suitability is affected by the fire suppression disturbance, mitigation of the disturbance will occur prior to release of suppression resources. Costs associated with mitigating suppression actions will be covered by wildland fire suppression funds, not emergency fire rehabilitation funds.

The “minimum tool” will be applied to all fire rehabilitation projects within WSAs. Any rehabilitation actions must maintain an area’s suitability for preservation as wilderness. Fire rehabilitation should be accomplished using methods and equipment that causes the least damage to wilderness resources. The use of motorized vehicles and mechanical equipment will be minimized to the extent possible.

The appropriate species and methods for seeding will be considered on a case-by-case basis to determine if the proposed method meets the policy and guidelines for WSAs. Seed and planting will utilize native species, and will minimize cross-country use of motorized equipment. Seedings and plantings will be staggered or irregular so as to avoid a straight-line plantation appearance. Seed will be applied aurally unless the area to be rehabilitated is small, or ground application will not impair wilderness characteristics. Because the covering of seed greatly affects its successful germination, mechanized equipment may be considered to cover the seed after aerial application. If the burned area is determined to be crucial wildlife habitat, and shrub seed is not applied aurally, then seedlings may be hand planted.

APPENDIX F
BIOLOGICAL EVALUATION FORM

Short Form Biological Evaluation for Special Status Fish and Wildlife Species

Project:

Step 1a. List of all Special Status Species that are known or suspected to occur on the DFO*	Step 1b. Current Management Status of the Species.	Step 1c. Does the species occur on this portion of the Field Office?	Step 2 Is the species or its habitat found in the greater Affected Area?	Step 3. Could this proposal have any effect?	Step 4. Are Irreversible or Irrecoverable Resources involved?	Step 5. Alt 1 level of effect	Step 5. Alt 2 level of effect	Step 5. Alt 3 level of effect	Step 5. Alt 4 level of effect
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Threatened (MT); up for delisting								
Canada Lynx (<i>Lynx canadensis</i>)	Threatened								
Gray Wolf (<i>Canis lupus</i>)	Threatened, experimental								
Grizzly Bear (<i>Ursus arctos horribilus</i>)	Threatened (MT)								
Fluvial arctic grayling (<i>Thymallus arcticus</i>)	Candidate								
Fisher (<i>Martes pennanti</i>)	Sensitive								
North American Wolverine (<i>Gulo gulo luscus</i>)	Sensitive								
Northern Bog Lemming (<i>Synaptomys borealis</i>)	Sensitive								
Preble's Shrew (<i>Sorex preblei</i>)	Sensitive								
Pygmy Rabbit (<i>Brachylagus idahoensis</i>)	Sensitive								
Townsend's Big-eared Bat (<i>Plecotus townsendii</i>)	Sensitive								

Short Form Biological Evaluation - Page 2 of 5

Step 1a. List of all Special Status Species that are known or suspected to occur on the DFO	Step 1b. Current Management Status of the Species.	Step 1c. Does the species occur on this portion of the Field Office?	Step 2 Is the species or its habitat found in the greater Affected Area?	Step 3. Could this proposal have any effect?	Step 4. Are Irreversible or Irrecoverable Resources involved?	Step 5. Alt 1 level of effect	Step 5. Alt 2 level of effect	Step 5. Alt 3 level of effect	Step 5. Alt 4 level of effect
Baird's Sparrow (<i>Ammodramus bairdii</i>)	Sensitive								
Black-backed Woodpecker (<i>Picoides arcticus</i>)	Sensitive								
Black Tern (<i>Chlidonias niger</i>)	Sensitive								
Boreal Owl (<i>Aegolius funereus</i>)	Sensitive								
Burrowing Owl (<i>Athene cunicularia</i>)	Sensitive								
Columbian Sharp-tailed Grouse (<i>Pedioecetes phasianellus</i>)	Sensitive								
Common Loon (<i>Gavia immer</i>)	Sensitive								
Canvasback duck (<i>Aythya valisneria</i>)	Sensitive								
Ferruginous Hawk (<i>Buteo regalis</i>)	Sensitive								
Flammulated Owl (<i>Otus flammeolus</i>)	Sensitive								
Great Gray Owl (<i>Strix nebulosa</i>)	Sensitive								
Hairy woodpecker (<i>Picoides villosus</i>)	Sensitive								
Harlequin Duck (<i>Histrionicus histrionicus</i>)	Sensitive								
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Sensitive								

Short Form Biological Evaluation - Page 3 of 5

Step 1a. List of all Special Status Species that are known or suspected to occur on the DFO	Step 1b. Current Management Status of the Species.	Step 1c. Does the species occur on this portion of the Field Office?	Step 2 Is the species or its habitat found in the greater Affected Area?	Step 3. Could this proposal have any effect?	Step 4. Are Irreversible or Irretrievable Resources involved?	Step 5. Alt 1 level of effect	Step 5. Alt 2 level of effect	Step 5. Alt 3 level of effect	Step 5. Alt 4 level of effect
Long-billed Curlew (<i>Numenius americanus</i>)	Sensitive								
Mountain Plover (<i>Charadrius montanus</i>)	Sensitive								
Northern Goshawk (<i>Accipiter gentilis</i>)	Sensitive								
Peregrine Falcon (<i>Falco peregrinus anatum</i>)	Sensitive (delisted)								
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	Sensitive								
Sage Grouse (<i>Centrocercus urophasianus</i>)	Sensitive								
Sage Sparrow (<i>Amphispiza belli</i>)	Sensitive								
Swainson's Hawk (<i>Buteo swainsoni</i>)	Sensitive								
Three-toed Woodpecker (<i>Picoides tridactylus</i>)	Sensitive								
Trumpeter Swan (<i>Cygnus buccinator</i>)	Sensitive								
White-faced Ibis (<i>Plegadis chihii</i>)	Sensitive								
Spotted frog (<i>Rana pretiosa</i>)	Sensitive								
Westslope cutthroat trout (<i>Onchorhynchus clarkii lewisi</i>)	Sensitive								

* A similar form and the list of Special Status Species Plants approved for Montana/Dakotas BLM will be used to consider SSS-Plants. No threatened or endangered plants are currently known to be located on BLM lands in the DFO.

Short Form Biological Evaluation - Page 4 of 5

Step 6. Are there any specific recommendations to avoid significant effects (if any)? These are mitigation measures needed to avoid determinations of: LAA, LJ, WIFV. If so, state the location of the narrative describing these recommendations:

Step 7. Documentation: This short form is intended to follow a seven-step process to provide basic biological evaluations. Judgments must not be arbitrary but should be reasoned. This form provides a "road map" of that reasoning and assumes the judgments are drawn from numerous sources. Any species-specific impacts should be discussed in the NEPA document.

The signature below certifies that:

1. The wildlife biologist has reviewed the proposed action and its alternatives, but may or may not have provided input to alternative design, depending on the issues.
2. The wildlife biologist has an understanding of the specific conditions found in the affected area. Column 1a lists all possible Special Status Species in the Dillon Field Office. Column 1b identifies the species' current management status. Column 1c indicates whether there are no records (N/A), or whether the species is considered a Transient (T) or Resident (R) {for our purposes, resident includes migratory species that fulfill a portion of their life history here}. Step 2 is satisfied by field visits (or enough knowledge of local conditions from previous visits) resulting in enough information to determine if the area is potential habitat for species listed in Step 1. Extensive surveys are not necessary if the conservative approach is taken that: "suitable habitat" means the potential for occupancy.
3. The wildlife biologist has an understanding of the species habitat needs and other attributes important to the determination. This can be a combination of literature review, professional experience, and consultation with others.
4. The wildlife biologist has assimilated the above information in making the "determinations" (i.e. final judgments about the scientific significance of the effects).

Signed _____ Date _____

Printed name and title: _____

Short Form Biological Evaluation - Page 5 of 5 - Definitions of Abbreviations

N/A – “Not Applicable.” Indicates this species does not occur in the project area or that the project would have no bearing on its potential habitat. These species were removed from detailed analysis after field review of existing and potential habitats and consideration of distribution records.

FEDERALLY LISTED SPECIES

NE - No Effect

***LAA** - May Effect - Likely to Adversely Affect (formal consultation required)

NLAA - May Effect, Not Likely to Adversely Affect (informal consultation - concurrence with determination - required)

BE - Beneficial Effect (informal consultation - concurrence with determination - required)

SPECIES PROPOSED FOR LISTING

NE - No Effect

NLJ - Not likely to Jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat

***LJ** - Likely to Jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat

SENSITIVE SPECIES

NI - No Impact

MIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

***WIFV** - Will Impact Individuals or habitat with a consequence that the action may contribute to the need for federal listing or cause a loss of viability to the population or species.

BI - Beneficial Impact

* triggers formal consultation process

revised 1/21/04

APPENDIX G

CONSERVATION ACTIONS FOR WESTSLOPE CUTTHROAT TROUT

BACKGROUND

The BLM entered into a Memorandum of Understanding (MOU) and Conservation Agreement (Agreement) with a number of agencies and private organizations in May of 1999. The purpose of the MOU and Agreement is to expedite implementation of conservation measures for westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) in Montana through a collaborative and cooperative effort among resource agencies, conservation and industry organizations, resource users, and private land owners. The goals, objectives and conservation actions described below will be incorporated into activities under the jurisdiction of BLM.

CONSERVATION AND RESTORATION GOAL OVERVIEW

The management goal for westslope cutthroat trout in Montana is to ensure the long-term self-sustaining persistence of the subspecies within each of the five major river drainages they historically inhabited in Montana (Clark Fork, Kootenai, Flathead, upper Missouri, and Saskatchewan), and to maintain the genetic diversity and life history strategies represented by the remaining local populations.

The following objectives are identified in the MOU and Conservation Agreement:

- Protect all genetically pure Westslope Cutthroat Trout populations;
- Protect partially hybridized (>90% pure) populations;
- Ensure the long-term persistence of the WCT within their native range;
- Provide technical information, administrative assistance, and financial resources to assure compliance with the listed objectives and encourage conservation of WCT; and
- Design and implement an effective monitoring program by the year 2002 to document persistence and demonstrate progress towards the management goal.

CONSERVATION ACTIONS

Restoration and recovery actions that address threats to WCT can be grouped into the general categories of fisheries management, habitat management, genetics/population management, and administration, evaluation and information management. In some instances, actions to achieve long-term beneficial effects may cause short-term degradation such as increased sediment during stream channel restoration projects. However, long-term benefits ultimately will offset any short-term impacts.

Since BLM manages habitat rather than species or populations, conservation actions most applicable to BLM management identified in the MOU and Conservation Agreement come under the heading of habitat management recommendations. These include:

- Maintain and protect WCT habitat from degradation by achieving compliance with existing habitat protection laws, policies, and guidelines.
- Restore physical integrity of degraded habitat where logistically and technically feasible.
- Achieve compliance with water quality standards and develop TMDLs for water quality impaired streams (streams listed on the DEQ 303(d) impaired water bodies list) that are priority WCT habitat.
- Restore and maintain hydrologic conditions (flow, timing, duration) to mimic natural processes where necessary to meet Agreement objectives.
- Operate dams to minimize impacts where necessary to meet Agreement objectives.
- Identify, monitor, and maintain existing barriers to keep introduced species at bay; install new barriers where necessary to prevent invasion of introduced species.
- Identify and document fishless streams/reaches above natural barriers as potential introduction/expansion locations.
- Determine effectiveness of existing habitat protection regulations and BMPs.

APPENDIX H ACQUISITION CRITERIA

INTRODUCTION

Acquisition of lands or interests in lands may be by such methods as exchange, purchase, donation, or public agency jurisdictional transfer.

Lands located in or adjacent to Category 1 will have priority for acquisition providing they meet one or more of the acquisition criteria listed below.

Exchange would be used as the preferred method of acquisition. Direct purchase would be limited to cases where no practical alternatives exist and high public values would be acquired.

Lands would be considered for acquisition if one of more of the following criteria is met and acquisition would:

- Facilitate access to public lands and resources
- Maintain or enhance the manageability of public lands and resources
- Maintain or enhance important public values and uses, especially

- o Special Status Species plant, animal and fish habitats
- o Significant cultural resources
- o Significant recreational opportunities
- o Traditional plant use areas or other properties important to Native Americans
- Maintain or enhance local social and economic conditions
- Facilitate implementation of other goals and objectives in the RMP

Avoid the following when considering acquisition proposals:

Acquiring lands or interests in lands that present management problems that outweigh the expected benefits of such an acquisition, including but not limited to:

- presence of hazardous materials
- abundance of noxious weeds
- access situation is inadequate for managing the property for the purpose(s) for which it would be obtained, etc.
- acquisition of small, isolated tracts

**APPENDIX I
PUBLIC LANDS AVAILABLE FOR DISPOSAL
(CATEGORY 3)**

<u>Legal Description (Principal Meridian Montana)</u>	<u>Acreage</u>
T. 1N., R. 3W., Section 32: Lot 8	0.17
Lot 9	7.35
Lot 10	0.003
Lot 11	0.008
Lot 15	0.008
Lot 17	1.14
T. 1S., R.1W., Section 7: Lot 6	2.29
Section 17: Lot 6	0.08
Section 18: Lot 6	5.44
Lot 8	0.02
Lot 14	5.95
Lot 15	0.25
Lot 16	0.67
Lot 17	0.01
Lot 25	32.45
Lot 26	3.64
T. 3S., R.1W., Section 3: Lot 1	43.02
Lot 2	43.04
Section 6: Lot 13	11.11
Lot 14	0.54
Lot 15	0.01
Section 7: Lot 6	18.68
Lot 7	2.10
S1/2 SW1/4 NE1/4	20.00
SE1/4 SE1/4 SW1/4 NW1/4	2.50
NE1/4 SE1/4 SE1/4 NW1/4	2.50
Section 10 & 11: Segregated Survey	57.48 (estimate)
Section 11: Lot 1	39.85
Section 18: Segregated Survey within Lot 8	1.21 (estimate)
Section 25: NE1/4 SE1/4	40.00
Section 31:	9.10 (GIS Computed)
That portion of the N1/2 bounded by the area within Patent #33168 and #24180 on the east, #24121 on the south, and #19127 and #38232 on the west.	
Section 32: Lot 4	1.16
Lot 5	1.21
Lot 8	0.59
Lot 10	0.02
Lot 11	20.79
Section 35: SW1/4 SW1/4	40.00
T. 4S., R.1W., Section 2: SW1/4 NE1/4 and NW1/4 SE1/4	80.00

T. 8S., R. 1W.,	Section 33: That portion of the NE1/4 excluding the area within Patent #374294 and #374295	121.38	
T. 9S., R.1W.,	Section 4: Lot 1	47.34	
T. 2.S., R. 2W.,	Section 36: Lot 1 Lot 2 N1/2 N1/2 SE1/4	11.34 22.44 40.00	
T. 3S., R. 2W.,	Sections 1, 2, 12 and 13: All segregated surveys Section 13: Lot 1	238.26 10.39	(GIS Computed)
T.4S., R.2W.,	Section 10: Lot 2 Lot 3 Lot 4 Lot 17 S1/2 SW1/4 SE1/4 Section 35: SE1/4 NW1/4	17.74 20.90 10.78 2.30 20.00 40.00	
T. 5S., R. 2W.,	Section 18: S1/2 SE1/4	80.00	
T.13S., R. 2W.,	Section 17: NE1/4 NE1/4	40.00	
T. 2S., R. 3W.,	Section 14: That portion of the NW1/4 bounded by the area within Patent #19133 on the north, #6802 on the east, and #40163 on the west.	0.90	(GIS Computed)
	Section 15: Lot 3 Lot 4 Lot 5 Lot 6 Lot 7 Lot 9 Lot 10 That portion of the W1/2 bounded by the area within Patent #34359 on the northeast, #18505 on the northwest, #40223 on the southwest, and #33479 on the southeast.	0.07 0.28 0.70 0.21 0.02 0.56 0.13 0.43	(GIS computed)
	Section 23: Lot 7 That portion of the S1/2 bounded by the area within Patent #26937 on the north and south, and #879848 and #508907 on the east.	24.79 0.49	(GIS computed)
T. 6S., R. 3W.,	Section 1: S1/2 SW1/4 Section 2: Lot 2 Section 7: Lot 5 Section 8: Lot 1 Lot 2 unpatented portion NW1/4 NE1/4 SW1/4 Section 13: SW1/4 SW1/4 Section 14: S1/2 NE1/4 Section 17: SW1/4 NW1/4 NE1/4 Sections 29 and 32: Segregated survey bounded by the area within Patent #1058925 in Section 29 and bounded by the area within Patent #1067936 in Section 32.	80.00 41.30 9.24 21.87 13.55 10.00 40.00 80.00 10.00 21.60	(estimate)
			(GIS Computed)

T. 4S., R. 4W.,	Section 19:	W1/2 NW1/4 SE1/4 excluding the area lying within Patent #934430	15.46	(GIS computed)
	Section 31:	SE1/4	160.00	
T. 6S., R. 4W.,	Section 13:	S1/2 S1/2 NW1/4 NE1/4	10.00	
	Section 14:	N1/2 SW1/4 NW1/4 NE1/4	5.00	
		S1/2 S1/2 N1/2 NE1/4	20.00	
		SE1/4 NE1/4	40.00	
		SE1/4 SE1/4	40.00	
	Section 24:	W1/2 NW1/4	80.00	
T. 3S., R. 5W.,	Section 3:	Lot 14	0.06	
T. 4S., R.5W.,	Section 13:	NW1/4 SE1/4	40.00	
T. 7S., R.6W.,	Section 21:	Lot 21	0.06	
		Lot 22	7.15	
		Lot 23	1.69	
		Lot 24	0.29	
	Section 28:	Lot 7	3.61	
T.9S., R.6W.,	Section 27:	SW1/4 SW1/4	40.00	
T. 12S., R.6W.,	Section 4:	NW1/4 SE1/4	40.00	
T. 13S, R.6W.,	Section 7:	NE1/4 SW1/4	40.00	
T. 4S., R. 7W.,	Section 30:	SE1/4 SE1/4 SE1/4	10.00	
	Section 32:	SW1/4 SW1/4	40.00	
T. 6S., R.7W.,	Section 34:	NW1/4 NE1/4	40.00	
T. 7S., R 7W.,	Section 2:	NE1/4 SE1/4	40.00	
	Section 26:	SE1/4 SW1/4	40.00	
	Section 27:	NW1/4 SE1/4	40.00	
	Section 35:	NW1/4 NW1/4	40.00	
T. 8S., R.7W.,	Section 20:	SW1/4 SW1/4	40.00	
T. 3S., R.8W.,	Section 6:	Lot 3	39.65	
		Lot 4	32.74	
		Lot 5	32.48	
		SE1/4 NW1/4	40.00	
	Section 19:	NE1/4 SW1/4 and NW1/4 SE1/4	80.00	
	Section 30:	NE1/4 SW1/4	40.00	
T. 4S., R.8W.,	Section 2:	Lot 1	46.42	
	Section 29:	SW1/4 NW1/4 NW1/4 and W1/2 SE1/4 SE1/4	30.00	
T. 12S., R. 8W.,	Section 26:	NW1/4 NE1/4	40.00	
	Section 35:	SE1/4 NE1/4	40.00	
T. 14S., R. 8W.,	Section 9:	NW1/4 SE1/4	40.00	
T. 3S., R. 9W.,	Section 1:	Lot 3	39.39	
		S1/2 N1/2	160.00	
	Section 12:	E1/2 NE1/4 and NE1/4 SE1/4	120.00	
T. 7S., R. 9W.,	Section 14:	Lot 4	37.30	
	Section 17:	NE1/4 SW1/4	40.00	
T. 9S., R. 9W.,	Section 21:	NW1/4 NE1/4	40.00	
T.12S., R. 9W.,	Section 34:	NE1/4 NE1/4	40.00	
T. 14S., R. 9W.,	Section 25:	SE1/4 NW1/4	40.00	
T. 6S., R. 10W.,	Section 29:	Lot 11	0.06	
		Lot 12	0.02	
		That portion of the SW1/4 bounded by the area within Patent # 47031 on the east, #10972 on the south, and #357006 on the west.	0.01	(estimate)

	Section 30:	Lot 7	1.05	
		Lot 11	0.11	
		Lot 12	0.23	
T. 9S., R. 10W.,	Section 20:	NE1/4 NW1/4	40.00	
	Section 27:	W1/2 SW1/4	80.00	
T. 10S., R. 10W.,	Section 23:	SW1/4 NE1/4	40.00	
T. 14S., R. 10W.,	Section 10:	E1/2 SW1/4 SE1/4	20.00	
T. 7S., R. 11W.,	Section 33:	Lot 2	0.13	
T. 5S., R. 12W.,	Section 33:	Lot 1	17.55	
		Lot 2	0.89	
		Lot 3	0.15	
T. 6S., R. 12W.,	Section 8:		1.8	(GIS computed)
	That portion of the NW1/4 bounded by the areas within Patent #876062 on the east, #1006928 on the north, and #259621 and #536141 on the west.			
T. 10S., R. 12W.,	Section 19:	Lot 1	38.37	
	Section 31:	Lot 2	38.15	
		Lot 3	38.42	
T. 5S., R. 14W.,	Section 20:	SE1/4 NE1/4	40.00	
	Section 32:	SE1/4 SW1/4	40.00	
T. 9S., R. 14W.,	Section 1:	Lot 1	39.87	
T. 3S., R. 16W.,	Section 3:	NE1/4 NE1/4	40.00	
T. 3S., R. 1E.,	Section 5:	Segregated survey bounded by Lots 5 & 6	11.60	(GIS computed)
	Section 8:	Segregated survey bounded by Lots 14, 15, and the area within Patent #22932.	3.10	(GIS computed)
		Lot 16	0.53	
		Lot 18	40.63	
T. 8S., R. 1E.,	Section 28:	N1/2 N1/2	160.00	
T. 14S., R. 1E.,	Section 23:	NW1/4 NE1/4	40.00	
T. 2S., R. 2E.,	Section 34:	Lot 2	0.36	

APPENDIX J

EXISTING WITHDRAWAL DESCRIPTIONS

A withdrawal is a formal action that sets aside, withholds, or reserves Federal lands by administrative order or statute for public purposes. The effect of a withdrawal is to accomplish one or more of the following:

- Segregates (closes) Federal land to the operation of all or some of the public land laws and/or mineral laws
- Transfers total or partial jurisdiction of Federal land between Federal agencies
- Dedicates Federal land for a specific public purpose

Withdrawals can be categorized into three major types including:

- Congressional - legislative withdrawals made by Congress in the form of public laws. Examples include designation for wild and scenic rivers or wilderness
- Administrative – withdrawals made by the President, Secretary of Interior, or other officers of the executive branch of the Federal Government. Examples include stock driveways and public water reserves
- Federal Power Act – power project withdrawals established under the Federal Power Act of June 10, 1920. These withdrawals are automatically created upon the filing of an application for hydroelectric power development with the Federal Energy Regulatory Commission (FERC)

The following existing withdrawals are depicted on Map 16 in the Approved Plan.

BLM Recreation Sites: These include several administrative withdrawals for the Deadwood Gulch, Shearing Pen, Red Mountain, Ennis Lake, Ruby Reservoir, Ruby Creek and South Madison recreation sites as well as the Bear Trap Canyon Recreation Area. All of these sites are withdrawn from surface disposal and mining, but not from mineral leasing. The Bear Trap Canyon Recreation Area is also withdrawn from mineral leasing.

Public Water Reserves: These include a number of administrative withdrawal actions over the years for spring areas set aside for public use. These areas are scattered throughout the planning area and are withdrawn from surface disposal and nonmetalliferous mining, but not from metalliferous mining and mineral leasing.

BLM Protective Withdrawals: These include two administrative withdrawals on lands acquired for wetland, riparian, recreation, and wildlife values. One is located along the Beaverhead River about eleven miles south of Dillon, and the other is located in the Axolotl Lakes area about five

miles southeast of Virginia City. The properties are withdrawn from surface disposal and mining, but not from mineral leasing.

Reservoir Site Reserve: This consists of a single administrative withdrawal for Lima Reservoir located in the southern portion of the planning area near the Montana-Idaho border. The lands are withdrawn from surface disposal and nonmetalliferous mining, but not from metalliferous mining and mineral leasing.

USFS Administrative Sites: These are administrative withdrawals for U.S. Forest Service administrative sites located outside Forest Service boundaries including the Wisdom, Jackson, Bloody Dick, and Madison River (Ennis Horse Pasture) sites. The Wisdom and Madison River (Ennis Horse Pasture) sites are withdrawn from surface disposal and mining, while the Jackson and Bloody Dick sites are withdrawn from surface disposal and nonmetalliferous mining. None of these sites is withdrawn from mineral leasing.

Bureau of Reclamation: There are two separate reclamation withdrawals for the Clark Canyon Project located at or in the general vicinity of Clark Canyon Reservoir southwest of Dillon. The lands are withdrawn from surface disposal and mining, but not from mineral leasing.

Air Navigation Site: This is a single administrative withdrawal for an air navigation site located about twelve miles southwest of Dillon. It's withdrawn from surface disposal and mining, but not from mineral leasing.

Power Site Reserves and Classifications: There are numerous powersite reserves and classifications within the planning area. These are administrative withdrawals that protect water/power development potential and are located in three general areas including along portions of the Big Hole River about 15 miles north of Dillon, along the Red Rock River in the general vicinity of Lima Reservoir, and along the Madison River. Generally speaking, these sites are withdrawn from surface disposal only.

FERC Power Projects: There are two main FERC Power Project withdrawals affecting BLM lands within the planning area. One withdrawal is for FERC Project No. 2188, a hydropower development on the Madison River about eleven miles northeast of Ennis. The second withdrawal is for FERC Project No. 9482, a hydropower project on Wisconsin Creek and Noble Fork about five miles northeast of Sheridan. These withdrawals are administered by FERC.

Lands included in an application for hydroelectric power development with FERC are automatically segregated from surface disposal. At the time FERC issues a license or preliminary permit, the lands are automatically closed to location and entry under the mining laws, but are still available for mineral leasing.

Lee Metcalf Wilderness–Bear Trap Unit: This is a Congressional withdrawal located along the Madison River and adjacent public lands between Ennis Lake on the south and the Warm Springs recreation site on the north. The lands are withdrawn from surface disposal, mining, and mineral leasing.

APPENDIX K OIL AND GAS STIPULATIONS AND LEASE NOTICES

STIPULATIONS

<u>Resource:</u>	Sage Grouse Winter/Spring Range
Stipulation:	Timing Limitation. No activity from December 1 through May 15 within winter and spring range for sage grouse.
Objective:	To protect sage grouse winter range from disturbance during the winter/spring season, and to facilitate long-term maintenance of wildlife populations.
Exception:	An exception to this stipulation may be granted by the authorized officer in consultation with FWP, if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain sage grouse winter/spring range. The dates for the timing restriction may be modified if new information indicates that the December 1 through May 15 dates are not valid for the leasehold.
Waiver:	This stipulation may be waived if the authorized officer determines that the entire leasehold sage grouse winter/spring range, or if in coordination with FWP, determines that the area is not critical for sage grouse.
<u>Resource:</u>	Sage Grouse Strutting Grounds (Leks)
Stipulation:	No Surface Occupancy. Activity is prohibited within 1/4 mile of sage grouse leks.
Objective:	To protect sage grouse strutting grounds and leks to maintain regional sage grouse populations.
Exception:	An exception to this stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage grouse leks.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage grouse leks.
Waiver:	The stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold can be occupied without adversely affecting sage grouse leks.
<u>Resource:</u>	Sage Grouse Breeding Habitat
Stipulation:	Timing Limitation. Activity is restricted from March 1 through June 30 in nesting and early brood-rearing habitat (defined as within three miles of leks).
Objective:	To protect sage grouse leks and breeding habitat necessary for long-term maintenance of regional sage grouse populations.
Exception:	An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage grouse leks.

Waiver: This stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold can be occupied without adversely affecting sage grouse leks or the surrounding breeding habitat.

Resource: State Game Ranges (4)

Stipulation: No Surface Occupancy. Activity is prohibited within the boundary of State Game Ranges administered by FWP.

Objective: To protect FWP elk winter range necessary for long-term maintenance of regional elk populations.

Exception: None.

Modification: None.

Waiver: None.

Resource: Big Game Winter/Spring Range

Stipulation: Timing Limitation. No activity from December 1 through May 15 within winter range for wildlife.

Objective: To protect mule deer, elk, antelope, and moose winter range from disturbance during the winter/spring season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this stipulation may be granted by the authorized officer in consultation with FWP, if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWP, determines that portions of the area no longer contain wildlife winter/spring range. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 through May 15 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold no longer contains winter/spring range for wildlife.

Resource: Elk Calving/Big Game Birthing Areas

Stipulation: Timing Limitation. Activity is prohibited from April 1 through June 30 in big game birthing areas.

Objective: To protect mule deer, elk, antelope, and moose birthing areas from disturbance and facilitate long-term maintenance of wildlife populations.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain birthing habitat for big game species. The dates for the timing restriction may be modified if new wildlife use information indicates that the dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold no longer contains big game birthing areas.

<u>Resource:</u>	Bighorn Sheep Yearlong Range
Stipulation:	Timing Limitation. Activity is prohibited from November 1 through June 30 in bighorn rutting, winter and lambing habitat.
Objective:	To protect bighorn rutting, winter and lambing habitat from disturbance and facilitate long-term maintenance of bighorn sheep populations.
Exception:	An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain rutting, winter and lambing habitat for bighorn sheep. The dates for the timing restriction may be modified if new wildlife use information indicates that the November 1 through June 30 dates are not valid for the leasehold.
Waiver:	This stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold no longer contains bighorn sheep rutting, winter or lambing areas.
<u>Resource:</u>	Bighorn Sheep Core Areas
Stipulation:	No Surface Occupancy. Activity is prohibited within the bighorn sheep core areas in the Hidden Pasture area and the Greenhorn Mountains Reintroduction Area.
Objective:	To protect bighorn sheep yearlong habitat necessary for long-term maintenance of the Tendoy and Greenhorn Mountains bighorn sheep populations.
Exception:	An exception to this stipulation may be granted by the authorized officer, in consultation with FWP, if the operator submits a plan which demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWP, determines that portions of the HMP/Reintroduction area can be occupied without adversely affecting bighorn sheep use.
Waiver:	This stipulation may be waived if the authorized officer, in consultation with FWP, determines that the entire leasehold can be occupied without adversely affecting bighorn sheep use in the HMP or reintroduction areas.
<u>Resource:</u>	Bald Eagle Nest Sites/Breeding Habitat
Stipulation:	No Surface Occupancy. Activity is prohibited within 1/2 mile of bald eagle nest sites and within bald eagle nesting habitat in riparian areas.
Objective:	To protect bald eagle nesting sites and/or breeding habitat in accordance with the Endangered Species Act and the Montana Bald Eagle Management Plan.
Exception:	An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may have an adverse affect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the USFWS.
Modification:	The boundaries of the stipulated area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagles nest sites or nesting areas.

Waiver: This stipulation may be waived if the authorized officer, in consultation with USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Resource: Bald Eagle Nest Sites/Breeding Habitat

Stipulation: Timing Limitation. No activity is allowed from February 1 through August 31 in a one mile radius around bald eagle nest sites.

Objective: To protect bald eagle nesting site and/or breeding habitat in accordance with the Endangered Species Act and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may have an adverse affect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the USFWS.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This stipulation may be waived if the authorized officer, in consultation with USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Resource: Raptor Breeding Territories (Golden eagle, Prairie falcon, Swainson's hawk)

Stipulation: Timing Limitation. No activity from March 1 through July 31, within 1/2 mile of raptor nest sites which have been active within the past five years.

Objective: To protect reproductive potential of breeding habitat for special status raptors.

Exception: An exception to this stipulation may be granted by the authorized officer of the operator submits a plan that demonstrates the impacts from the proposed action are minimal or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer are within one mile of raptor nest sites. The dates for the timing restriction may be modified if new information indicates that the dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer is within one mile of nest sites.

Resource: Waterfowl Production/Molting Areas

Stipulations: Timing Limitation. No activity permitted from April 1 through August 31 within 1/2 mile of waterfowl production and molting areas.

Objective: To protect waterfowl production and molting areas from disturbance and facilitate long-term maintenance of waterfowl populations.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.

- Modification:** The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer provides for waterfowl production or molting. The dates for the timing restriction may be modified if new wildlife use information indicates that the dates are not valid for the leasehold.
- Waiver:** This stipulation may be waived if the authorized officer determines that the entire leasehold no longer provides waterfowl production or molting habitat.
- Resource:** **NAWCA/IMWJV Wetland Projects**
- Stipulation:** No Surface Occupancy. Activity is prohibited within 1/2 mile of NAWCA/IMWJV Wetland Projects.
- Objective:** To protect wetland habitat areas and adjacent nesting areas acquired/developed through NAWCA/IMWJV partnerships necessary for long-term maintenance of regional populations of waterfowl and wetland dependent species.
- Exception:** An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting wetland habitat and dependent species.
- Waiver:** None.
- Resource:** **Peregrine Falcon Nest Sites/Breeding Habitat**
- Stipulation:** No Surface Occupancy. Activity is prohibited within one mile of peregrine falcon nest sites.
- Objective:** To protect peregrine falcon nesting sites and/or breeding habitat.
- Exception:** An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the authorized officer determines that the action may have an adverse affect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with USFWS.
- Modification:** The boundaries of the stipulated area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting peregrine falcon nest sites or breeding habitat.
- Waiver:** This stipulation may be waived if the authorized officer, in consultation with USFWS, determines that the entire leasehold can be occupied without adversely affecting peregrine falcon nest sites or breeding habitat.
- Resource:** **Ferruginous Hawks**
- Stipulation:** No Surface Occupancy. Activity is prohibited within 1/2 mile of ferruginous hawk nest sites.
- Objective:** To maintain the reproductive potential of ferruginous hawk nest sites.
- Exception:** An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrated that the impacts from the proposed action are minimal or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

Resource: **Ferruginous Hawk Breeding Territories**

Stipulation: Timing Limitation. No activity is permitted from March 1 to August 31 within one mile of hawk nest sites that have been active within the past five years.

Objective: To protect reproductive potential of breeding habitat for special status raptors.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates the impacts from the proposed action are minimal or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer are within one mile of raptor nest sites. The dates for the timing restriction may be modified if new information indicates that the dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer is within one mile of ferruginous nest sites.

Resource: **Threatened, Endangered, and Special Status Species**

Stipulation: The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 *et seq.*, including completion of any required procedure for conference or consultation.

Objective: Avoid BLM-approved activity that will contribute to a need to list a species or their habitat as threatened or endangered.

Exception: None.

Modification: None.

Waiver: None.

Resource: **Westslope Cutthroat Trout Habitat (99-100% pure)**

Stipulation: No Surface Occupancy. No activity allowed within 1/2 mile from centerline of stream containing known populations of 99-100% genetically pure westslope cutthroat trout.

Objective: To ensure healthy aquatic habitat exists in drainages important to the viability of Upper Missouri River Basin Westslope Cutthroat Trout.

Exception:	An exception may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: A) No net increase in sediment over existing condition; and B) No adverse effects on water quality and quantity.
Modification:	None.
Waiver:	A waiver may be granted if the Montana Department of Fish, Wildlife, and Parks determines the stream is no longer considered important to the viability of the species.
<u>Resource:</u>	Westslope Cutthroat Trout Habitat (90 up to 99% pure)
Stipulation:	Controlled Surface Use. Activities within 1/2 mile of streams containing 90 up to 99% genetically pure westslope cutthroat trout may be relocated, require special design, or require on and off site mitigation measures to prevent impacts to sensitive trout populations.
Objective:	To prevent sensitive aquatic habitat and trout populations from being impacted.
Exception:	An exemption may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: A) No net increase in sediment over existing condition. B) No adverse effects on water quality and quantity.
Modifications:	None
Waiver:	A waiver may be granted if the Montana Department of Fish, Wildlife and Parks determines the stream is no longer considered important to the viability of the species.
<u>Resource:</u>	Fluvial and Adfluvial Arctic Grayling Habitat
Stipulation:	No Surface Occupancy. Activities within 1/2 mile from centerline of occupied or influencing habitat, including the North Fork of the Big Hole River, the Big Hole, the Beaverhead and Ruby Rivers, and tributaries to Upper Red Rock Lake are prohibited.
Objective:	To ensure healthy aquatic habitat exists along rivers and tributaries important to the viability of fluvial and adfluvial arctic grayling.
Exception:	An exception may be granted if the Montana Department of Fish, Wildlife and Parks determines the Ruby and Beaverhead Rivers are no longer viable recovery sites. The following mitigation measures would apply: A) No net increase in sediment over existing condition; and B) No adverse effects on water quality or quantity.
Modification:	None.
Waiver:	None.
<u>Resource:</u>	Class 1 Fisheries
Stipulation:	No Surface Occupancy. Activity is prohibited within 1/2 mile from the centerline of Class 1 fishery streams (Blue Ribbon trout streams).
Objective:	To ensure healthy aquatic habitat are maintained along Class 1 fisheries.

Exception: An exception may be granted if Montana Department of Fish, Wildlife, and Parks modify the Class 1 fisheries rating. Application of the following mitigation measures apply:
A) No net increase in sediment over existing condition; and
B) No adverse effects on water quality and quantity.

Modification: None.

Waiver: None.

Resource: **Developed Recreation Sites**

Stipulation: No Surface Occupancy. Surface occupancy and use is prohibited within 1/2 mile of developed recreation sites. Currently developed recreation sites include: Axolotl Lakes cabin and fishing access, Deadwood Gulch campground, Big Sheep Creek Back Country Byway, Maiden Rock boat launch, East Fork Blacktail Deer Creek Campground, Ney Ranch Recreation Site, Palisades Recreation Site, Red Mountain Day Use, Red Mountain Campground, Warm Springs Day Use, Bear Trap Wilderness Trailhead, Bear Trap Boat Launch, Fall Creek Day Use, Trail Creek Day Use, Kobayashi Beach, Ruby Creek Campground, Klutes Landing, and Shoshone Ridge.

Objective: To recognize and protect the public's opportunity for quality recreation experiences at those sites developed for that purpose. Since BLM recreation sites are generally developed to support the use of the surrounding lands, the one half mile buffer offers some protection for perpetuating those opportunities for which the site was developed, as well as protecting capital investments at the site.

Exception: An exception may be granted if a site is moved or eliminated.

Modification: The list of developed recreation sites may be modified if development is removed, or if a currently undeveloped site is developed in the future.

Waiver: A waiver may be granted if a site is moved or eliminated.

Resource: **Special Recreation Management Areas (SRMAs)**

Stipulation: Controlled Surface Use. Operations within SRMAs must be conducted within a manner that minimizes encounters and conflicts with recreation users. Proposed activities may not alter or depreciate important recreational values located outside of developed areas but within the SRMA boundary.

Objective: To prevent user conflicts and incompatible uses in areas with high recreational values and significant amounts of recreational activity.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating the impacts to recreation values and recreation users are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if the boundaries of the SRMA are changed.

Waiver: None.

Resource: **Vehicle Use Restrictions**

Stipulation: Controlled Surface Use. Oil and gas activities will comply with all motorized vehicle use and travel plan restrictions, including seasonal restrictions and areas closed to motorized travel.

Objective: To prevent degradation of various resource values protected by travel plan limitations and motorized vehicle use restrictions.

Exception:	An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating the impacts to values being protected through vehicle use restrictions can be adequately mitigated.
Modification:	None.
Waiver:	None.
<u>Resource:</u>	Cultural Resource Inventory Requirement
Stipulation:	<p>Controlled Surface Use. An inventory of those portions of the leased lands subject to proposed disturbance may be required prior to any surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:</p> <ol style="list-style-type: none"> 1. Contact the Surface Management Agency (SMA) to determine if a cultural resource inventory is required. If an inventory is required, then; 2. The SMA will complete the required inventory; or the lessee or operator, at their option, may engage the services of a cultural resource consultant acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted. 3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.
Objective:	Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.
Exception:	No exceptions will be granted.
Modification:	No modifications will be granted.
Waiver:	No waivers will be granted.
<u>Resource:</u>	NRHP Eligible Properties/Districts
Stipulation:	No Surface Occupancy. Occupancy and use is prohibited within, and for a distance of 300 feet from the boundaries of cultural properties and archaeological/historic districts determined to be eligible or potentially eligible to the National Register of Historic Places. This includes cultural properties designated for conservation use, scientific use, traditional use, public use, and experimental use. Defined archaeological districts include: Everson Creek/Black Canyon Quarry Complex; Muddy Creek Archaeological District; Lower Beartrap Canyon Archaeological District; and Beaverhead Rock.
Objective:	To protect significant cultural properties and archaeological districts and their settings, and to avoid disturbance or inadvertent impacts to these resources.
Exception:	An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the adverse impacts to cultural properties eligible for the National Register of Historic Places, can be mitigated through data recovery, extensive recordation,

or other acceptable means. Where impacts to cultural resources cannot be mitigated to the satisfaction of the Surface Managing Agency, surface occupancy of that area must be prohibited.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated site or district can be occupied without adversely affecting the cultural resource values for which the site or area was designated eligible.

Waiver: No waivers will be granted.

Resource: Traditional Cultural Properties

Stipulation: No Surface Occupancy. Activity is prohibited within 1/2 mile of the boundaries of cultural properties determined to be of particular importance to Native American groups, determined to be Traditional Cultural Properties, and/or designated for traditional use. Such properties include (but are not limited to) burial locations, pictograph/petroglyph sites, vision quest locations, plant gathering locations, and areas considered sacred or used for religious purposes.

Objective: To avoid disturbance and to protect archaeological properties of known significance to Native American groups, as well as traditional cultural properties, and the setting in which they occur.

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that operations will be designed and/or located in such a manner as to have a minimal impact to the natural setting and characteristics of the immediate area and that adverse impacts to these traditional cultural properties can be mitigated in consultation with, and to the satisfaction of, affected Indian Tribes or Native American Groups.

Modification: No modifications will be granted.

Waiver: No waivers will be granted.

Resource: Paleontological Resource Inventory Requirement

Stipulation: Controlled Surface Use. In areas known to have a high potential for containing significant paleontological resources, the Lessee may be required to conduct a paleontological inventory prior to any surface disturbance. If inventory is required, the Lessee must engage the services of a qualified paleontologist, acceptable to the Surface Managing Agency, to conduct the inventory. An acceptable inventory report is to be submitted to the BLM for review and approval at the time a surface-disturbing plan of operations is submitted.

Objective: To preserve and protect significant vertebrate fossils and paleontological locales.

Exception: An exception may be granted if the area has already been inventoried for paleontological resources.

Modification: No modifications will be granted

Waiver: No waiver will be granted.

Resource: Known Paleontological Resources/Locales

Stipulation: No Surface Occupancy. Surface occupancy and use is prohibited within known paleontological sites/locales.

Objective: To preserve and protect significant vertebrate fossils and paleontological locales.

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the adverse impacts to significant paleontological resources can be mitigated through recovery and extensive recordation. Where impacts to paleontological

resources cannot be mitigated to the satisfaction of the Surface Managing Agency, surface occupancy on that area must be prohibited.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated paleontological site/locale can be occupied without adversely affecting the resource values.

Waiver: No waiver will be granted.

Resource: **VRM Class II, III & IV Areas**

Stipulation: Controlled Surface Use. All surface disturbing activities and construction of semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the visual quality objectives for each respective class.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

Resource: **Special Status Plant Habitats**

Stipulation: Controlled Surface Use. A field inspection will be conducted for special status plant species by the lessee prior to any surface disturbance. A list of special status plant species will be provided to the lessee at the time of the lease. Plant species on the list are subject to change over time as new information becomes available. Plant inventories must be conducted at a time of year when the target species are actively growing and flowering. An acceptable report must be provided to the BLM documenting the presence or absence of special status plants in the area proposed for surface disturbing activities. The findings of this report may result in restrictions to the operator's plans or may preclude use and occupancy.

Objective: Protect and conserve rare plants, associated plant communities and the habitat that supports them.

Exception: An exception may be granted if BLM determines that the portion of the lease identified for surface disturbing activities does not support special status plant species or provide potential habitat for these species.

Modification: The boundaries of the area to be inventoried for special status plants may be modified if BLM determines that a large portion of the lease identified for surface disturbing activities doesn't support special status plant species or provide potential habitat for these species.

Waiver: The field inspection and plant inventory may be waived by the authorized officer if he/she determines that the subject lease occurs in an area with no known populations of special status plant species and that the area doesn't provide habitat for those species.

Resource: **Known or Discovered Special Status Plants or Populations**

Stipulation: No Surface Occupancy. Surface occupancy and use is prohibited within 1/4 mile of special status plant populations.

Objective: Protect and conserve rare plants, associated plant communities and the habitat that supports them.

Exception: Justification for an exception is not apparent at this time.

Modification:	The boundaries of the no surface occupancy area may be modified if BLM determines that land within 1/4 mile of the special status plant population does not provide potential habitat for those species.
Waiver:	Justification for a waiver is not apparent at this time.
<u>Resource:</u>	Wetlands, Floodplains, and Riparian Areas
Stipulation:	No Surface Occupancy. Activity is prohibited within wetlands, floodplains, and riparian areas.
Objective:	To maintain riparian/wetland functions and water quality.
Exception:	An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.
Modification:	None.
Waiver:	None.
<u>Resource:</u>	Active Mass Movement Areas
Stipulation:	No Surface Occupancy. Use and occupancy is prohibited on areas of active mass movement (landslides).
Objectives:	To prevent potential damage to pipelines, well heads, and other facilities from landslides in areas of active mass movement.
Exception:	An exception may be granted if the operator can demonstrate in a plan of operations that adverse effects can be minimized and activities safely conducted.
Modification:	The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of area are not subject to mass movement. This stipulation may be modified by the authorized officer if the lessee provides a detailed engineering design and geologic analysis and a mitigation plan.
Waiver:	This stipulation may be waived by the authorized officer if it is determined that none of the leasehold is subject to mass movement.
<u>Resource:</u>	Slopes \geq30%
Stipulation:	Controlled Surface Use. Prior to surface disturbance on slopes greater than 30 percent, an engineering/reclamation plan must be approved by the authorized officer. Such plan must demonstrate how the following will be accomplished: <ul style="list-style-type: none">• Site productivity will be restored.• Surface runoff will be adequately controlled.• Off site areas will be protected from accelerated soil erosion.• Surface disturbing activities will not be conducted during extended wet periods
Objective:	To maintain soil productivity and provide necessary protection to prevent excessive soil erosion on steep slopes.
Exceptions:	An exception may be granted if the operator can demonstrate in a plan of operations that adverse effects can be minimized and activities safely conducted.

Modification:	The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of area do not include slopes over 30 percent, or the operator can demonstrate in a plan of operations that adverse effects can be minimized.
Waiver:	This stipulation may be waived by the authorized officer if it is determined that none of the leasehold contains slopes greater than 30 percent.
<u>Resources:</u>	Designated National Historic Trails – Lewis and Clark and Nez Perce Trail (Nee Me Poo Trail)
Stipulation:	No Surface Occupancy. Surface occupancy and use is prohibited within 1/2 mile of designated National Historic Trails. Designated National Historic Trails include the Lewis and Clark Trail and the Nez Perce (Nee Me Poo) Trail.
Objective:	To preserve and protect designated National Historic Trails and the natural setting in which they occur.
Exception:	No exceptions will be granted.
Modification:	No modifications will be granted.
Waiver:	No waivers will be granted.
<u>Resource:</u>	Continental Divide National Scenic Trail
Stipulation:	No Surface Occupancy. Surface occupancy and use is prohibited within 1/2 mile of the Continental Divide National Scenic Trail.
Objective:	To preserve and protect the existing scenic character of the landscape along the trail.
Exception:	None.
Modification:	None.
Waiver:	None.
<u>Resource:</u>	R&PPs and 2920 Authorizations
Stipulations:	No Surface Occupancy. Surface occupancy and use is prohibited on Recreation and Public Purposes leases and patents and on leases and permits authorized under regulations found at 43 CFR 2920.
Objective:	To protect developed facilities and commercial, recreational, and public uses and prevent incompatible uses on existing authorized areas.
Exception:	An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated in coordination with the holder of the land use authorization.
Modification:	The area affected by this stipulation may be modified by the authorized officer if the land use authorization boundaries are modified.
Waiver:	This stipulation may be waived by the authorized officer if all land use authorizations within a leasehold have been terminated, cancelled or relinquished.

NOTICES

Cultural Resources

An inventory of the leased lands may be required prior to surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:

1. Contact the Surface Management Agency (SMA) to determine if a cultural resource inventory is required. If an inventory is required, then;
2. The SMA will complete the required inventory; or the lessee or operator, at their option, may engage the services of a cultural resource consultant acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.

3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation.

The lessee or operator shall immediately bring to the attention of the Surface Management Agency any cultural resources or any other objects of scientific interest discovered as a result of approved operations under this lease, and shall leave such discoveries intact and undisturbed until directed to proceed by the SMA.

Authorities: Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.

Paleontological Resources

The lessee or operator shall immediately bring to the attention of the Surface Management Agency (SMA) any paleontological resources or any other objects of scientific interest discovered as a result of approved operations under this lease, and shall leave such discoveries intact and undisturbed until directed to proceed by the SMA.

APPENDIX L

BUREAU OF RECLAMATION LEASE NOTICE AND STIPULATIONS

Form 3109-1
(December 1972)
(formerly 3103-1)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

LEASE STIPULATIONS BUREAU OF RECLAMATION

The lessee agrees to maintain, if required by the lessor during the period of this lease, including any extension thereof, an additional bond with qualified sureties in such sum as the lessor, if it considers that the bond required under Section 2(a) is insufficient, may at any time require:

(a) to pay for damages sustained by any reclamation homestead entryman to his crops or improvements caused by drilling or other operations of the lessee, such damages to include the reimbursement of the entryman by the lessee, when he uses or occupies the land of any homestead entryman, for all construction and operation and maintenance charges becoming due during such use or occupation upon any portion of the land so used and occupied;

(b) to pay any damage caused to any reclamation project or water supply thereof by the lessee's failure to comply fully with the requirements of this lease; and

(c) to recompense any nonmineral applicant, entryman, purchaser under the Act of May 16, 1930 (46 Stat. 367), or patentee for all damages to crops or to tangible improvements caused by drilling or other prospecting operation, where any of the lands covered by this lease are embraced in any nonmineral application, entry, or patent under rights initiated prior to the date of this lease, with a reservation of the oil deposits, to the United States pursuant to the Act of July 17, 1914 (38 Stat. 509).

As to any lands covered by this lease within the area of any Government reclamation project, or in proximity thereto, the lessee shall take such precautions as required by the irrigation under such project or to the water supply thereof; *provided* that drilling is prohibited on any constructed works or right-of-way of the Bureau of Reclamation, and *provided, further*, that there is reserved to the lessor, its successors and assigns, the superior and prior right at all times to construct, operate, and maintain dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures, and reclamation works, in which construction, operation, and maintenance, the lessor, its successors and assigns, shall have the right to use any or all of the lands herein described without making compensation therefor, and shall not be responsible for any damage from the presence of water thereon or on account of ordinary, extraordinary, unexpected, or unprecedented floods. That nothing shall be done under this lease to increase the cost of, or interfere in any manner with, the construction, operation, and maintenance of such works. It is agreed by the lessee that, if the construction of any or all of said dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone or telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures or reclamation works across, over, or upon said lands should be made more expensive by reason of the existence of the improvements and workings of the lessee thereon, said additional expense is to be estimated by the Secretary of the Interior, whose estimate is to be final and

binding upon the parties hereto, and that within thirty (30) days after demand is made upon the lessee for payment of any such sums, the lessee will make payment thereof to the United States, or its successors, constructing such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures, or reclamation works, across, over, or upon said lands; *provided, however*, that subject to advance written approval by the United States, the location and course of any improvements or works and appurtenances may be changed by the lessee; *provided, further*, that the reservations, agreements, and conditions contained in the within lease shall be and remain applicable notwithstanding any change in the location or course of said improvements or works of lessee. The lessee further agrees that the United States, its officers, agents, and employees, and its successors and assigns shall not be held liable for any damage to the improvements or workings of the lessee resulting from the construction, operation, and maintenance of any of the works hereinabove enumerated. Nothing in this paragraph shall be construed as in any manner limiting other reservations in favor of the United States contained in this lease.

THE LESSEE FURTHER AGREES That there is reserved to the lessor, its successors and assigns, the prior right to use any of the lands herein leased, to construct, operate, and maintain dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures, and also the right to remove construction materials therefrom, without any payment made by the lessor or its successors for such right, with the agreement on the part of the lessee that if the construction of any or all of such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures across, over, or upon said lands or the removal of construction materials therefrom, should be made more expensive by reason of the existence of improvements or workings of the lessee thereon, such additional expense is to be estimated by the Secretary of the Interior, whose estimate is to be final and binding upon the parties hereto, and that within thirty (30) days after demand is made upon the lessee for payment of any such sums, the lessee will make payment thereof to the United States or its successors constructing such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures across, over, or upon said lands or removing construction materials therefrom. The lessee further agrees that the lessor, its officers, agents, and employees and its successors and assigns shall not be held liable for any damage to the improvements or workings of the lessee resulting from the construction, operation, and maintenance of any of the works herein above enumerated. Nothing contained in this paragraph shall be construed as in any manner limiting other reservations in favor of the lessor contained in this lease.

To insure against the contamination of the waters of the _____ Reservoir,
_____ Project, State of _____, the lessee agrees that
the following further conditions shall apply to all drilling and operations on lands covered by this lease,
which lie within the flowage or drainage area of the _____ Reservoir, as such area
is defined by the Bureau of Reclamation:

1. The drilling sites for any and all wells shall be approved by the Superintendent,
Bureau of Reclamation, _____ Project, _____ before
drilling begins. Sites for the construction of pipe-line rights-of-way or other authorized facilities shall also
be approved by the Superintendent before construction begins.

2. All drilling or operation methods or equipment shall, before their employment, be
inspected and approved by the Superintendent of the _____ Project,
_____, and by the supervisor of the U.S. Geological Survey having jurisdiction over the area.

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(02/91)

SPECIAL STIPULATION - BUREAU OF RECLAMATION

To avoid interference with recreation development and/or impacts to fish and wildlife habitat and to assist in preventing damage to any Bureau of Reclamation dams, reservoirs, canals, ditches, laterals, tunnels, and related facilities, and contamination of the water supply therein, the lessee agrees that the following conditions shall apply to all exploration and developmental activities and other operation of the works thereafter on lands covered by this lease:

1. Prior to commencement of any surface-disturbing work including drilling, access road work, and well location construction, a surface use and operations plan will be filed with the appropriate officials. A copy of this plan will be furnished to the Regional Director, Great Plains Region, Bureau of Reclamation, P.O. Box 36900, Billings, MT 59107-6900, for review and consent prior to approval of the plan. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources, including cultural resources, of the United States, its lessees, permittees, or licensees, and to provide for the restoration of the land surface and vegetation. The plan shall contain provisions as the Bureau of Reclamation may deem necessary to maintain proper management of the water, recreation, lands structures, and resources, including cultural resources, within the prospecting drilling, or construction area.

Drilling sites for all wells and associated investigations such as seismograph work shall be included in the above-mentioned surface use and operation plan.

If later explorations require departure from or additions to the approved plan, these revisions or amendments, together with a justification statement for proposed revisions, will be submitted for approval to the Regional Director, Great Plains Region, Bureau of Reclamation, or his authorized representative.

Any operations conducted in advance of approval of an original, revised, or amended prospecting plan, or which are not in accordance with an approved plan constitute a violation of the terms of this lease. The Bureau of Reclamation reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the lessee.

2. No occupancy of the surface of the following excluded areas is authorized by this lease. It is understood and agreed that the use of these areas for Bureau of Reclamation purposes is superior to any other use. The following restrictions apply only to mineral tracts located within the boundary of a Bureau of Reclamation project where the United States owns 100 percent of the fee mineral interest.

- a. Within 500 feet on either side of the centerline of any and all roads or highways within the leased area.
- b. Within 200 feet on either side of the centerline of any and all trails within the leased area.
- c. Within 500 feet of the normal high-water line of any and all live streams in the leased area.
- d. Within 400 feet of any and all recreation developments within the leased area.
- e. Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the Bureau of Reclamation within the leased area.
- f. Within 200 feet of established crop fields, food plots, and tree/shrub plantings within the leased area.
- g. Within 200 feet of slopes steeper than a 2:1 gradient within the leased area.
- h. Within established rights-of-way of canals, laterals, and drainage ditches within the leased area.
- i. Within a minimum of 500 feet horizontal from the centerline of the facility or 50 feet from the outside toe of the canal, lateral, or drain embankment, whichever distance is greater, for irrigation facilities without clearly marked rights-of-way within the leased area.
- j. Providing that appropriate environmental compliance measures can be ensured, and providing further that Reclamation project works and other public interests can be protected, Reclamation may consider, on a case-by-case basis, waiving the requirement specified in Section 2 hereof. HOWEVER, LESSEES ARE ADVISED THAT OBTAINING SUCH A WAIVER CAN BE A DIFFICULT, TIME CONSUMING, AND COSTLY PROCESS WITH NO GUARANTEE THAT RECLAMATION WILL GRANT THE REQUESTED WAIVER.

3. No occupancy of the surface or surface drilling will be allowed in the following areas. In addition to, no directional drilling will be allowed that would intersect the subsurface zones delineated by a vertical plane in these areas. The following restrictions apply only to mineral tracts located within the boundary of a Bureau of Reclamation project where the United States owns 100% of the fee mineral interest.

a. Within 1,000 feet of the maximum water surface, as defined in the Standard Operating Procedures (SOP), of any reservoirs and related facilities located within the leased area.

b. Within 2,000 feet of dam embankments and appurtenance structures such as spillway structures, outlet works, etc.

c. Within one-half (1/2) mile horizontal from the centerline of any tunnel within the leased area.

d. Providing that appropriate environmental compliance measures can be ensured, and providing further that Reclamation project works and other public interests can be protected. Reclamation may consider, on a case-by-case basis, waiving the requirements specified in Section 3 hereof. **HOWEVER, LESSEES ARE ADVISED THAT OBTAINING SUCH A WAIVER CAN BE A DIFFICULT, TIME CONSUMING, AND COSTLY PROCESS WITH NO GUARANTEE THAT RECLAMATION WILL GRANT THE REQUESTED WAIVER.**

4. The distances stated in items 2 and 3 above are intended to be general indicators only. The Bureau of Reclamation reserves the right to revise these distances as needed to protect Bureau of Reclamation facilities.

5. The use of explosives in any manner shall be so controlled that the works and facilities of the United States, its successors and assigns, will in no way be endangered or damaged. In this connection, an explosives use plan shall be submitted to and approved by the Regional Director, Great Plains Region, Bureau of Reclamation, or his authorized representative.

6. The lessee shall be liable for all damage to the property of the United States, its successors and assigns, resulting from the exploration, development, or operation of the works contemplated by this lease, and shall further hold the United States, its successors and assigns, and its officers, agents, and employees, harmless from all claims of third parties for injury or damage sustained or in any way resulting from the exercise of the rights and privileges conferred by this lease.

7. The lessee shall be liable for all damage to crops or improvements of any entryman, nonmineral applicant, or patentee, their successors and assigns, caused by or resulting from the drilling or other operations of the lessee, including reimbursement of any entryman or patentee, their successors and assigns, for all construction, operation, and maintenance charges becoming due on any portion of their said lands damaged as a result of the drilling or other operations of the lessee.

8. In addition to any other bond required under the provisions of this lease, the lessee shall provide such bond as the United States may at any time require for damages which may arise under the liability provisions of sections six (6) and seven (7) above.

APPENDIX M

PROCEDURES IN OIL AND GAS RECOVERY

GEOPHYSICAL OPERATIONS

Oil and gas geophysical exploration activities include data acquisition by use of ground vehicle or aircraft. Data is acquired to determine if a structure exists which might contain oil or gas. Geophysical exploration does not include core drilling for subsurface geologic information or well drilling for oil and gas. A federal oil and gas lease is not required before conducting geophysical operations. Information from geophysical exploration can lead oil companies or others to request that lands be offered for lease, or assist in the selection of drill sites on existing leases.

Existing road systems are used where available. Roads may be cleared of vegetation and loose rocks to improve access for trucks if that action is allowed by the permit. Blading and road construction for seismic operations are not usually allowed so that environmental impacts are minimized. In areas with rugged terrain or without access roads, and certain seasons of the year, seismic work is conducted by helicopter rather than by ground vehicles. Other geophysical operations that do not cause additional surface disturbance include remote sensing, gravity prospecting, and aeromagnetic surveying.

Procedures and Regulations

Notification Process - Geophysical operations on public lands are reviewed by the BLM. Exploration on public lands requires review and approval following the procedures in 43 CFR Subparts 3150, 3151, and 3154. In the Dillon Field Office, the Field Manager is authorized to approve geophysical operations. The responsibilities of the geophysical operator and the Field Manager during geophysical operations are described below.

Geophysical Operator - The operator is required to file a Notice of Intent to Conduct Oil and Gas Exploration Operations (form 3150-4) for operations on public lands administered by the BLM. Maps (preferably 1:24,000 scale topographic maps) showing the location of the proposed lines and access routes must accompany the Notice of Intent.

When the Notice of Intent is filed, the authorized officer may request a prework conference or field inspection. Special requirements or procedures that are identified by the authorized officer are included in the Terms and Conditions for Notice of Intent to Conduct Geophysical Exploration (form 3150-4 and a copy of the state requirements). Any changes in the original Notice of Intent must be submitted

in writing to the authorized officer. Written approval must be secured before activities proceed.

Bonding of the operator is required. A copy of proof of satisfactory bonding shall accompany the Notice of Intent. Proper bonding may include a \$5,000 individual, \$25,000 statewide, or \$50,000 nationwide geophysical exploration bond. In lieu of an exploration bond, a statewide or nationwide oil and gas drilling bond may be used if it contains a rider for geophysical exploration.

The operator is required to comply with applicable federal, state, and local laws such as Federal Land Policy and Management Act of 1976, the National Historic Preservation Act of 1966, and the Endangered Species Act of 1973, as amended. Operators may be required to submit an archeological evaluation if dirt work is contemplated, or if there is reason to believe that significant cultural resources may be adversely affected.

When geophysical operations have been completed, the operator is required to file a Notice of Completion (form 3150-5) including certification that all terms and conditions of the approved Notice of Intent have been fulfilled. The operator must also submit a map that shows the actual line location, access route, and other survey details.

BLM Field Manager (authorized officer) - The authorized officer is required to contact the operator within five working days after receiving the Notice of Intent to explain the terms of the notice, including the "Terms and Conditions for Notice of Intent to Conduct Geophysical Exploration," current laws, and BLM-administrative requirements. At the time of the prework conference or field inspection, written instructions or orders are given to the operator. The authorized officer is responsible for the examination of resource values to determine appropriate surface protection and reclamation measures. The authorized officer is required to make a final inspection following filing of the Notice of Completion. When reclamation is approved, obligation against the operator's bond is released. The BLM has 30 days after receipt of the Notice of Completion to notify the operator whether the reclamation is satisfactory or if additional reclamation work is needed. Bonding liability will automatically terminate within 90 days after receipt of the Notice of Completion unless the authorized officer notifies the operator of the need for additional reclamation work.

State Standards - Geophysical operators register with the state through the County Clerk and Recorder's office. State regulations include requirements for shothole locations, drilling techniques, plugging techniques, and reclamation.

Mitigation - When a geophysical Notice of Intent is received, restrictions may be placed on the application to protect resource values or to mitigate impacts. Many of these requirements may be the same as the oil and gas lease stipulations adopted in the RMP. Other less restrictive measures may be used when impacts to resource values will be less severe. This is due in part to the temporary nature of geophysical exploration. The decisions concerning the level of protection required are made on a case-by-case basis when a Notice of Intent is received.

LEASING PROCESS

Federal oil and gas leasing authority is found in the 1920 Mineral Leasing Act, as amended, for public lands and the 1947 Acquired Lands Leasing Act, as amended, for acquired lands. Leasing of federal oil and gas is affected by other acts such as National Environmental Policy Act of 1969, the Wilderness Act of 1964, National Historic Preservation Act of 1966, the Endangered Species Act of 1973, Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Regulations governing federal oil and gas leasing are contained in 43 CFR Part 3100 with additional requirements and clarification found in Onshore Operating Orders and Washington office manuals, handbooks and instruction memorandums.

The lease grants the right to explore, extract, remove, and dispose of oil and gas deposits that may be found in the leased lands. The lessee may exercise the rights conveyed by the lease subject to the lease terms and attached stipulations, if any.

Lease rights may be subject to lease stipulations and permit approval requirements. Stipulations and permit requirements describe how lease rights are modified. Lease constraints or requirements may also be applied to applications for permit to drill on existing leases provided the constraints or requirements are within the authority reserved by the terms and conditions of the lease. The stipulations and conditions of approval must be in accordance with laws, regulations, and lease terms. The lease stipulations and permit conditions of approval allow for management of federal oil and gas resources in concert with other resources and land uses.

The BLM planning process is the mechanism used to evaluate and determine where and how federal oil and gas resources will be made available for leasing. In areas where oil and gas development may conflict with other resources, the areas may be closed to leasing. Areas where oil and gas development could coexist with other land uses or resources will be open to leasing. Leases in these areas will be issued with standard lease terms or with added stipulations based

upon decisions in the land use document. Added stipulations are a part of the lease only when environmental and planning records demonstrate the necessity for the stipulations (modifications of the lease).

Currently, leases are issued as either competitive leases or noncompetitive leases with 10-year terms. The competitive leases will be sold to the highest qualified bidder at an oral auction. Tracts that receive no bid at the sale are available for the filing of noncompetitive offers for two years following the sale. All offers filed the day after the sale (referred to as day-after-the-sale filings) are considered simultaneously filed. This means that if there is more than one offer filed for a specific parcel the day after the sale, a drawing must be held to determine the priority on multiple offers. Noncompetitive offers filed after that time are on a first-come first-served basis. If there are no offers filed for a parcel for the two-year period after the sale, the lands must be nominated again for competitive leasing. Rental payments for these leases will be \$1.50 per acre for the first 5 years and \$2.00 per acre thereafter until production is established. The royalty rate for leases issued following the 1987 Oil and Gas Leasing Reform Act is 12-1/2 percent. Minimum royalty is the same amount as the rental.

Future interest leases are available for entire or fractional mineral estates that have not reverted to federal ownership. These are minerals that are reserved by the grantor for a specific period of time in warranty deeds to the United States. Any future interest leases may be obtained only through the competitive bidding process and are made effective the date of vesting of the minerals with the United States.

Plan Maintenance

New information may lead to changes in existing resource inventories. New use areas and resource locations may be identified or use areas and resource locations that are no longer valid may be identified. These resources usually cover small areas requiring the same protection or mitigation as identified in this plan. Identification of new areas or removal of old areas that no longer have those resource values will result in the use of the same lease stipulation identified in this plan. These areas will be added to the existing data inventory without a plan amendment. In cases where the changes constitute a change in resource allocation outside the scope of this plan, a plan amendment would be required.

Lease Stipulations

Certain resources in the planning area require protection from impacts associated with oil and gas activities. The specific resource and the method of protection are contained in lease stipulations. Lease stipulations are usually no surface occupancy, controlled surface use, or timing limitation.

A notice may also be included with a lease to provide guidance regarding resources or land uses. While the actual wording of the stipulations may be adjusted at the time of leasing, the protection standards described will be maintained.

Controlled Surface Use

Use or occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. Controlled surface use is used for operating guidance, not as a substitute for the no surface occupancy or timing stipulations.

No Surface Occupancy

Use or occupancy of the land surface for fluid mineral exploration or development is prohibited in order to protect identified resource values. The no surface occupancy stipulation includes stipulations which may have been worded as No Surface Use and Occupancy," "No Surface Disturbance," "Conditional No Surface Occupancy," and "Surface Disturbance or Occupancy Restriction (by location)."

Timing Limitation (Seasonal Restriction)

Prohibits surface use during specified times to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

PERMITTING

The lessee may conduct lease operations after lease issuance. Before beginning construction or drilling a well, the lessee must have an approved Application for Permit to Drill, including requirements for surface and subsurface operations. Many other lease operations, including surface and subsurface, must be approved by a Sundry Notice. When a well is no longer useful, the well is plugged and the surface reclaimed. Well plugging and reclamation operations are approved by a Sundry Notice, although verbal approval for plugging may be given for a well that was drilled but not completed for production. The period of bond liability is terminated after all wells covered by the bond are properly plugged and the surface reclaimed. The lands may then become available for future leasing.

Proposed drilling and associated activities must be approved before beginning operations. The operator must file an Application for Permit to Drill with the BLM Great Falls

Oil and Gas Field Station. A copy of the application will be posted in the Field Station and Dillon Field Office, and if applicable, in the office of the Surface Management Agency for a minimum of 30 days for review by the public. After 30 days, the application can be approved in accordance with (a) lease stipulations, (b) Onshore Oil and Gas Orders, and (c) Onshore Oil and Gas regulations (43 CFR Part 3160) if it is administratively and technically complete.

Evidence of bond coverage for lease operations must be submitted with the application. Bond amount must not be less than a \$10,000.00 lease bond, a \$25,000.00 statewide bond or a \$150,000.00 nationwide bond.

Pre-drill on-site inspections will be conducted for all wells. The inspection makes possible selection of the most feasible well site and access road from environmental, geological, and engineering points of view. Surface use and reclamation requirements are developed during the on-site inspection that is usually conducted within 15 days after receipt of the Notice of Staking or Application for Permit to Drill. For operations proposed on privately-owned surface, if the operator after a good-faith effort is unable to reach an agreement with the private surface owner, the operator must post a bond to cover loss of crops and damages to tangible improvements prior to approval of the Application for Permit to Drill.

Conditions of approval implement the lease stipulations and are part of the permit when environmental and field reviews demonstrate the necessity for operating constraints or requirements. A surface restoration plan is part of an approved permit, either an Application for Permit to Drill or Sundry Notice that includes surface-disturbing activities.

The authorized officer will act on the application in one of two ways:

Approves the application (a) as submitted or (b) with appropriate modifications or conditions of approval; or

Returns the application and (a) advises the lessee or operator of the reasons for disapproval or (b) advises the lessee or operator of the reason why final action has been delayed and the date such final action is expected.

For drilling operations on lands with state or private mineral ownership, the lessee must meet the requirements of the mineral owner and the state regulatory agency. The BLM does not have jurisdiction over nonfederal minerals; however, the BLM has surface management responsibility in situations of BLM surface over nonfederal mineral ownership.

APPLICATION FOR PERMIT TO DRILL

Applications for Permit to Drill are approved for the Dillon Field Office by the supervisor of the Great Falls Oil and Gas Field Station. The approved Application for Permit to Drill includes Conditions of Approval, and Informational Notices that cite the regulatory requirements from the Code of Federal Regulations, Onshore Operating Orders and other guidance.

Conditions of Approval

Conditions of approval are mitigation measures that implement restrictions in light of site-specific conditions. General guidance for conditions of approval is found in the BLM and U.S. Forest Service brochure entitled "Surface Operating Standards for Oil and Gas Exploration and Development" (USDI, BLM 1989c) and BLM Manual 9113 entitled "Roads".

The following mitigation measures may be applied to approved permits as conditions of approval. The listing is not all-inclusive, but presents some possible conditions of approval that may be used in the planning area. The wording of the condition of approval may be modified or additional conditions of approval may be developed to address specific conditions.

1. Surface Conditions:

- a. The access road on the BLM surface will not be bladed unless prior BLM approval is obtained.
- b. The operator will be responsible for weed control on the access road, well location, and pipeline for the life of the well.
- c. The operator will clean the undercarriage of all rigs prior to entering onto the leasehold to reduce the chances for noxious weed infestations.
- d. Topsoil is to be removed and stockpiled. Operator will be required to cover the topsoil pile to prevent the loss of topsoil to wind erosion. Operator must cover the topsoil with a biodegradable mesh fabric that allows water and air to circulate through the topsoil. Operator cannot cover the topsoil with any type of impermeable fabric.
- e. Rehabilitation of upland sites following disturbance would use the plant species listed below for seeding. The species used for rehabilitation would vary depending on the adjacent habitat conditions, site potential, soils and precipitation. Species not in the following list could be added if site conditions

warrant, species availability changes or if there are large acreages are involved.

- f. All permanent structures will be painted the neutral color of Sand Beige (5Y 6/3), Desert Brown (10YR 6/3), Carlsbad Canyon (2.5Y 6/2) or Slate Gray (5Y 6/1) as displayed in the Standard Environmental Color chart (available at the BLM office) or other acceptable color approved by the authorized officer to blend in with the surrounding landscape.
- g. If the well is a dry hole, Operator will be required to fence the entire disturbed area of the location to allow the seedings and vegetation to re-establish. This fencing must be stock tight and must remain in place until the BLM requests otherwise.

2. Downhole Conditions:

- a. Surface casing shall have centralizers on each of the bottom three joints and shall be cemented back to surface.
- b. BOP system shall be consistent with Onshore Oil and Gas Order No. 2, 2M system.
- c. The operator shall obtain verbal approval prior to initiating side-tracking operations. At the time of approval, the operator must identify the proposed azimuth, kick-off point, inclination rate (angle build rate), and the estimated closure or horizontal length to be drilled. All wellbore paths, i.e. different orientations of bottom hole locations, require prior approval.
- d. The operator shall have sufficient weighting materials and loss circulation materials on location in the event of a pressure kick or in the event of loss circulation.

3. Informational Notice:

- a. Approval of this APD does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease, which would entitle the applicant to conduct operations thereon.
- b. The lessee shall comply with applicable laws and regulation; with the lease terms, Onshore Oil and Gas Orders; NTL's; and with other orders and instructions of the authorized officer.
- c. A complete copy of the approved APD must be on the well site and available for reference during the construction and drilling phase.

Rehabilitation Species List			
Common Name	Scientific Name	4 Code	6 Code
12 to 14 inch precipitation zone			
western wheatgrass	<i>Pascopyrum smithii</i>	PASM	PASSMI
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSP6	PSESPI
thickspike wheatgrass	<i>Elymus macrourus</i>	ELMA7	ARGDAS
slender wheatgrass	<i>Elymus trachycaulus</i>	ELTR7	ELYTRA
green needlegrass	<i>Nassella viridula</i>	NAVI4	STIVIR
needle and thread	<i>Hesperostipa comata</i>	HECO26	STICOM
blue flax	<i>Linum perenne</i>	LIPE2	LINPER
scarlet globemallow	<i>Sphaeralcea coccinea</i>	SPCO	SPHCOG
Woods' rose	<i>Rosa woodsii</i>	ROWO	ROSWOO
15 to 19 precipitation zone			
basin wildrye	<i>Leymus cinereus</i>	LECI4	LEYCIN
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSP6	PSESPI
slender wheatgrass	<i>Elymus trachycaulus</i>	ELTR7	ELYTRA
Idaho fescue	<i>Festuca idahoensis</i>	FEID	FESIDA
sheep fescue	<i>Festuca ovina</i>	FEOV	FESOVI
Sandberg bluegrass	<i>Poa secunda</i>	POSE	POASEC
blue flax	<i>Linum perenne</i>	LIPE2	LINPER
Woods' rose	<i>Rosa woodsii</i>	ROWO	ROSWOO

- d. Any deviation from the terms of this APD requires prior approval.
- e. This drilling permit is valid for either 1 year from the approval date or until lease expiration, whichever occurs first.
- f. Each drilling, producing or abandoned well shall be identified with the operator's name, the lease serial number, the well number, and the surveyed description of the well (either footages or the quarter section, the section, township and range). All markings must be legible, and in a conspicuous place.
- e. Notify this office at least 6 hours prior to plugging for verbal plugging orders.

BLM Representative – Great Falls Field Station
Office Telephone No. (406) 791-7700:

After hours and weekend contacts are:

Petroleum Engineer Technician
Petroleum Engineer
Environmental Specialist
Field Station Supervisor

4. Notification Requirements:

- Notify this office at least 12 hours before beginning dirt work.
- Notify this office verbally at least 6 hours before the well is spudded.
- Notify this office verbally at least 6 hours prior to running/cementing casing.
- Notify this office verbally at least 6 hours prior to conducting BOP tests.

5. Plugging Requirements:

- Prior approval for abandonment must be obtained. Initial approval for abandonment during drilling operations may be verbal but must be followed by written notification on Form 3160-5, in triplicate.
- Upon completion of the approved plugging, the operator will cut the casing off four feet below reclaimed ground level and a 1/4" x 12" x 12" plate (with a 1/8" weep hole) shall be welded onto a fitting to be screwed into a collar either welded or screwed to the production casing. **The standard aboveground dry hole marker in accordance with 43 CFR 3162.6(d) has been waived by the**

Great Falls Field Station. Pits must be fenced until dry or pumped and then filled in and recontoured unless otherwise approved by the Field Station Supervisor.

- c. The following minimum information shall be permanently placed on the plate: “Fed” or “Ind” as applicable; “Lease Number, Operator, Well Number, and Location by quarter/quarter, Section, Township, and Range.”

6. Reports and Notifications:

- a. All submitted information not marked “CONFIDENTIAL INFORMATION” is subject to public disclosure in accordance with 43 CFR 3100.4.
- b. Production Startup Notification is required not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed.

7. Hazardous Materials:

- a. Operators and their contractors are to ensure all production, use, storage, transport, and disposal of hazardous materials resulting from the proposed project is in accordance with all applicable Federal, State and local laws, regulations and guidelines, existing or hereafter enacted or promulgated that effect the management of hazardous material, as defined in this paragraph. Hazardous material means any substance, pollutant, or contaminant listed as a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 USC 9601 et seq., and its regulations (found at 40 CFR 302). The definition of hazardous substances under CERCLA includes “hazardous waste” defined in the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, 42 USC 6901 et seq., and its regulations. The term also includes any extremely hazardous substances defined by 40 CFR 355, and any nuclear or byproduct material defined by the Atomic Energy Act of 1954, as amended, 42 USC 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof not otherwise listed or designated as a hazardous substance under CERCLA section 101 (14), 42 USC 9601 (14), or natural gas.

- b. Only drilling mud, drilling fluids, cuttings, native soils, cementing materials and/or approved pit solidifying materials will be placed in the reserve or working pits.
- c. Nonexempt wastes will not be mixed with exempt wastes.
- d. No hazardous materials will be used in the drilling and construction of wellsites and access roads. Commercial preparations, which may contain hazardous materials may be used in production operations and will be transported with the project area. These materials will be handled in an appropriate manner to minimize potential for leaks or spills to the environment. Other waste disposal methods and locations should be described on the APD or SN and approved by the BLM prior to disposal.

8. Environmental Obligations and Disposal of Produced Water:

- a. The Operator is required to take all necessary steps to prevent any death of a migratory bird in pits or open vessels associated with the drilling, testing, completion, or production of this well. The death of any migratory bird found in such a pit or open vessel is a violation of the Migratory Bird Treaty Act and is considered a criminal act. Any deaths of migratory birds attributable to pits or open vessels associated with drilling, testing, completing, or production operations must be reported to this office and the United States Fish and Wildlife Service within 24 hours.
- b. The BLM may require that the pit be designed or the open vessel be covered to deter the entry of birds in any facility associated with drilling, testing, completing, or production of this well. Fencing, screening, and netting of pits may be required as a means to deter bird entry. These conditions would most likely be imposed to prevent the entry of migratory birds if oil is left in pits or open vessels after the cessation of drilling or completion operations, if water disposal pits consistently receive oil, or if pits or open vessels are used repeatedly for emergency situations which result in the accumulation of oil.
- c. Voluntary pit fencing, screening, and netting, or sealing vessels is encouraged thus avoiding potential instances that may result in the death of a migratory bird.
- d. With BLM approval, water produced from newly completed wells may be temporarily disposed of

into unlined pits for up to 90 days. During this initial period, application for the permanent disposal method must be made in accordance with Onshore Order No. 7.

9. Paleontological/Cultural Stipulations:

Paleontological and archaeological field checks by BLM personnel or other authorized personnel will occur prior to disturbance as deemed appropriate by the BLM. A BLM-approved archaeologist or paleontologist will conduct monitoring during surface-disturbing activities. Paleontological or cultural resource sites will be avoided or mitigated as necessary prior to disturbance. Any cultural or paleontological resource discovered by an operator or any person working on his/her behalf will be reported immediately to the BLM, and all operations that may further disturb such resources will be suspended until written authorization to proceed is issued by the BLM authorized officer. An evaluation of the discovery will be made by the BLM to determine appropriate actions to prevent the loss of significant resources.

CONSTRUCTION

Construction of the access road and the well site is necessary before drilling operations begin. The extent of surface disturbance necessary for construction depends on the terrain, depth of the well, drill rig size, circulating system, and safety standards.

The depth of the drill test determines the size of the work area necessary, the need for all-weather roads, water requirements, and other needs. The terrain influences the construction problems and the amount of surface area to be disturbed. Reserve pit size may vary because of well depth, drill rig size, or circulating system.

Access roads to well sites in the planning area usually consist of running surfaces 14 to 18 feet wide that are ditched on one or both sides. Many of the roads constructed will follow existing roads or trails. New roads might be necessary because existing roads are not at an acceptable standard. For example, a road may be too steep so that realignment is necessary.

Roads can be permanent or temporary, depending on the success of the well. The initial construction can be for a temporary road; however, it is designed so that it can become permanent if the well produces. Not all temporary roads constructed are immediately rehabilitated when the drilling stops. A temporary road is often used as access to other drill sites. The main roads and temporary roads require graveling to be maintained as all-weather roads. This is especially important in the spring. Access roads may be

required to cross public lands to a well site located on private or state lands. The portion of the access road on public land would require a BLM right-of-way.

Approximately 3-1/2 acres would be impacted by well site construction. The area is cleared of large vegetation, boulders, or debris. Then the topsoil is removed and saved for reclamation. A level area is then constructed for the well site, which includes the reserve pit.

The well pad is constructed by bulldozers and motor scrapers. The well pad is flat (to accommodate the drill rig and support equipment) and large enough to store all the equipment and supplies without restricting safe work areas. The drill rig must be placed on "cut" material rather than on "fill" material to provide a stable foundation for the rig. The degree of cutting and filling depends on terrain; that is, the flatter the site, the less dirt work is required.

Hillside locations are common, and the amount of dirt work varies with the steepness. A typical well pad will require a cut 10 feet deep against the hill and a fill 8 feet high on the outside. It is normal to have more cut than fill to allow for compaction, and any excess material is then stockpiled. Eventually, when the well is plugged and abandoned, excavated material is put back in its original place.

Reserve pits are normally constructed on the well pad. Usually the reserve pit is excavated in "cut" material on the well pad. The reserve pit is designed to hold drill cuttings and used drilling fluids. The size and number of pits depends on the depth of the well, circulating system and anticipated down hole problems, such as excess water flows.

The reserve pit can be lined with a synthetic liner to contain pit contents and reduce pit seepage. Not all reserve pits are lined; however, BLM can require a synthetic liner based upon factors such as soils, pit locations, ground water and drilling mud constituents. The operator can elect to line the reserve pit without that requirement.

An adequate supply of water is required for drilling operations and other uses. The sources of water can be a water well at the drill site or remote sources such as streams, ponds, or wells. The water is transported to the site by truck or pipeline. Pipelines are normally small diameter surface lines. The operator must file for and obtain all necessary permits for water from the state of Montana. On public lands, an operator must have the BLM's permission before surface water can be used.

DRILLING OPERATIONS

As drilling progresses for a vertical well, the hole is drilled; pipe is placed in the hole to maintain the integrity of the hole. The first string of pipe is the conductor pipe, which

stabilizes the hole near the surface. The second string of pipe placed in the hole is for surface casing, which is set deep enough to reach a competent zone below the deepest usable freshwater aquifer.

The surface casing is set and cemented in the hole by pumping cement between the casing and the well bore wall. Surface casing acts as a safety device to protect freshwater zones from drilling fluid contamination. To prevent the well from “blowing-out” in the event the drill bit hits a high-pressure zone, blowout preventers are mounted on top of the surface casing. If high-pressure zones are encountered that cannot be controlled with mud additives, the blowout preventers can be closed to effectively seal the well.

After the surface casing is set, a smaller drill bit that fits inside the surface casing is installed and drilling resumes. Depending on well conditions, additional strings of casing called intermediate casing may be installed and cemented into place. Conditions resulting in the need for intermediate casing include freshwater zones and sloughing formation zones. Casing prevents the flow of freshwater into the wellbore, and conversely prevents drilling fluids from infiltrating porous formations with low internal pressures. Casing also prevents mixing of waters from different formations (interformational mixing) where water within the formations is of differing quality.

All cementing operation plans are reviewed to assure cement is placed at the appropriate depths and a sufficient quantity is utilized to effectively seal all freshwater-bearing formations from contamination by interformational mixing or migration of fluids.

If no oil or gas is encountered, the well is plugged with cement and abandoned in accordance with state and federal requirements. If the well is a producer, casing is set and cemented in place.

Directional drilling may be used where the drill site cannot be located directly over the drilling target. There are limits to both the degree that the wellbore can be deviated from the vertical and the horizontal distance the well can be drilled away from the well site.

Horizontal wells are drilled similarly to directional wells, except that the bottomhole location of the well is not a single point, but rather a lateral horizontal section. They are drilled to increase the recovery oil and gas reserves from vertically fractured reservoirs, or reservoirs with directional permeability.

PRODUCTION AND DEVELOPMENT

Production

Production begins when a well yields oil or gas in commercial quantities. If formation pressure is sufficient to raise oil to the surface, the well is completed as a flowing well. A pumping unit is installed if the formation pressure is not sufficient to bring the oil to the surface.

When the well is completed as a free-flowing well, an assembly of valves and special connections known as a “Christmas tree” (so called because of its many branch-like fittings) is installed on top of the casing to regulate the flow of the well. Later, when the natural pressure declines, the Christmas tree can give way to a simple wellhead arrangement of valves and a pumping unit to lift the oil artificially. Many pumping units are “beam” style pumps that are powered by electric motors or gasoline engines.

Most gas wells produce by natural flow and do not require pumping. Surface use at a flowing well is usually a small area containing a gas well Christmas tree, a dehydrator, a produced water pit, and a meter house. Separators, condensate tanks, and compressors may be included. Some gas wells require continuous water pumping as water entering the well chokes off the gas flow.

Development

Development can take years and include from one or two wells to more than a hundred wells per field. However, the reasonably foreseeable development scenario for this planning document only forecasts two additional wells per field. Roads to producing wells are upgraded to all-weather roads as necessary. Pipelines, electrical transmission lines, separators, dehydrators, sump pits, and compressor stations soon follow. Sometimes oil and gas processing facilities are built in or adjacent to the field.

Further Seismic Testing

More detailed seismic work can be done to achieve better definition of the petroleum reservoir. Diagonal seismic lines can be required to tie the previous seismic work to the discovery well. The discovery well can be used to conduct studies to correct the previous seismic work and provide more accurate subsurface data.

Spacing Requirements

A well spacing pattern must be established before development drilling begins. Information considered in establishment of a spacing pattern includes data from the discovery

well on porosity, permeability, pressure, composition, and depth of formations in the reservoir; well production rates and type (predominantly oil or gas); and the economic effect of the proposed spacing on recovery. The state of Montana establishes well spacing patterns for both exploratory and development wells which the BLM generally adopts. The state specifies the minimum distance from lease lines or government survey lines for bottom hole location of the wellbore depending upon depth of the well. The spacing regulations determine the acres assigned to each well. Spacing unit size is established to provide for the most efficient and economic recovery of oil or gas from a reservoir. Well spacing ranges from 40 acres to 640 acres. Wells deeper than 11,000 feet can be no closer than 1,650 feet to other producing wells below 11,000 feet. Only one producing well per formation is allowed in each 40, 80, 160, 320, and 640-acre unit. Figures A and B show the different spacing patterns for oil and gas wells and the minimum distance from spacing unit boundaries to the well that are generally applied in Montana.

Drilling of Development Wells

The procedures used in drilling development wells are the same as those used for wildcat wells, but usually with less subsurface sampling, testing, and evaluation. The rate at which development wells are drilled in a field depends on factors such as whether the field is developed on a lease basis or unitized basis, the probability of profitable production, the availability of drilling equipment, lease requirements, and the degree to which limits of the field are known.

Some fields go through several development phases, the first resulting from the original discovery and others from later discovery. A field can be considered fully developed and produce for several years, and then a well may be drilled to a deeper or shallower pay zone. Discovery of a new pay zone in an existing field is a "pool" discovery (as distinguished from a new field discovery). A pool discovery may lead to the drilling of additional wells, often from the same drilling pad as existing wells.

Inspections

Geophysical operations and lease operations are inspected to determine compliance with approved permits, to resolve conflicts or correct problems and to determine effectiveness and need of lease stipulations. All inspections are documented. Operators are required to correct problems or violations.

Surface Requirements

Field development activities that cause surface disturbance include access roads, well sites, production facility sites, flow line and utility line routes and waste disposal sites.

Surface uses in a gas field will be less than in an oil field, because gas wells are usually drilled on larger spacing units. The spacing pattern of 640 acres per well, which is common in gas fields, will require only one well per section and might require only 1/2 mile of access roads and pipelines. Production facilities include separation and storage equipment. Separation equipment is required when production includes a combination of oil, gas or water and storage equipment is required for holding liquids prior to sales.

Flow Lines

Oil and gas are transferred from the well to storage facilities through small diameter (<6 inches) flow lines. Flow lines can be on the surface, buried or elevated. Produced water, gas or polymerized liquid is transferred from storage facilities to injection wells for secondary recovery.

Separating, Treating, and Storage

Any water or gas associated with produced oil is separated from the oil before it is placed in storage tanks. The treating facilities are located at a storage tank battery. Low-pressure petroleum that must be pumped from the well is treated in a single separation. High-pressure, flowing petroleum can require several stages or separation, with a pressure reduction accompanying each stage.

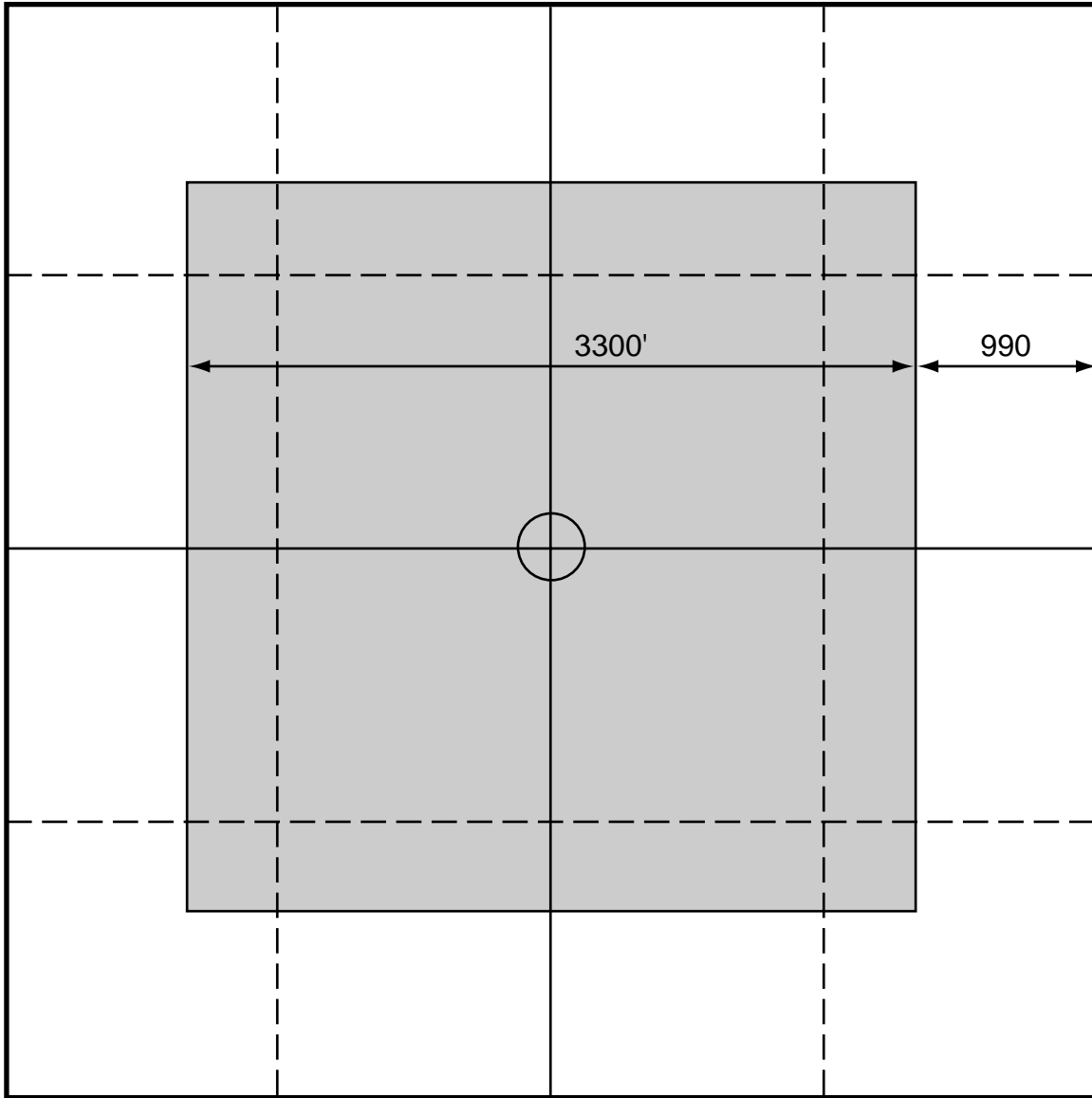
Produced gas is sold when there is sufficient volume, necessary transportation, a market, and it is economical. Generally, if the volume of produced gas is too low for sales, it is used as fuel for well pump engines and heating fuel for the treaters. If the volume of produced gas exceeds fuel requirements on the lease but gas sales are not possible, the gas can be flared or vented into the atmosphere when authorized by permit in accordance with state and federal regulations.

When water is produced with the hydrocarbons, it is separated before the gas is removed. In primary operations, where natural pressures or gravity causes the petroleum in the reservoir to flow to the wellbores, the degree of mixing is high enough to require chemical and heat treatment to separate the oil and water. In secondary production, where water injection or other methods are used to force additional petroleum to the wellbore, the oil and water often are not highly emulsified. In this case, the oil and water can be separated by gravity in a tall settling tank. Produced water can be disposed of by injection into the subsurface, surface evaporation or beneficial purposes such as water for livestock or irrigation.


Produced water from oil and gas operations is normally disposed of by subsurface injection or in surface pits. Regardless of the method of disposal, it must be acceptable to the BLM, in accordance with the requirements of Onshore Oil

Figure A
Gas Well Spacing Section Plat

640 Acre Spacing



SOURCE: Montana Oil & Gas Commission

 Area in which well should be drilled

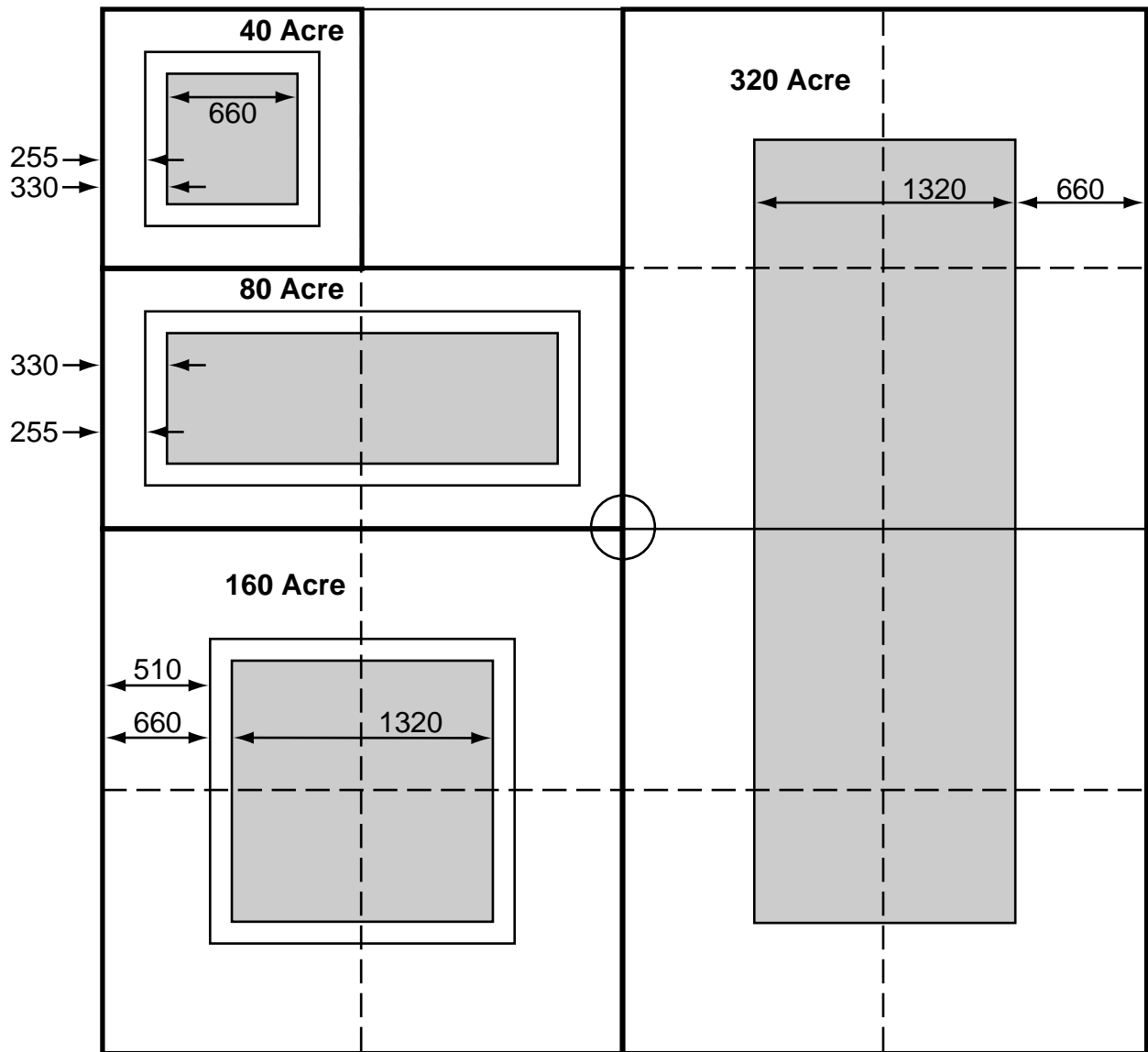
Well
Depth
(feet)

0>


Minimum Well
Distance
(feet)

990

Figure B
Oil Well Spacing Section Plat



SOURCE: Montana Oil & Gas Commission

 Area in which well should be drilled

Well Depth (feet)	Spacing (acre)	Nearest Boundary (feet)	Topographic Tolerance (feet)	Minimum Well Distance (feet)
0-6,000	40 & 80	330	75	255
6,000 - 11,000	160	660	150	510
11,001 - >	320	660	none	none

For the 320 acre spacing (1,650 well tolerance) and the 80 acre spacing the drilling unit will be delineated either N-S or E-W

and Gas Order No. 7, titled “Disposal of Produced Water.” Disposal of produced water by injection wells requires permits from the Montana Board of Oil and Gas Conservation. When produced water is disposed underground, it is introduced or injected under pressure into a subsurface horizon containing water of equal or poorer quality. Produced water may be injected into the producing zone from which it originated to stimulate oil production. Dry holes or depleted wells are commonly converted for saltwater disposal and occasionally new wells are drilled for this purpose.

The law and regulations require that all injection wells be permitted under the Underground Injection Control program. Under the Underground Injection Control approval process, the disposal well must be pressure tested to ensure the integrity of the casing. The disposal zone must also be isolated by use of tubing and mechanical plug called a packer. The packer seals off the inside of the casing and only allows the injected water to enter the disposal zone. The tubing and packer are also pressure tested to ensure their integrity. These pressure tests confirm isolation of the disposal zone from possible usable water zones.

The oil is transported to storage tanks through flow lines after separation from any water or gas. Storage tanks are usually located on the lease either at the producing well or at a central production facility. The number and size of tanks are dependent upon the type and amount of production on the lease.

ABANDONMENT

When drilling wells are unsuccessful or production wells are no longer useful, the well is plugged, equipment is removed from the well site or production facility site, and the site is abandoned. The well bore is secured by placing cement plugs to isolate hydrocarbon-producing formations from contaminating other mineral or water bearing formations. The site and roads are then restored as near as possible to original contours. Topsoil is replaced and the recontoured areas are seeded. Reclamation of access roads and well sites on privately owned surface is completed according to the surface owner’s requirements.

Rehabilitation requirements generally are made a part of the Application for Permit to Drill. Upon completion of abandonment and rehabilitation operations, the lessee or operator notifies the Great Falls Oil and Gas Field Station that the location is ready for inspection. Final abandonment will not be approved until the required surface reclamation work has been completed to the satisfaction of the BLM or surface owner. The period of bond liability for the well site is terminated after approval of final abandonment.

Reclamation of the reserve pit is part of the well site reclamation process. Reserve pit reclamation includes removal

of fluids to a disposal well or commercial pit and burial of solids in the pit. Solids should not be buried until dry and then covered with a minimum of 6 feet of native soil. Any pit liner may be buried in place. Methods such as solidification or dewatering may be used to help dry the solids.

REGULATIONS, LAWS, AND SPECIAL PROCEDURES

Unit and Communitization Agreements

Unit and *communitization* agreements can be formed in the interest of conservation and to allow for the orderly development of oil and gas reserves.

A unit agreement provides for the recovery of oil and gas from the lands as a single consolidated entity without regard to separate lease ownerships. An exploratory unit is used for the discovery and development of the field in an orderly and efficient manner. Paying and nonpaying well determinations are made for each well drilled. If the well is nonpaying as defined by the agreement, the production is allocated on a lease basis. If the well is a paying unit well, a participating area is formed and the production is allocated to all interest owners in the participating area based on surface area.

A secondary unit is formed after the field has been defined and enhanced recovery techniques are being utilized. Secondary recovery techniques include water injection, natural gas injection, or carbon dioxide injection. Injection is initiated to maintain the reservoir pressure to maintain oil production. The agreement provides for the allocation of production among all the interest owners.

A communitization agreement combines two or more leases (federal, state, or fee) that otherwise could not be independently developed in conformity with established well spacing patterns. The leases within the spacing unit share in the costs and benefits of the well drilled in the spacing unit. Therefore, unit and communitization agreements can lessen the amount of damage to the environment and save dollars by eliminating unnecessary wells, roads, pipelines, and lease equipment.

Drainage Provisions

Federal oil and gas leases include a clause that the lessee must protect the leased area from drainage by off-lease wells. The regulations at 43 CFR 3162-2-9(b) state that the lessee/operating rights owner has an obligation to notify the BLM if drainage is occurring. If the lessee/operating rights owner has an interest in the draining well, he must notify the BLM within 60 days after completion of a drill stem, production, pressure analysis, or flow tests of the well. However, if the

lessee/operating rights owner has no interest in the well, he must notify the BLM within 60 days after well completion or first production reports for the draining well are filed with either BLM, State Oil and Gas Commissions, or regulatory agencies and are publicly available. The lessee/operating rights owner must inform BLM of his plan to either protect the lease from the drainage, or demonstrate that a protective well would not be economic. The lessee has the option of drilling a protective well on lease or paying compensatory royalty for the lost oil or gas. The lessee also has the options of submitting data showing that drainage is not occurring or relinquish the portion of the lease subject to drainage after payment of compensatory royalty for drainage that did occur. The objective of the drainage program is to prevent the loss of federal oil and gas due to drainage by requiring the drilling of protective wells and, where appropriate, to assess compensatory royalty for such losses.

Drilling Access With No Surface Occupancy Stipulations on Oil Leases

No surface occupancy stipulations can restrict the development potential of a federal oil and gas lease. The no surface occupancy stipulations can limit the area that can be developed by restricting the amount of surface acreage available for occupancy. No surface occupancy restrictions often do not affect access to oil and gas resources unless there are blocks of contiguous land with no surface occupancy stipulation or the drilling depth is presumed to be shallow. The drilling access area is that area under a no surface occupancy lease or lease parcel that can be accessed by the well bore from a surface location outside of the areas (see Figure C).

Lands near the outer boundary of a lease affected by a no surface occupancy stipulation can theoretically be developed by directional drilling. The BLM cannot assume that a prudent operator would use new technology such as horizontal drilling to access an entire lease area. Although the technology might allow exploration, the expense might make the venture uneconomical. However, BLM can assume that an operator might be willing to directionally drill wells using equipment and drilling techniques that make the venture economical. For a directionally drilled well, a maximum deviation of approximately five degrees is a commonly used rule of thumb for how much a vertical hole can be economically deviated using a standard drilling rig.

A “directional drilling accessibility” concept has been developed for leases affected by no surface occupancy stipulations. Shallow wells in Montana, less than 6,000 feet deep, can be deviated up to 1/8 mile and have the angle of deviation remain reasonably close to five degrees. This will place the bottom hole location in the center of a 40-acre tract.

Because these wells are commonly spaced on a 40-acre basis, all spacing units within 1/4 mile of the outer boundary of the lease can be tested. Wells between 6,000 and 11,000 feet deep can also be deviated up to 1/4 mile. This will place the bottom hole location of the well the maximum allowable distance from the lease line for a well of this depth. Because these wells are spaced on a 160-acre basis, all spacing units within 1/2 mile of the exterior boundary of the lease can be tested.

Wells in Montana, with a total depth greater than 11,000 feet, are normally spaced on a 320-acre basis. These wells can be deviated up to 1/4 mile using the above criteria. Using this distance, all spacing units within 1/2 mile of the outer boundaries of an affected lease can be tested.

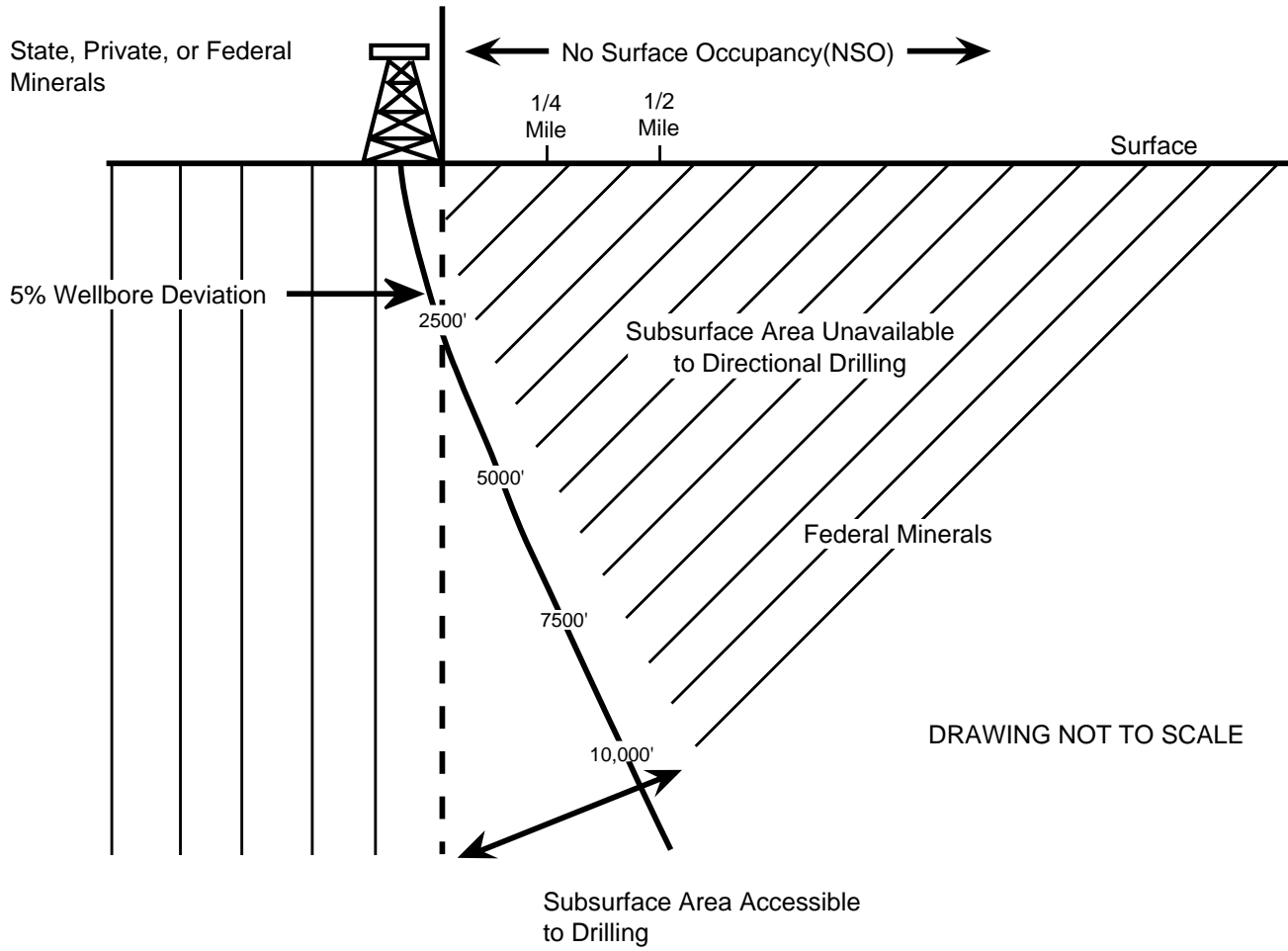
Split Estate

Part of the area included in the planning area contains lands known as split estate lands. These are lands where the surface ownership is different from the mineral ownership. Management of federal oil and gas resources on these lands is somewhat different from management on lands where both surface and mineral ownership is federal. On split estate lands where the surface ownership is private, the BLM places necessary restrictions and requirements on its leases and permit approvals and works in cooperation with the surface owner. BLM has established policies for the management of federal oil and gas resources in accordance with federal laws and regulations.

The BLM does not have the legal authority to regulate how private surface is managed. BLM does have the statutory authority to require measures by lessees to avoid or minimize adverse impacts that may result from federally authorized mineral lease activities. These measures, in the form of lease stipulations or permit conditions of approval, are intended to protect or preserve the privately owned resources and prevent adverse impacts to adjoining lands, not to dictate management to the surface owner.

The term split estate can also refer to lands where the surface ownership is federal and the mineral ownership is private. In this situation, BLM is the surface owner, and works in cooperation with the proponent and the state regulatory agency that approves private mineral applications. BLM has responsibilities in this situation under the previously mentioned statutes; however, BLM does not have the authority to approve or disapprove the mineral owner's actions. The mineral estate owner usually has the right to enter the land and use the surface that is necessary and reasonable for mineral development through either a reserved or an outstanding right contained in the deed.

Figure C
Directional Drilling Accessibility Concept



APPENDIX N

STANDARD OPERATING PROCEDURES FOR MINERAL MATERIAL SITES

Before establishing a new community pit, free use area, collection area or exclusive sale, a Plan of Operation and a Reclamation Plan will be prepared. The appropriate NEPA analysis will also be completed.

When appropriate and necessary a reclamation bond will be collected.

Reclamation and management of the site will when appropriate consist of the following:

- Suitable topsoil, subsoil, or underlying soil parent material that is suitable for plant growth will be removed and stored for site restoration.
- Topcover stockpiles will be stabilized in order to prevent erosion and dust.
- The area will be fenced to exclude livestock, promote revegetation, increase safety and reduce theft.
- A weed control plan will be developed or weed control will be addressed in the Plan of Operation.
- Purchasers of material will be warned of potential weed seeds.
- The pit walls will not exceed a safe working angle.
- Reclaimed slopes will not exceed 2.5:1 (h:v).
- Disturbed areas will be reclaimed to blend as closely as possible with natural contours.
- Final blending to natural contours should be considered and incorporated into the Plan of Operation.
- Stockpiled topcover will be replaced as soon as practically possible.
- Disturbed areas will be scarified (where necessary) and reseeded as soon as possible in order to reduce erosion, dust and visual effects.
- Measures may need to be taken to reduce visual effects. Visual effects should be considered and incorporated into the Plan of Operation.
- A seed mix approved by BLM and appropriate for the area will be used.
- Erosion controls will be incorporated into the Plan of Operation.
- If dust becomes excessive, measures will be taken to reduce the hazard.
- The site will be returned to as close as possible to the "Post Mining Land Use"
- All remaining litter or trash shall be removed from the site.

APPENDIX O

BLM ROAD AND TRAIL MAINTENANCE LEVELS

INTRODUCTION

Transportation system roads and trails are classified by maintenance levels specified in BLM Manual Handbook H-9113-2. Any changes or updates to maintenance levels will be incorporated into this planning guidance.

Road Maintenance Levels

<i>Maintenance Level</i>	<i>Assignment Criteria</i>	<i>Minimum Maintenance Standard</i>
Level 1	This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system.	Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless roadbed drainage is being adversely affected, causing erosion. Closure and traffic restrictive devices are maintained.
Level 2	This level is assigned to roads where the management objectives require the road to be opened for limited administrative traffic. Typically, these roads are passable by high clearance vehicles.	Drainage structures are to be inspected within a 3-year period and maintained as needed. Grading is conducted as necessary to correct drainage problems. Brushing is conducted as needed to allow administrative access. Slides may be left in place provided they do not adversely affect drainage.
Level 3	This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreation, or high volume administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced roads. These roads have defined cross section with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority.	Drainage structures are to be inspected at least annually and maintained as needed. Grading is conducted to provide a reasonable level of riding comfort at prudent speeds for the road conditions. Brushing is conducted as needed to improve sight distance. Slides adversely affecting drainage would receive high priority for removal, otherwise they will be removed on a scheduled basis.
Level 4	This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions) and to connect major administrative features (recreation sites, local road systems, administrative sites, etc.) to County, State, or Federal roads. Typically, these roads are single or double lane, aggregate, or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.	The entire roadway is maintained at least annually, although a preventative maintenance program may be established. Problems are repaired as discovered.
Level 5	This level is assigned to roads where management objectives require the road to be open all year and are the highest traffic volume roads of the transportation system.	The entire roadway is maintained at least annually and a preventative maintenance program is established. Problems are repaired as discovered. These roads may be closed or have limited access due to snow conditions.

BLM Trail Maintenance Levels

<i>Maintenance Level</i>	<i>Assignment Criteria</i>	<i>Minimum Maintenance Standard</i>
Level 1	These trails are closed to motorized and non-motorized use. This level is the minimum maintenance required to protect adjacent lands and resource values. The objectives may be to remove these trails from the trail system.	Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Brushing and removal of hazards is not performed unless trail drainage is being adversely affected, causing erosion. Closure devices are maintained.
Level 2	Low use trail with little or no contact between parties. Little or no visitor use management. Visitors may encounter obstructions like brush and deadfall.	Trail would require condition surveys once every year. Repairs will be done at the beginning of the season to prevent environmental damage and maintain access. Emphasis is given to maintaining drainage and mitigating hazards. The trail may be signed "Not Regularly Maintained". Major repair may not be done for several seasons.
Level 3	Moderate use trail with visitor use on a seasonal/and or peak use period with frequent contact between parties. Trail management is conducted with occasional visitor use patrols. Visitors are not likely to encounter obstructions.	The trail shall require a minimum of one condition survey 1 to 2 times per season. Major repairs shall be completed annually. Maintenance shall be scheduled two to three times per season, if required, to repair the trail for environmental damage and to maintain access. Trail is kept in good condition.
Level 4	High use trail used during specific times of the year with high frequencies of contact between parties. Regularly scheduled visitor use patrol and management.	Scheduled maintenance shall occur frequently during the use season (three or four times per season). Trail condition and accessibility for persons with disabilities is a major concern. Significant repairs shall be completed as within 10 workdays.
Level 5	A special high use trail with routine visitor use patrols and management.	Has a scheduled maintenance program. Trail condition and accessibility for persons with disabilities is a major concern. Significant repairs shall be completed within 2-3 workdays.

APPENDIX P

MOTORIZED ROUTE DESIGNATION PRINCIPLES

The Dillon Area Travel Management Subgroup of the Western Montana Resource Advisory Council developed and used the following principles to develop travel recommendations during development of the Dillon Resource Management Plan. BLM will continue to use the same principles when making adjustments to motorized route designations during plan implementation.

- Those routes that are open for motorized and/or non-motorized travel should be designated and signed as such;
- To determine the status of a given route, the BLM should consider environmental sensitivity and damage, weeds, wildlife habitat, enforcement concerns, and access to US Forest Service (USFS) lands;
- Riparian and sensitive areas should be protected;
- For motorized travel, loop routes are preferred to dead end routes;
- Game retrieval using motorized vehicles should be prohibited off roads;
- Except for designated play areas, motorized vehicle cross country travel is prohibited;
- Routes should be designated and signed as motorized or non-motorized;
- Motorized wheeled cross-country travel to a campsite must be limited to within 300 feet of roads and trails;
- Existing road designations may be changed pursuant to land management objectives;
- The travel management plan should include a weed mitigation program;
- The travel map should be as simple as possible;
- The travel management plan should be flexible about the location of new roads needed to provide access to new activities as long as the total road mileage is not increased; and
- BLM roads not accessible to the public should be closed except for BLM lease and administrative and emergency use.

APPENDIX Q

MANAGEMENT OF WILDERNESS STUDY AREAS IF RELEASED

Note: Areas identified for non-motorized recreational emphasis will only allow motorized access at the level approved through route designations and will not favor management activities that encourage increased motorized recreational use.

AXOLOTL LAKES

Semi-Primitive Non-Motorized Summer Recreation Use
Motorized and Non-Motorized Winter Use
VRM Class II
Land Adjustment Category 1
Locatable Minerals—Available
Oil and Gas—NSO
Other Leasable Minerals—Available
Saleable Minerals—Available
ROWs—Available

BELL/LIMEKILN CANYON

Semi-Primitive Non-Motorized Recreation
VRM Class II
Land Adjustment Category 2
Locatable Minerals—Available
Oil and Gas—Available
Other Leasable Minerals—Available
Saleable Minerals—Available
ROWs—Available

BLACKTAIL MOUNTAINS

Semi-Primitive Non-Motorized
VRM Class II
Land Adjustment Category 1 for lands recommended
for wilderness
Land Adjustment Category 2 for lands not recommended
for wilderness
Locatable Minerals—Available
Oil and Gas—NSO
Other Leasable Minerals—Not Available
Saleable Minerals—Not Available
ROWs—Available

CENTENNIAL MOUNTAINS

Semi-Primitive Non-Motorized
VRM Class II
Land Adjustment Category 1
Locatable Minerals—Available
Oil and Gas—NSO

Other Leasable Minerals—Not Available
Saleable Minerals—Not Available
ROWs—Available

EAST FORK BLACKTAIL DEER CREEK

Semi-Primitive Non-Motorized
VRM Class II
Land Adjustment Category 2
Locatable Minerals—Available
Oil and Gas—NSO
Other Leasable Minerals—Available
Saleable Minerals—Not Available
ROWs—Available

FARLIN CREEK

Semi-Primitive Non-Motorized
VRM Class III
Land Adjustment Category 2
Locatable Minerals—Available
Oil and Gas—Available
Other Leasable Minerals—Available
Saleable Minerals—Available
ROWs—Available

HENNEBERRY RIDGE

Emphasize Mountain Biking, Hiking
VRM Class III
Land Adjustment Category 2
Locatable Minerals—Available
Oil and Gas—Available
Other Leasable Minerals—Available
Saleable Minerals—Available
ROWs—Available

HIDDEN PASTURE CREEK

Semi-Primitive Non-Motorized Recreation
VRM Class III
Land Adjustment Category 2
Locatable Minerals—Available
Oil and Gas—Available
Other Leasable Minerals—Available
Saleable Minerals—Available except for Big Sheep Creek
area within 1/4 mile of river
ROWs—Available

RUBY MOUNTAINS

Semi-Primitive Non-Motorized Recreation

VRM Class II

Land Adjustment Category 1 for lands recommended for wilderness

Land Adjustment Category 2 for lands not recommended for wilderness

Locatable Minerals—Available

Oil and Gas—NSO in lands recommended for wilderness

Other Leasable Minerals— Not available in lands recommended for wilderness

Saleable Minerals— Not available in lands recommended for wilderness

ROWs— Not available in lands recommended for wilderness

APPENDIX R

MIGRATORY BIRD CONSERVATION

The BLM Dillon Field Office will use the following considerations, conservation strategies and priority species lists to implement migratory bird conservation in southwestern Montana. Management actions should focus on providing a variety of habitat characteristics that support successful breeding by migratory birds. This generally requires providing properly functioning habitats with the appropriate vegetation diversity, density and structure based on site potential to support nesting, security and foraging. Vegetation modification actions that reduce the capability of habitats to support these needs, such as prescribed fire, timber harvest, and livestock grazing, need to be evaluated for potential adverse impacts, particularly if they occur during the spring or early summer. The timing and intensity of these actions, as well as the type of habitat and bird species present, may substantially influence the level of impact to migratory birds. Such impacts have been considered to represent “take” under FWS regulations and have management implications. BLM’s goal is to implement management during project level activities that does not adversely affect migratory bird populations.

BLM MIGRATORY BIRD CONSERVATION STRATEGY

Non-game migratory birds are the primary species of concern under migratory bird conservation. Whereas waterfowl and migratory game birds are cooperatively managed by individual states and the USFWS with flyway-specific population and habitat goals and objectives, there has been less emphasis on developing and implementing management strategies to protect populations and habitat for other migratory birds, particularly neotropical migrants. These are species of songbirds, shorebirds and raptors that typically breed in North America but winter in Latin America. Because of these long-range migrations, it is important that quality habitats are adequately distributed along their migration routes to successfully reach their breeding and nesting grounds. It is also essential to provide sufficient quantities of suitable breeding habitat to maintain viable populations.

BLM’s Nongame Migratory Bird Habitat Conservation Plan (1992) provides the foundation for proactive habitat management on behalf of nongame birds that migrate to the tropics or use neotropical habitats. The overall intent is to reverse the decline in some bird populations and to implement this proactive program for other migratory species. The plan addresses goals for Inventory and Monitoring, Habitat Management, Research and Studies, Training, Education, Outreach and Communication, Domestic Partnerships, and International Partnerships. Habitat management

goals, management opportunities and recommended strategies from the plan include:

Goal

Restore, maintain, and enhance populations of nongame bird species through habitat management.

Recommended strategies

1. Prioritize breeding and migratory habitat for all nongame bird species so that management focus is on habitats of highest importance.
 - a. Prioritize the importance of each habitat type based upon bird use and total acreage present. This requires that each State possess a habitat and species inventory that will allow such ranking. The detail and resolution of the detail of the inventories will vary among States depending on what data is available. Coordination within the BLM and with its partners will be important in this process. A given habitat type may be rare on public land in one State, yet common in an adjacent state or on a nearby area. Thus specifying priorities will require not only good resource data but also good communication with other partners.
 - b. Complete a “gap analysis” to determine areas having high nongame bird habitat values that need increased management emphasis... The resolution of this analysis may be at different levels depending on the resource and management objectives, and executed at the level of the continent when identifying stopover habitats for long-distance migrants. The analysis may also be employed at the resource area level to identify needed breeding habitat ensuring a minimum, viable population of a particular species.
2. Consolidate areas under BLM administration with high nongame bird habitat values or potential.
 - a. When inventory and monitoring efforts have identified habitat with high bird values, attempt to combine such land as identified in Resource Management Plans via exchange or other suitable means. If voluntary exchange and/or acquisition is not possible, use easements Memoranda of Understanding or other methods to consolidate habitats into units of greater ecological value. This is especially important where such actions could provide landscape linkages supplying a bridge between large blocks already under management for nongame birds.
3. Restore degraded habitats to a condition consistent with nongame bird habitat objectives, emphasizing maintenance and enhancement of natural biological diversity.

- a. Promote viable nongame bird populations and natural biological diversity by implementing and/or continuing habitat restoration programs such as improved livestock management, prescribed burning, clearing of exotic vegetation, tree and shrub planting, seeding, fencing and erosion control structures.
 - b. Develop and implement management practices for riparian wetland and other areas that take into consideration impacts on nongame bird habitats. It is important for biologists and managers to pay close attention to how various management actions affect these species and their habitats. Research and experience will contribute to the future definition of “best management practices” for those species and their habitats.
4. Incorporate nongame bird management goals in resource Management Plans and activity plans as they are developed or amended.
 - a. Demonstrate that the BLM is a major player in species recovery by taking a prominent role in implementing specific recovery plans for Federally listed nongame birds that occur on public lands.
 - b. Develop and implement HMPs for all Federally listed and candidate species of nongame birds that are not covered by recovery plans.
5. Use the National Environmental Policy Act (NEPA) process to identify possible mitigation measures to avoid adverse impacts on nongame bird species and habitats.
 - a. Continue to apply the NEPA process in all management plans and decisions as a standard operating procedure. In many cases, several species will be involved and each species may have rather different behavior and biological requirements.

OTHER CONSERVATION PLAN OBJECTIVES

In addition to the Migratory Bird Conservation Plan, several other national strategy plans for bird conservation were developed in the 1990's for shorebirds, raptors, and waterfowl. The North American Wetland Conservation Act (NAWCA) provides the primary funding source for Joint Venture projects that can now be implemented for all bird species and their habitats, based on national priorities. The objectives for all of these plans are similar:

- 1) Determine population status and trends and identify their habitats on the public lands,
- 2) Restore, maintain and enhance populations through habitat management,
- 3) Conduct research and studies to obtain knowledge needed for informed decision-making for on-the-ground management of the importance of birds and their value to our natural heritage.

- 4) Develop a broad awareness and understanding of the importance of birds and their value to our natural heritage,
- 5) Build on existing relationships and create new partnerships to foster conservation programs, and
- 6) Establish international relationships to enhance hemispheric conservation programs for migratory species.

PRIORITY SPECIES OF CONCERN

Many of the high priority bird species identified in bird conservation plans are not currently included on BLM special status species lists. It is the intent of BLM to work with the bird conservation initiatives and the Partners in Flight prioritization process to identify where special status species recognition is warranted (see BLM Manual Supplement 6840). BLM sensitive species lists are reviewed periodically at the state level and should ensure coordination with the USFWS and Partners in Flight priority bird lists.

USFWS provides a list of Birds of Conservation Concern for specific geographic areas. The Dillon Field Office is included in the Northern Rockies Bird Conservation Region (BCR10) which recognizes the following priority species:

Swainson's hawk	Sanderling
Ferruginous hawk	Wilson's phalarope
Golden eagle	Yellow-billed cuckoo
Peregrine falcon	Flammulated owl
Prairie falcon	Black swift
Yellow rail	Lewis' woodpecker
American golden-plover	Willamson's sapsucker
Snowy plover	Red-naped sapsucker
Mountain plover	White-headed woodpecker
Solitary sandpiper	Loggerhead shrike
Upland sandpiper	Pygmy nuthatch
Whimbrel	Virginia's warbler
Long-billed curlew	Brewer's sparrow
Marbled godwit	McCown's longspur

Partners in Flight lists are developed nationally, regionally and by individual states through specific plans. The Montana Bird Conservation Plan identifies numerous priority species for grassland, shrubland, forest, riparian and wetland habitats with reasons for concern, management issues and recommendations, and population and habitat objectives. The following are considered as Priority 1 species in the MBC plan:

Common loon	Flammulated owl
Trumpeter swan	Burrowing owl
Harlequin duck	Black-backer woodpecker
Sage grouse	Olive-sided flycatcher
Piping plover	Brown creeper
Mountain plover	Sprague's pipit
Interior least tern	Baird's sparrow

APPENDIX S

THREATENED OR ENDANGERED SPECIES SCREENING PROCESS

Grizzly bears, wolves, bald eagles, and lynx are the listed species that occur incidentally throughout the Dillon Field Office. This appendix describes analysis screens developed by a Level 1 team of interagency field biologists to facilitate, streamline, and ensure consistency across administrative boundaries during Section 7 consultation under the Endangered Species Act.

The screens are designed to identify simple, straightforward actions that have insignificant or discountable effects on listed species. If proposed actions are fully compliant with the wildlife screens, and the screen leads to a “not likely to adversely affect” conclusion, they will likely be covered for terrestrial species by a programmatic concurrence from the U.S. Fish and Wildlife Service. These proposed actions could proceed once the appropriate documentation (i.e. biological assessment or worksheet with appropriate documentation) is completed. The screens are not all inclusive because some projects warrant additional analyses from the onset. Furthermore, even though an action is identified in the screen, the standard consultation procedure could still be required. A qualified wildlife biologist is responsible for implementing the screening process.

Wildlife screens are attached for bald eagle, gray wolf, and grizzly bear. Measures identified in the Lynx Conservation and Assessment Strategy (LCAS) will serve as the screen for lynx. The action agency will be required to submit periodic progress reports for NLAA actions that have been consulted on using the programmatic concurrence.

The following sections provide guidance on how to use the wildlife screens and emphasize when the programmatic concurrence would not apply. If programmatic concurrence does not apply, the standard¹ section 7 process would occur. The process described here follows and compliments the National Fire Plan consultation strategy. The screens developed for the National Fire Plan process consider the effects of certain fire-related projects and may be used to screen all National Fire Plan projects. The screens presented here consider the effects of most other activities.

CONDITIONS APPLICABLE TO ALL SCREENS

- The programmatic concurrence applies to Forest Service and BLM projects or actions where the biological assessment clearly leads to a “not likely to adversely affect” (NLAA) determination. Use of the consultation screens is intended to be a tool to arriving at an effects determination; the biologist must consider the effects of the action added to the environmental baseline and cumulative effects. The concurrence is expressly limited to those simple, straightforward actions that will have documentation supporting insignificant or discountable effects on wildlife. **More complex projects that do not clearly lead to an NLAA determination or those projects for which the project biologist has any threatened and endangered wildlife species concerns do not qualify for this programmatic concurrence. For these projects, biologists should follow standard consultation processes.**
- Further, projects not meeting or included in the species-specific criteria are not covered by the programmatic consultation and must follow the standard processes for conducting project analysis, biological assessment development, and consultation. Several activities are not included in the species’ screens because the nature of the activity warrants additional consideration provided through standard consultation procedures.
- If one species does not meet the screening criteria, then standard consultation procedures need to be followed for all species. However, it is possible to use the screens as a documentation process for those species that fit the screens and include this documentation alongside the analysis for the species that do not fit the screens.
- As always, cumulative effects must be considered; cumulative effects findings may cause the project to go to standard consultation.

¹ Standard consultation refers to the process whereby the action agency biologist commences dialogue with U.S. Fish and Wildlife Service (Service) counterparts to determine the appropriate consultation procedures. Typically this involves phone correspondence to apprise the Service of the effects of an ongoing project and to reach consensus on such an effect and to determine if informal consultation is sufficient or if the project should proceed to formal consultation. Upon agreement of the respective consultation procedure, the action agency biologist will submit the appropriate request and documentation to the Service for concurrence or a biological opinion.

- No Effect determinations are included in the species-specific flowcharts to assist in overall effect determinations even though consultation is not necessary.
- Application of the screens and determination of project effects for compliance with Section 7 must be accomplished by a qualified wildlife biologist.
- In no case does the programmatic concurrence apply to any project or action that has the potential to cause or increase the likelihood of take as defined by the Service's regulations.
- In the event that a project or action proceeds under the programmatic concurrence and exceeds the conditions of the programmatic concurrence, the action agency must initiate informal or formal consultation or request reaffirmation of concurrence, as appropriate, for that project or action.

APPENDIX T

BALD EAGLE PROJECT SCREENING ELEMENTS AND DETERMINATIONS

The bald eagle screen includes definitions and flowcharts to assist in the effects determination. If, according to the flowcharts, the project arrives at an NLAA determination, then the project qualifies for the programmatic concurrence. If the project arrives at 'Standard Consultation' then the aforementioned procedures must be followed.

All attempts were made to adhere to and be compatible with the guidance found in the Montana Bald Eagle Management Plan (July 1994). Please refer to the Montana Bald Eagle Management Plan for further, more detailed, information. For a proposed activity in or near bald eagle breeding habitat, take it through each of the screens that refers to the location in which the project will occur (e.g. Zone I, etc.). Read each separate section if it is within the area of zone affected.

Definitions:

Zone I-Nest Site Area, 1/4 mi (400 m) radius of all nest sites in the breeding area that have been active within 5 years or until an active nest is located. When an active nest is located, Zone I applies only to the active nest (MBEMP p.23). Zone maps may be modified if sufficient information on the bald eagles using them exists.

Zone II-Primary Use Area, includes the area 1/4 mi (400 m) to 1/2 mi (800 m) from all nest sites in the breeding area that have been active within 5 years or until an activities nest is located. When an active nest is located, Zone II applies only to the active nest (*Id.*p.23).

Zone III-Home Range, represents most of a home range used by eagles during the nesting season. It usually includes all suitable foraging habitat within 2.5 mi (4 km) of all nest sites in the breeding area that have been active within 5 years (*Id.* p.24).

Foraging Habitat-includes foraging habitat outside of Zones I, II and III where resident breeding birds may forage. This is essential for the entire population, not just resident breeding eagles. Includes lakes, rivers, wetlands and meadows (*Id.* p.24).

Human Activity-examples of low intensity such as dispersed recreation; high intensity is heavy equipment use, blasting, logging, or concentrated recreation (*Id.* p.24).

Development-development that may increase human activity levels or negatively impact bald eagle habitat (*Id.* p. 24 refers to permanent development)

Nesting Season (dates)-as early as Feb. 1 and as late as Aug. 15 in MT (*Id.* p.22); nest specific information will firm up the dates for that nest/pair

Postfledging-birds leave the nest area, generally in Aug. in MT

Habitat alteration-that which may negatively affect bald eagles include, but are not limited to, timber harvest, prescribed fire, power line construction, pesticide use, land clearing, stream channeling, levee or dam construction or wetland drainage (*Id.*p.23).

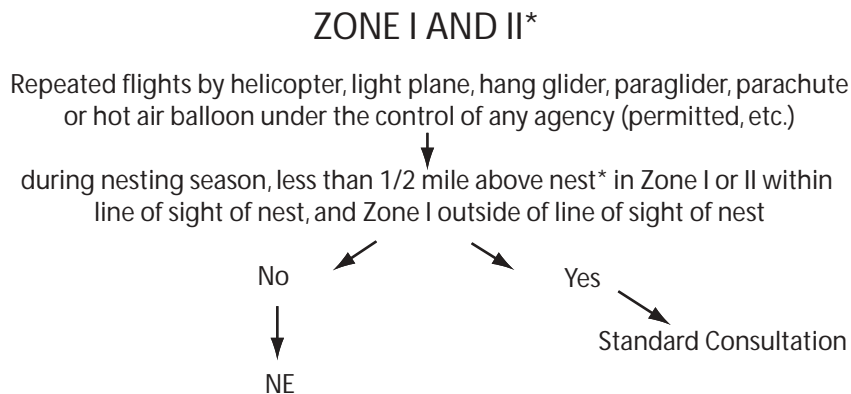
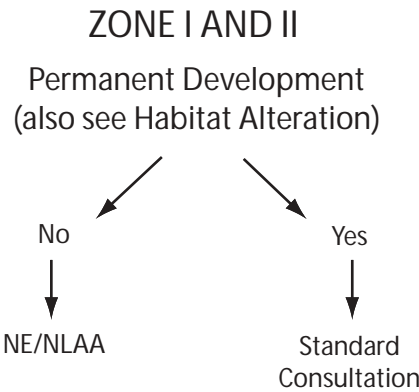
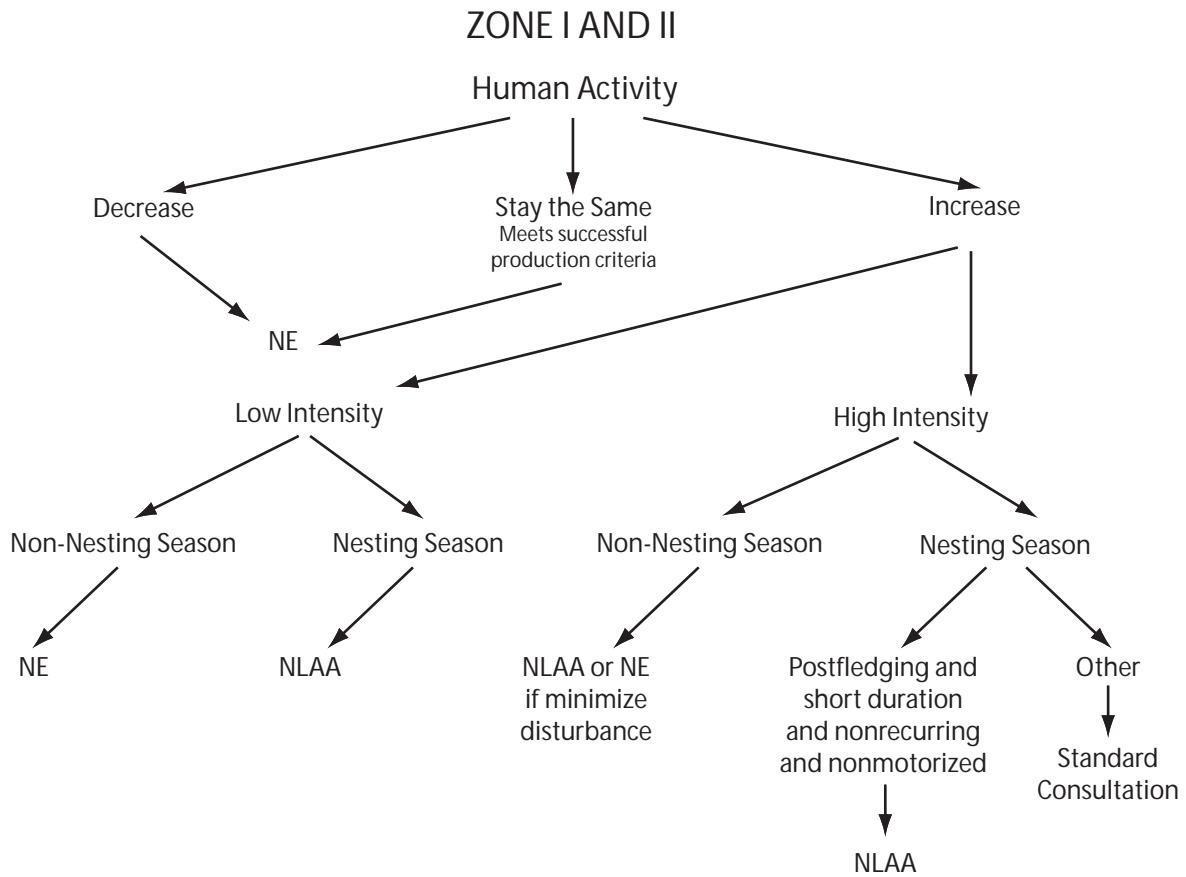
Nesting and feeding habitat characteristics-see MBEMP p. 27-28

Structures-example of a structure hazardous to bald eagles is overhead utility lines (*Id.* p.24)

Disturbance-any human elicited response that induces a behavioral or physiological change in a bald eagle contradictory to those that facilitate survival and reproduction. Disturbance may include elevated heart or respiratory rate, flushing from a perch or events that cause a bald eagle to avoid an area or nest site (*Id.* p. 48).

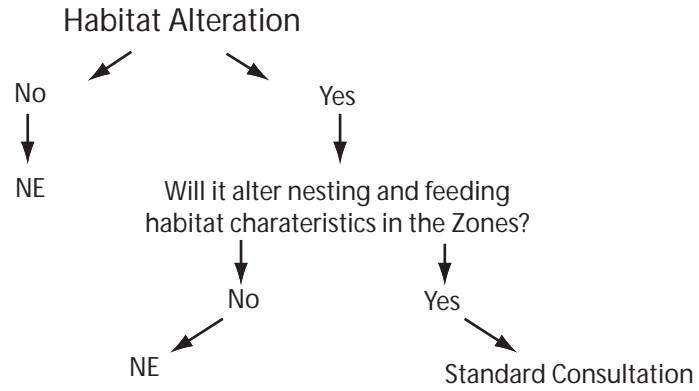
Key use areas-Parts of Zone III most used by bald eagles

Successful Production Criteria-60% nest success and has fledged 3 or more young during the preceding 5 years (*Id.* p. 23)



*not from MT BEMP, from Pacific Bald Eagle Recovery Plan, p. 53 (pers. comm. Eric Greenquist to Carole Jorgensen)

ZONE I, II AND III



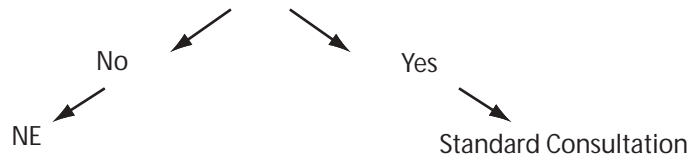
ZONE II and III and Foraging Areas

Structures proposed that pose no risk to bald eagles or their prey



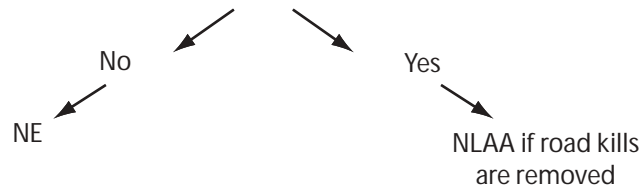
ZONE III

Disturbance proposed in key use areas



FORAGING AREAS

Will the project increase road kills?



APPENDIX U

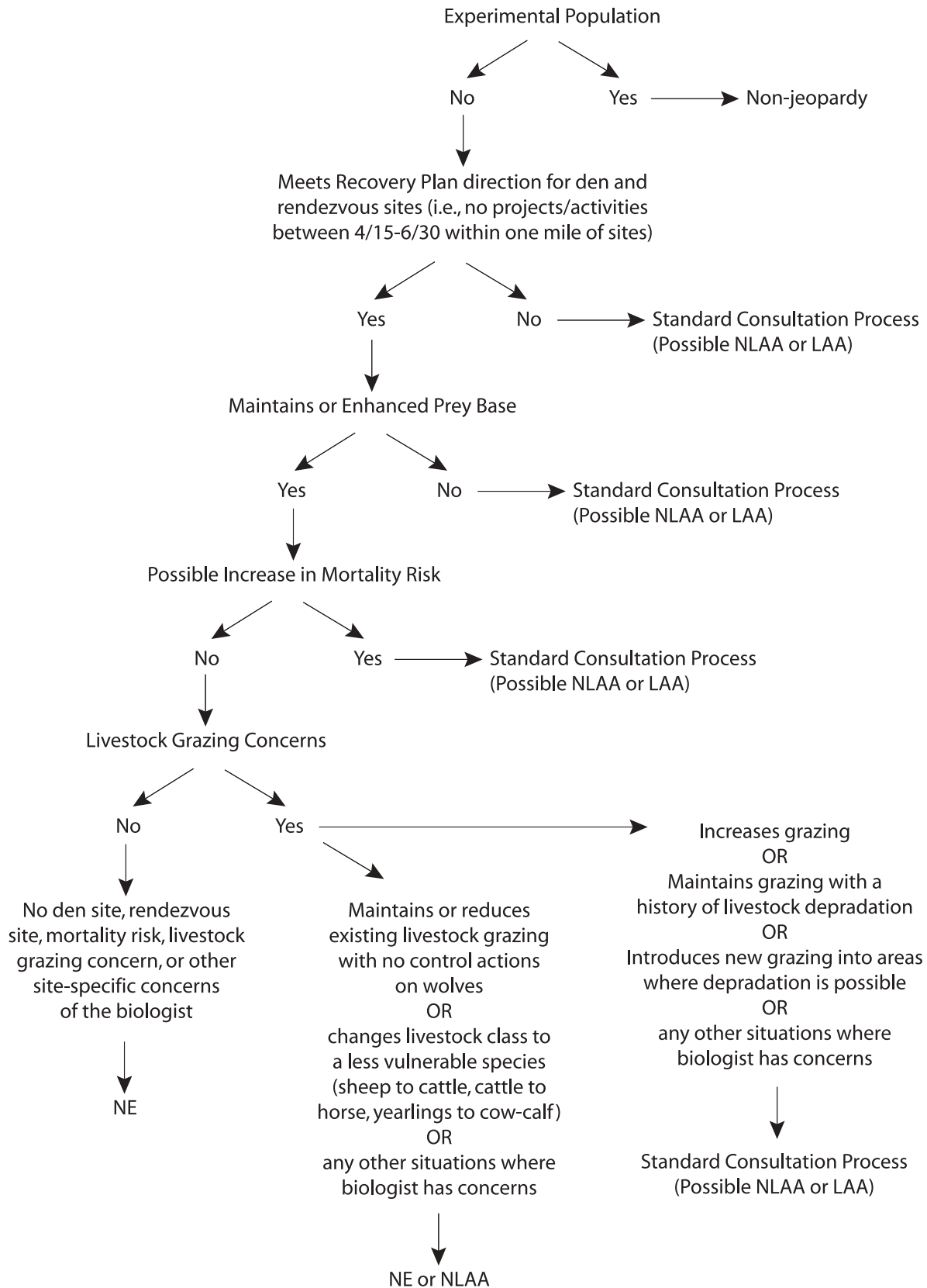
WOLF PROJECT SCREENING ELEMENTS AND DETERMINATIONS

The following screening process is intended to facilitate ESA processing of project consultation requirements. The wolf screen should be used to assist in identifying projects that have “no effect” (NE) or “not likely to adversely affect” (NLAA) determination calls for the wolf. All projects that do not fall into the NE or NLAA must consider the wolf by using the established process for evaluating impacts of proposed projects on threatened and endangered species [i.e. project analysis (including cumulative effects) Biological Assessment, and consultation with USFWS].

The gray wolf screen includes a series of flowcharts. If the project screens to the NLAA determination that is not prefaced with the ‘Standard Consultation’ requirement as identified on the flow chart, then the project qualifies for the programmatic concurrence. If the project screens to “Standard Consultation”, then the project is not included in the programmatic concurrence and standard consultation processes need to be followed. It is possible to reach an NLAA determination and still be required to apply standard consultation procedures. This is because the nature of the project warrants additional consideration above and beyond that provided by the programmatic concurrence.

The major components of the wolf screen are population designation (wild or experimental) and whether the proposed project has any relationship to den or rendezvous sites during spring/summer, the prey base and/or livestock grazing. The original draft of the wolf screen was based on the following references and personal communications and has been modified through review by the Montana Level I Team:

- USFWS 1987. Wolf Recovery Plan.
- Fontaine, Joe. Personal communication (with Mike Hillis)
- USDA and USDI. 2000. Interior Columbia Basin Ecosystem Management Project, Final Environmental Impact Statement.
- USDA and USDI. Biological Assessment. Interior Columbia Basin Ecosystem Management Project. In preparation.



APPENDIX V

GRIZZLY BEAR MANAGEMENT

GRIZZLY BEAR PROJECT SCREENING ELEMENTS AND DETERMINATIONS

The following grizzly bear screening process is intended to facilitate ESA processing of project consultation requirements for minor projects, when a “no effect” or “not likely to adversely affect” determination is “clearly” the appropriate conclusion. Projects not meeting or included in the criteria presented must follow standard processes for conducting project analysis, BA development, and consultation.

The process relies heavily upon criteria developed as a part of the R1, R4, R6 National Fire Plan Consultation Screening Process, LRMPs, consultation processes, and other relevant plans. Criteria may differ among areas or units, but since the criteria have gone through planning, decisions, and review, they are considered adequate management elements for this process.

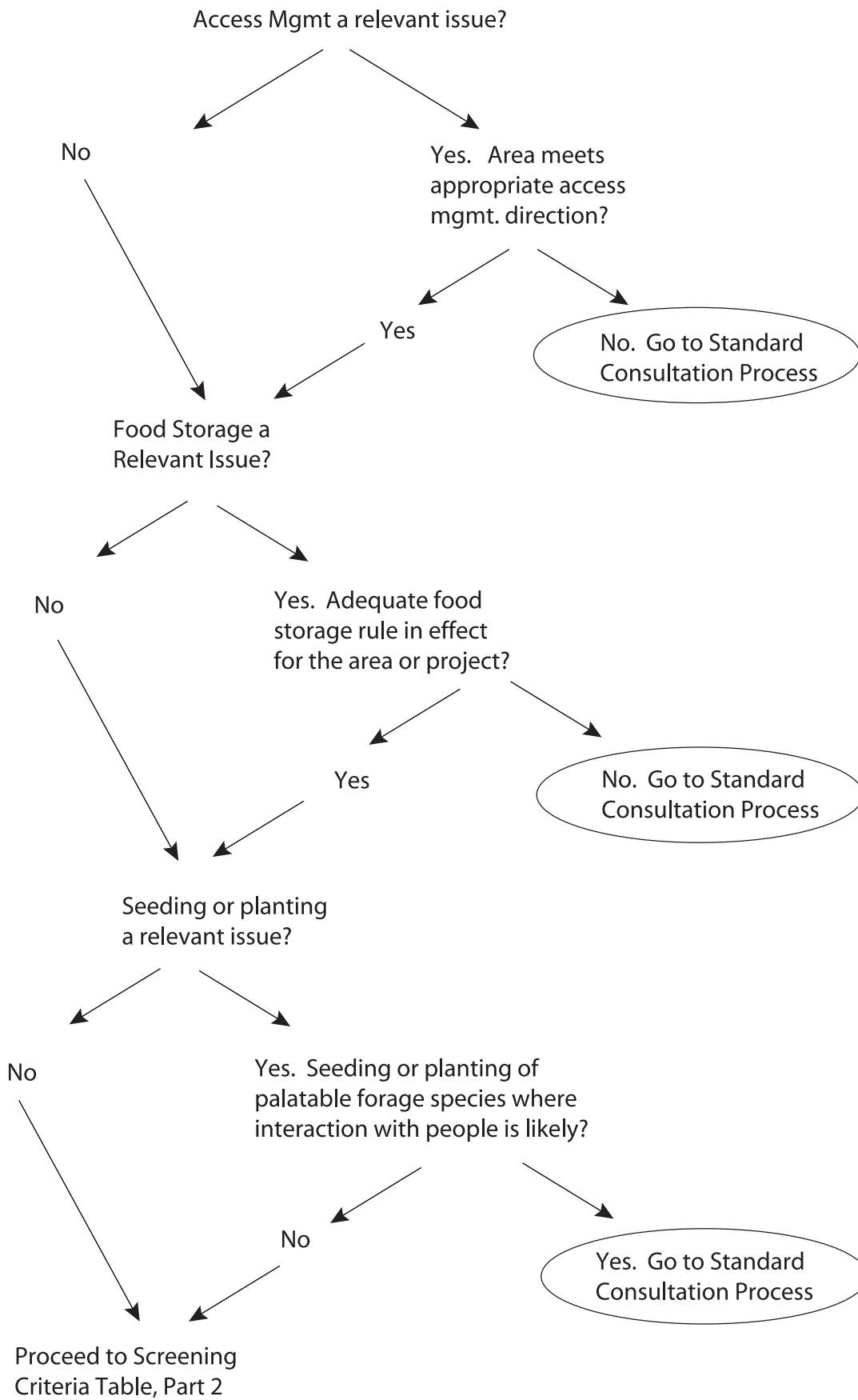
The grizzly bear screen is two-tiered. The Grizzly Bear Screening Process Part 1 is the first tier. If a proposed project does not satisfy the three considerations identified in Part 1 then standard consultation procedures must be followed. If the proposed project successfully meets the criteria identified in Part 1 then proceed to Part 2. Passing to the next tier

does not immediately guarantee that a project will be covered by the programmatic concurrence. If the project results in a “Not Likely to Adversely Affect” determination then the project is covered under the programmatic concurrence. If the project could potentially result in a “Likely to Adversely Affect” determination then standard consultation processes need to be followed.

Three considerations are prerequisite to more detailed consideration of other project information and are considered in screening process Part 1. (1) The area must be in compliance with the appropriate access management direction. (2) Human foods, livestock feed, garbage, and other attractants must be managed by the application of an adequate “food storage rule” similar to the NCDE or Yellowstone food storage orders. If no specific rule exists for the area, use of either the Yellowstone or NCDE order will be considered adequate. (3) Projects that involve seeding or planting of grasses, forbs, or shrubs, must do so in a manner that will tend not to attract bears into areas where increased mortality risk or interaction between bears and people is likely.

After access management, food/attractant storage, and seeding/planting of grasses, forbs, or shrubs have been considered in Part 1, only then can other project details be considered in Part 2 of the screening process

Grizzly Bear Screening Process Part 1



Part 2: The following Screening Criteria Table displays activities and criteria, that when met, will allow the project to meet “screening elements”. If the project does not meet the identified criteria, the project should proceed through the established consultation process.

<i>#</i>	<i>Activity Type</i>	<i>Activity Component</i>	<i>Crew Level and Duration of Use</i>	<i>Screening Criteria</i>	<i>Determination</i>
1	Forest Products	Personal use firewood collection, berry picking, low/incidental mushroom picking, and collection of “other forest products” (such as bear grass greens, medicinal herbs, pachistima, etc)	Day and overnight use	Does not include off road mechanical skidding. Include “bear aware” education message	NLAA
		Commercial firewood collection, berry picking, and “other forest products” (such as bear grass greens, medicinal herbs, pachistima, etc), but does not include mushrooms.	Day use only or camping of ≤ 20 individuals and ≤ 5 days total/analysis area	Does not include off road mechanical skidding. Enforce sanitation standards, and Include “bear aware” education message.	NLAA
2	Mechanical	Off road heavy equip operation, such as site prep, fuel piling, log yarding, etc	NA	NA	Potential LAA, go to Standard Consultation process
		Helicopter use for monitoring, prescribed fire ignition, wildlife relocations, etc	Use includes few trips and ≤ 2 activities/year and ≤ 2 days/activity/analysis area	NA	NLAA
3	Habitat Restoration	See timber harvest, mechanical treatments, roads, weed control, and prescribed fire. Also includes monitoring, exclosure development, fish barrier development, fish spp removal/trapping, rotenone treatment, interpretation/Con Ed, meadow restoration, riparian planting and restoration, snag creation, and water source development.	Day use only or camping of ≤ 20 individuals and ≤ 5 days/analysis area	Project occurs between July 1 through March 31 or completed in ≤ 1 day in riparian areas. Project does not result in an increase in public use or user type.	NLAA
4	Prescribed Fire	General support, ignition, mop-up	Day use only or camping of ≤ 20 individuals and ≤ 5 days/analysis area	Does not include riparian areas	NLAA
		Fire line construction	Same as support	Fire line does not/will not function as a travel way	NLAA
		Defensible space treatments (within 100m of structure)	Same as support	Planting and/or seeding does not include palatable forage spp.	NLAA
5	Range	Infrastructure development	NA	NA	NLAA
		Grazing		Maintains or reduces existing livestock grazing or changes livestock class to a less vulnerable spp, and no history of depredation or control actions	NLAA

<i>#</i>	<i>Activity Type</i>	<i>Activity Component</i>	<i>Crew Level and Duration of Use</i>	<i>Screening Criteria</i>	<i>Determination</i>
		Grazing		Increases livestock grazing, introduces new grazing into areas where depredation more likely, or history of livestock depredation	Potential LAA, go to Standard Consultation process
6	Recreation	Trail maintenance or reconstruction	NA	Results in increased use or change of user type	Potential LAA, go to Standard Consultation process
		Trail maintenance or reconstruction		Does not result in increase in use or change in user type	NLAA
		New Trail construction			Potential LAA, go to Standard Consultation process
		Facility operations, including developed and dispersed camping		Educate public campers and enforce sanitation standards. Does not increase use or change user type.	NLAA
		Facility operations, including developed and dispersed camping		Sanitation standards are not enforced or use is increased or user type is changed.	Potential LAA, go to Standard Consultation process
7	Roads & Road Maintenance	Opening closed road			Potential LAA, go to Standard Consultation process
		Reclaiming road outside of riparian/spring habitat		Meets administrative use levels	NLAA
		Reclaiming road in riparian/spring hab		Project occurs between July 1 through March 31 or completed in ≤1 day, and meets administrative use levels	NLAA
		Reclaiming road		Does not meet administrative use levels, or occurs in riparian/spring habitat and active during 4/1-6/30	Potential LAA, go to Standard Consultation process
		Road Maint: blading, culvert cleaning, brushing, etc		Road is open, or use meets administrative use criteria	NLAA
		New road construction			Potential LAA, go to Standard Consultation process

<i>#</i>	<i>Activity Type</i>	<i>Activity Component</i>	<i>Crew Level and Duration of Use</i>	<i>Screening Criteria</i>	<i>Determination</i>
		Bridge or stream culvert replacement		Project occurs between July 1 through March 31 or completed in ≤ 1 day	NLAA
8	Silviculture Activities	Reforestation hand planting	Day use only or camping of ≤ 20 individuals and ≤ 5 days/analysis area	Does not include snow plowing for access	NLAA
		Reforestation mechanical treatments	NA	NA	Potential LAA, go to Standard Consultation process
		Insect suppression Aerial chemical application	NA	Chemicals do not effect cutworm moth or habitat	NLAA
		Insect suppression Aerial chemical application	NA	Chemicals affect cutworm moth or habitat, and in moth habitat	Potential LAA, go to Standard Consultation process
		Insect suppression ground chemical application	NA	NA	NLAA
		Insect suppression survey, fertilization, manual treatment, individual tree fire treatment, or pheromone treatment	NA	NA	NLAA
		Precommercial thinning			Potential LAA, go to Standard Consultation process
9	Timber harvest	Harvest, skidding, and/or hauling of timber products	NA	NA	Potential LAA, go to Standard Consultation process
10	Watershed restoration	Includes erosion control structures, sediment control, monitoring. Also, see reforestation, timber harvest, mechanical treatments, etc.	Day use only or camping of ≤ 20 individuals and ≤ 5 days/analysis area	Project occurs between July 1 through March 31 or completed in ≤ 1 day	NLAA
11	Weed control	Chemical, aerial or ground application	NA	NA	NLAA
		Sheep or goat grazing	NA	NA	Potential LAA, go to Standard Consultation process

CONSERVATION ACTIONS FOR GRIZZLY BEARS

The following excerpts from the Yellowstone Conservation Strategy and Grizzly Bear Management Plan for Southwestern Montana are pertinent to grizzly bear management in

the Dillon Field Office. These are the conservation measures that address the needs and risk factors for grizzly bear, and will be used to evaluate land management authorizations. The DFO is outside the Primary Conservation Area for grizzly, and only those actions specific to areas outside the PCA will be used.

Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area March 2003

Chapter 1 - Introduction and Background

The future management of the Yellowstone grizzly bear population is envisioned as one in which the grizzly and its habitat are conserved as integral parts of the Greater Yellowstone Area. Within the Greater Yellowstone Area (GYA), the grizzly bear population and its habitat will be managed utilizing a management approach that identifies a Primary Conservation Area (PCA) and adjacent areas where occupancy by grizzly bears is anticipated and acceptable. The PCA is the existing Yellowstone grizzly bear recovery zone as identified in the 1993 *Grizzly Bear Recovery Plan (Recovery Plan)* (USFWS 1993). The size of the recovery zone is not being expanded in this approach. Upon implementation of this Conservation Strategy, management using a recovery zone line and grizzly bear Management Situations described in the Interagency Grizzly Bear Guidelines (IGBC 1986) will no longer be necessary. The PCA boundary will replace the recovery zone boundary. In the Conservation Strategy, management direction is described for both the PCA and adjacent areas within the GYA. State grizzly bear management plans, forest plans, and other appropriate planning documents will provide specific management direction for the adjacent areas outside the PCA.

This Conservation Strategy was developed to be the document guiding management and monitoring of the Yellowstone grizzly bear population and its habitat upon recovery and delisting. This approach will remain in place beyond recovery and delisting. Ongoing review and evaluation of the effectiveness of this Conservation Strategy is the responsibility of the state and federal managers in the GYA. This Conservation Strategy will be updated by the management agencies every five years or as necessary, allowing public comment in the updating process. Upon implementation of the Conservation Strategy, the Yellowstone Grizzly Coordinating Committee (YGCC) will replace the Yellowstone Ecosystem Subcommittee.

The Conservation Strategy and the State Management Plans

The purpose of this Conservation Strategy (Strategy) and the state plans is to:

- Describe and summarize the coordinated efforts to manage the grizzly bear population and its habitat to ensure continued conservation in the GYA
- Specify the population, habitat, and nuisance bear standards to maintain a recovered grizzly bear population for the foreseeable future
- Document the regulatory mechanisms and legal authorities, policies, management, and monitoring programs that exist to maintain the recovered grizzly bear population
- Document the commitment of the participating agencies

Implementation of the management strategies requires continued cooperation between federal and state agencies.

The GYA is a dynamic environment; monitoring systems in the Strategy allow for dynamic management as environmental issues change. The agencies are committed to be responsive to the needs of the grizzly bear by dynamic management actions based on the results of detailed annual population and habitat monitoring.

The vision of the Strategy can be summarized as follows:

- The PCA will be a secure area for grizzly bears, with population and habitat conditions maintained to ensure a recovered population is maintained for the foreseeable future and to allow bears to continue to expand outside the PCA.
- Outside of the PCA, grizzly bears will be allowed to expand into biologically suitable and socially acceptable areas.

- Outside of the PCA, the objective is to maintain existing resource management and recreational uses and to allow agencies to respond to demonstrated problems with appropriate management actions.
- Outside of the PCA, the key to successful management of grizzly bears lies in bears utilizing lands that are not managed solely for bears but in which their needs are considered along with other uses.
- Expand public information and education efforts.
- Provide quick responsive management to deal with grizzly bear conflicts.
- Manage grizzly bears as a game animal; including allowing regulated hunting when and where appropriate.

Relationship to Other Plans

By integrating state plans into the Strategy, it was ensured that the plans and the Strategy are consistent where necessary and complementary. The state plans are formally incorporated in the Conservation Strategy as Appendices K, L, and M. Relationships with national forest and national park plans are also mentioned throughout the Strategy. Land and resource management plans for some national forests, national parks, and the Bureau of Land Management (BLM) in the GYA have incorporated the habitat standards and other relevant provisions of the Conservation Strategy. For those standards and provisions not yet incorporated into management plans, the agencies will implement the habitat standards and monitoring requirements in this conservation strategy through their established planning processes, subject to NEPA or other legal requirements.

Chapter 2 - Population Standards and Monitoring

To maintain a healthy (recovered) grizzly bear population in the GYA, it is necessary to have adequate numbers of bears that are widely distributed with a balance between reproduction and mortality. This section details the population criteria in the *Recovery Plan* that were necessary to achieve recovery, and the population standards necessary to maintain it. *Recovery Plan* criteria focus on the PCA and a 10-mile perimeter, whereas standards in the Strategy and the parameters in appended state plans focus beyond the PCA and encompass the entire GYA. Because grizzly bears are a difficult species to monitor and manage, multiple standards with additional monitoring items are identified to provide sufficient information upon which to base management decisions. It is the goal of the agencies implementing this Conservation Strategy to manage the Yellowstone grizzly population in the entire GYA at or above a total of 500 grizzly bears.

Chapter 3 - Habitat Standards and Monitoring

The habitat standards identified in this document will be maintained at identified levels inside the PCA. In addition to the habitat standards, several other habitat factors will be monitored and evaluated to determine the overall condition of habitat for bears. It is the goal of the habitat management agencies to maintain or improve habitat conditions existing as of 1998, as measured within each subunit within the PCA, while maintaining options for management of resource activities at approximately the same level as existed in 1998. The habitat standards in this document are subject to revision based on the best available science and will be reviewed and updated as necessary.

Habitat standards include:

- Maintenance of secure habitat at 1998 levels in each BMU subunit through management of motorized access route building and density, with short-term deviations allowed under specific conditions. Secure habitat is defined as more than 500 meters from an open or gated motorized access route or reoccurring helicopter flight line and must be greater than or equal to 10 acres in size.
- The number of commercial livestock allotments and number of permitted domestic sheep will not exceed 1998 levels inside the PCA. Existing sheep allotments will be phased out as the opportunity arises with willing permittees.
- Management of developed sites at 1998 levels within each BMU subunit, with some exceptions for administrative and maintenance needs

Habitat criteria that will be monitored and reported include:

- Monitoring open and total motorized access route density in each BMU subunit inside the PCA
- Monitoring of four major food items throughout the Yellowstone area: winter ungulate carcasses, cut-throat trout spawning numbers, bear use of army cutworm moth sites, and whitebark pine cone production. The incidence of white pine blister rust in sampled areas will also be monitored.

- Monitoring of habitat effectiveness in the PCA using the databases from the Yellowstone Grizzly Bear Cumulative Effects Model
- Monitoring the number of elk hunters inside the PCA
- Monitoring the number of grizzly bear mortalities throughout the Yellowstone area on private lands and development of a protocol to monitor private land status and condition
- Land managers will ensure that habitat connectivity is addressed throughout the Yellowstone area as part of any new road construction or reconstruction

Chapter 4 - Management and Monitoring of Grizzly Bear/Human Conflicts

The management of grizzly bear/human conflicts inside the PCA is based upon the existing laws and authorities of the state wildlife agencies and federal land management agencies. Outside the PCA, state management plans will direct the management of nuisance bears. Management of nuisance bears usually falls into one or more of the following categories:

- Removing or securing the attractant
- Deterring the bear from the site through the use of aversive conditioning techniques
- Capturing and relocating the nuisance bear
- Removing the bear from the wild, including lethal control

The focus and intent of nuisance grizzly bear management inside and outside the PCA will be predicated on strategies and actions to prevent grizzly bear/human conflicts. It is recognized that active management aimed at individual nuisance bears will be required in both areas. Management actions outside the PCA will be implemented according to state management plans. These actions will be compatible with grizzly bear population management objectives for each state for the areas outside the PCA.

In circumstances that result in a nuisance bear situation outside the PCA, more consideration will be given to existing human uses. Site-specific conflict areas within and outside the PCA will be documented and prioritized to focus proactive management actions to minimize grizzly bear/human conflicts and address existing and potential human activities that may cause future conflicts. Past conflict management has demonstrated that grizzly bears can coexist with most human activities. Management of all nuisance bear situations will emphasize resolving the human cause of the conflict. Relocation and removal of grizzly bears may occur if other management actions are not successful.

Before any removal, except in cases of human safety, management authorities will consult with each other prior to judging the adequacy of the reason for removal. Captured grizzly bears identified for removal may be given to public research institutions or public zoological parks for appropriate non-release educational or scientific purposes as per regulations of states and national parks. Grizzly bears not suitable for release, research, or educational purposes will be removed as described in appropriate state management plans or in compliance with national park management plans. All grizzly bear relocations and removals will be documented and reported annually in the IGBST (Interagency Grizzly Bear Study Team) Annual Report.

Chapter 5 - Information and Education

The purposes of the information and education aspects of this cooperative effort are to support the development, implementation, and dissemination of a coordinated information and education program. This program should be understandable and useful for the people who visit, live, work, and recreate in bear habitat to minimize grizzly bear/human conflicts and to provide for the safety of people while building support for viable bear populations. Information made available to the public will be open and responsive to public concerns. Open discussions with the public will increase credibility of the grizzly bear management program. These efforts will be reviewed periodically and program adjustments will be made as necessary. In addition, efforts will be expanded as the bear population expands and additional efforts are needed in areas that could become occupied in the near future.

The current information and education (I & E) working group within the Greater Yellowstone Area will continue. Members of this I & E team include public affairs personnel from Forest Service Regions 1, 2, and 4; Grand Teton and Yellowstone National Parks; the BLM; representatives from each state wildlife agency; and the information and education specialist from the IGBC. This team will continue to work with all affected interests to ensure consistency of information, efficient funding strategies, identifying and targeting audiences, developing partnerships, and identifying new tools for implementation.

Grizzly Bear Management Plan for Southwestern Montana 2002-2012

Specific Habitat Management and Guidelines

FWP will seek to maintain road densities of one mile or less per square mile of habitat as the preferred approach. This is the goal of the statewide elk management plan (including the southwestern Montana areas covered by this plan). The goal seeks to meet the needs of a variety of wildlife while maintaining reasonable public access. If additional management is needed based on knowledge gained as bears reoccupy areas, it should be developed and implemented by local groups as suggested in this plan.

The following general management guidelines are applicable coordination measures. They should be considered when evaluating the effects of existing and proposed human activities in identified seasonally important habitats for a variety of wildlife species including grizzlies on federal and State lands.

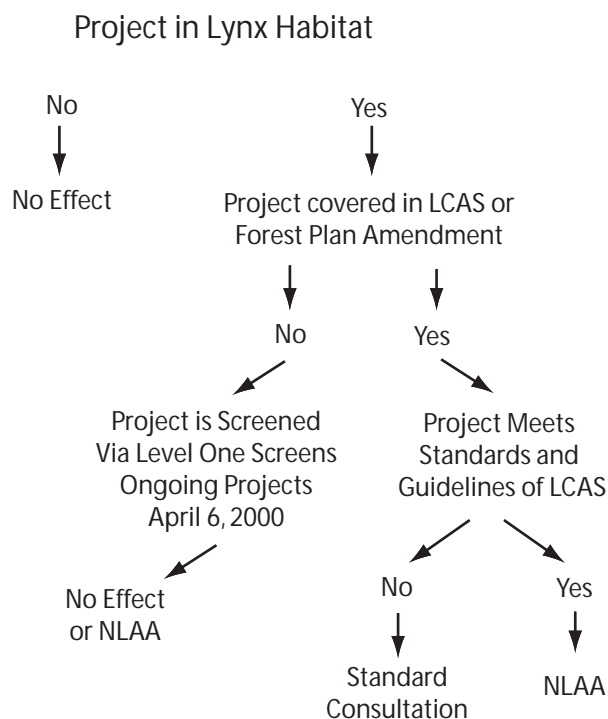
1. Identify and evaluate, for each project proposal, the cumulative effects of all activities, including existing uses and other planned projects. Potential site-specific effects of the project being analyzed are a part of the cumulative effects evaluation which will apply to all lands within a designated "biological unit". A biological unit is an area of land which is ecologically similar and includes all of the year-long habitat requirements for a sub-population of one or more selected wildlife species.
2. Avoid human activities, or combinations of activities, on seasonally important wildlife habitats that may result in an adverse impact on the species or reduce long-term habitat effectiveness.
3. Base road construction proposals on a completed transportation plan which considers important wildlife habitat components and seasonal use areas in relation to road location, construction period, road standards, seasons of heavy vehicle use, road management requirements, and more.
4. Use minimum road and site construction specifications based on projected transportation needs. Schedule construction times to avoid seasonal-use periods for wildlife as designated in species-specific guidelines.
5. Locate roads, drill sites, landing zones, etc., to avoid important wildlife habitat components based on site-specific evaluation.
6. Roads that are not compatible with area management objectives, and are no longer needed for the purpose for which they were built, will be closed and reclaimed. Native plant species will be used whenever possible to provide proper watershed protection on disturbed areas. Wildlife forage and/or cover species will be used in rehabilitation projects where appropriate.
7. Impose seasonal closures and/or vehicle restrictions based on wildlife, or other resource needs, on roads that remain open and enforce and prosecute illegal use by off-road vehicles if given authority. FWP will actively work to secure authority through the appropriate process and identify funding to support enforcement efforts.
8. FWP supports the U.S. Forest Service and BLM restrictions banning all off-road/trail use.
9. Efforts will be directed towards improving the quality of habitat in site-specific areas of habitually high human-caused bear mortality. Increased sanitation measures, seasonal road closures, etc., could be applied.

APPENDIX W LYNX MANAGEMENT

LYNX PROJECT SCREENING ELEMENTS AND DETERMINATIONS

The Lynx Conservation and Assessment Strategy will serve as the lynx screen. Projects that result in an NLAA determination as outlined in the LCAS will be covered by the programmatic concurrence. Screens may be developed that rely upon the LCAS, and documentation utilized in the “on-going” project clearance process used for lynx.

LYNX SCREEN



SUMMARY OF LYNX CONSERVATION ASSESSMENT AND STRATEGY (LCAS) AND LYNX CONSERVATION MEASURES

The BLM and FWS signed a Conservation Agreement to promote the conservation of the Canada lynx and its habitat on BLM lands, using the Lynx Science Report and the Lynx Conservation and Assessment Strategy. The LCAS was developed in place of the normal recovery plan previously used for most other species listed under ESA.

The agreement and strategy identify objectives, standards, guidelines, and conservation measures to reduce or eliminate risk factors. These measures are intended to conserve the lynx, and to reduce or eliminate adverse effects from the spectrum of management activities on federal lands. These measures are provided to assist federal agencies in seeking opportunities to benefit lynx and to help avoid negative impacts through the thoughtful planning of activities. Plans that incorporate them, and projects that implement them, are generally not expected to have adverse effects on lynx, and implementation of these measures across the range of the lynx is expected to lead to conservation of the species.

Critical habitat for the Canada Lynx was not designated through the listing process. The LCAS instead relies on defining potential habitat based on vegetation characteristics and prey availability wherever that may occur since current lynx populations are small and widely dispersed. Conservation focus is to:

- Manage forested habitat within the historic range of variability for vegetation, and maintain large unfragmented blocks of forest with the appropriate structure;
- Maintain dense understory conditions providing cover and forage for snowshoe hares as the primary lynx prey base;
- Minimize snow compaction that would encourage access for competing predators into lynx habitat; and
- Provide connections within and between lynx habitat areas, emphasizing riparian habitats.

CONSERVATION MEASURES APPLICABLE TO ALL PROGRAMS AND ACTIVITIES

Because it is impossible to provide standards and guidelines to address all possible actions in all locations across the broad range of the lynx, it is imperative that project specific analysis and design be completed for all actions that have the potential to affect lynx. Circumstances unique to individual projects or actions and their locations may still result in adverse effects on lynx. In these cases, additional or modified mitigating measures may be necessary to avoid or minimize adverse effects.

Programmatic planning - objectives

1. Design vegetation management strategies that are consistent with historical succession and disturbance re-

gimes. The broad-scale strategy should be based on a comparison of historical and current ecological processes and landscape patterns, such as age-class distributions and patch size characteristics. It may be necessary to moderate the timing, intensity, and extent of treatments to maintain all required habitat components in lynx habitat, to reduce human influences on mortality risk and interspecific competition, and to be responsive to current social and ecological constraints relevant to lynx habitat.

Programmatic planning - standards

1. Conservation measures will generally apply only to lynx habitat on federal lands within LAUs.
2. To facilitate project planning, delineate LAUs. To allow for assessment of the potential effects of the project on an individual lynx, LAUs should be at least the size of area used by a resident lynx and contain sufficient year-round habitat.
3. To be effective for the intended purposes of planning and monitoring, LAU boundaries will not be adjusted for individual projects, but must remain constant.
4. Lynx habitat will be mapped using criteria appropriate to each geographic area.
5. Prepare a broad-scale assessment of landscape patterns that compares historical and current ecological processes and vegetation patterns, such as age-class distributions and patch size characteristics. In the absence of guidance developed from such an assessment, limit disturbance within each LAU as follows: if more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.

Programmatic planning - guidelines

1. The size of LAUs should generally be 6,500- 10,000 ha (16,000 – 25,000 acres or 25-50 square miles) in contiguous habitat, and likely should be larger in less contiguous, poorer quality, or naturally fragmented habitat. Larger units should be identified in the southern portions of the Northern Rocky Mountains Geographic Area (in Idaho from the Salmon River south, Oregon, Wyoming, and Utah) and in the Southern Rocky Mountains Geographic Area.

In the west, we recommend using watersheds (e.g., 6th code hydrologic unit codes (HUCs) in more northerly portions of geographic areas, and 5th code HUCs in more southerly portions). In the east, terrestrial ecological units that have been delineated at the landtype association or subsection level (e.g., LTAs or whatever scale most closely approximates the size of a lynx home range) may be an appropriate context for analysis. Coordinate delineation of LAUs with adjacent administrative units and state wildlife management agencies, where appropriate.

2. After LAUs are identified, their spatial arrangement should be evaluated. Determine the number and arrangement of contiguous LAUs needed to maintain lynx habitat well distributed across the planning area. LAUs with only insignificant amounts of lynx habitat may be discarded, or portions of the unit combined with or divided among neighboring LAUs to provide a meaningful unit for analysis.

Project planning - standards

1. Within each LAU, map lynx habitat. Identify potential denning habitat and foraging habitat (primarily snowshoe hare habitat, but also habitat for important alternate prey such as red squirrels), and topographic features that may be important for lynx movement (primary ridge systems, prominent saddles, and riparian corridors). Also identify non-forest vegetation (meadows, shrub-grassland communities, etc.) adjacent to and intermixed with forested lynx habitat that may provide habitat for alternate lynx prey species.
2. Within a LAU, maintain denning habitat in patches generally larger than 5 acres, on at least 10 percent of the area that is capable of producing stands with these characteristics. Where less than 10 percent of the forested lynx habitat within a LAU provides denning habitat, defer those management actions that would delay achievement of denning habitat structure.
3. Maintain habitat connectivity within and between LAUs.

CONSERVATION MEASURES TO ADDRESS RISK FACTORS AFFECTING LYNX PRODUCTIVITY

Timber Management in Lynx Habitat

Timber management modifies the vegetation structure and mosaic of forested landscapes. Timber management can be used in conjunction with, or in place of, fire as a disturbance process to create and maintain snowshoe hare habitat. In the southern portion of its range, lynx populations appear to be limited by the availability of snowshoe hare prey, as suggested by large home range sizes, high kitten mortality due to starvation, and greater reliance on alternate prey, especially red squirrels, as compared with populations in northern Canada. Timber management practices should be designed to maintain or enhance habitat for snowshoe hare and alternate prey such as red squirrel. Dense horizontal cover of conifers, just above the snow level in winter, is critical for snowshoe hare habitat. This structure may occur either in regenerating seedling/sapling stands, or as an understory layer in older stands.

Most aspen stands in the Rocky Mountains are in late successional condition as a result of past fire prevention and grazing. In aspen stands intermixed with spruce-fir forests, particularly in southern Idaho, southern Montana, Wyoming, Utah, and Colorado, treatments that result in dense regeneration of aspen are likely to enhance habitat for potential prey of lynx.

Programmatic planning - objectives

1. Evaluate historical conditions and landscape patterns to determine historical vegetation mosaics across landscapes through time. For example, large infrequent disturbance events may have been more characteristic of lynx habitat than small frequent disturbances.
2. Maintain suitable acres and juxtaposition of lynx habitat through time. Design vegetation treatments to approximate historical landscape patterns and disturbance processes.
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure, and patterns more similar to those that would have occurred under historical disturbance regimes.

Project planning - objectives

1. Design regeneration harvest, planting, and thinning to develop characteristics suitable for snowshoe hare habitat.
2. Design project to retain/enhance existing habitat conditions for important alternate prey (particularly red squirrel).

Project planning - standards

1. Management actions (e.g., timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10-year period.
2. Following a disturbance such as blowdown, fire, insects, and disease that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres; exceptions would include areas such as developed campgrounds. Where larger areas are affected, retain a minimum of 10% of the affected area per LAU in patches of at least 5 acres to provide future denning habitat. In such areas, defer or modify management activities that would prevent development or maintenance of lynx foraging habitat.
3. In lynx habitat, pre-commercial thinning will be allowed only when stands no longer provide snowshoe hare habitat (e.g., self-pruning processes have eliminated snowshoe hare cover and forage availability during winter conditions with average snowpack).
4. In aspen stands within lynx habitat in the Cascade Mountains, Northern Rocky Mountains and Southern Rocky Mountains Geographic Areas, apply harvest prescriptions that favor regeneration of aspen.

Project planning - guidelines

1. Plan regeneration harvests in lynx habitat where little or no habitat for snowshoe hares is currently available, to recruit a high density of conifers, hardwoods, and shrubs preferred by hares. Consider the following:
 - a) Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris;
 - b) Design harvest units to mimic the pattern and scale of natural disturbances and retain natural connectivity across the landscape. Evaluate the potential of riparian zones, ridges, and saddles to provide connectivity; and
 - c) Provide for continuing availability of foraging habitat in proximity to denning habitat.
2. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc). Improvement harvests should be designed to:
 - a) Retain and recruit the understory of small diameter conifers and shrubs preferred by hares;
 - b) Retain and recruit coarse woody debris, consistent with the likely availability of such material under natural disturbance regimes; and
 - c) Maintain or improve the juxtaposition of denning and foraging habitat.

Wildland Fire Management

Wildland fire and insects have historically played the dominant role in maintaining a mosaic of forest successional stages in lynx habitat. Stand-replacing fires were infrequent and affected large areas. In areas with a mixed fire regime, moderate to low intensity fires also occurred in the intervals between stand-replacing events. Refer to the geographic area descriptions for more detailed information regarding historical fire regimes.

Periodic vegetation disturbances maintain the snowshoe hare prey base for lynx. In the period immediately following large stand-replacing fires, snowshoe hare and lynx densities are low. Populations increase as the vegetation grows back and provides dense horizontal cover, until the vegetation grows out of the reach of hares. Low to moderate intensity fires may also stimulate understory development in older stands.

Fire exclusion may have altered the pattern and composition of vegetation in subalpine forests. In the western United States, particularly in the southern portion of the Northern Rocky Mountains Geographic Area and in the Southern Rocky Mountains Geographic Area, fire exclusion is one of the primary factors contributing to the decline or loss of aspen. Aspen communities occupy a small percentage of

the total forested area, but they provide important habitat diversity. Aspen/tall forb community types, especially those that include snowberry, serviceberry and chokecherry shrubs in the understory, are very productive and may contribute to the quality of lynx foraging habitat.

Wildland fire management activities include suppression and pre-suppression activities, as well as prescribed fire (natural and management ignitions).

Programmatic planning - objectives

1. Restore fire as an ecological process. Evaluate whether fire suppression, forest type conversions, and other forest management practices have altered fire regimes and the functioning of ecosystems.
2. Revise or develop fire management plans to integrate lynx habitat management objectives. Prepare plans for areas large enough to encompass large historical fire events.
3. Use fire to move toward landscape patterns consistent with historical succession and disturbance regimes. Consider use of mechanical pre-treatment and management ignitions if needed to restore fire as an ecological process.
4. Adjust management practices where needed to produce forest composition, structure, and patterns more similar to those that would have occurred under historical succession and disturbance regimes.
5. Design vegetation and fire management activities to retain or restore denning habitat on landscape settings with highest probability of escaping stand-replacing fire events. Evaluate current distribution, amount, and arrangement of lynx habitat in relation to fire disturbance patterns.

Project planning - objectives

1. Use fire as a tool to maintain or restore lynx habitat.
2. When managing wildland fire, minimize creation of permanent travel ways that could facilitate increased access by competitors.

Project planning - standards

1. In the event of a large wildfire, conduct a post-disturbance assessment prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.
2. Design burn prescriptions to regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).

Project planning - guidelines

1. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare.
2. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.

3. Consider the need for pre-treatment of fuels before conducting management ignitions.
4. Avoid constructing permanent firebreaks on ridges or saddles in lynx habitat.
5. Minimize construction of temporary roads and machine fire lines to the extent possible during fire suppression activities.
6. Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maintains adequate lynx denning habitat (10% of lynx habitat per LAU).

Recreation Management

Lynx have evolved a competitive advantage in environments with deep soft snow that tends to exclude other predators during the middle of winter, a time when prey is most limiting (Murray and Boutin 1991, Livaitis 1992, Buskirk et al. 1999). Widespread human activity (snowshoeing, cross-country skiing, snowmobiling, snow cats) may lead to patterns of snow compaction that make it possible for competing predators such as coyotes and bobcats to occupy lynx habitat through the winter, reducing its value to and even possibly excluding lynx (Bider 1962, Ozoga and Harger 1966, Murray et al. 1995, O'Donoghue et al. 1998). In order to maintain a competitive advantage for lynx, it may be necessary to minimize or even preclude snow compacting activities in and around quality snowshoe hare habitat. To not do so may lead to the elimination of lynx, or preclude the ability to re-establish them, in these landscapes.

A consideration for lynx in winter landscapes is exploitation or interference competition from other predator/competitors (Buskirk et al. 1999) and human disturbance (e.g., large developed recreational sites or areas of concentrated winter recreational use). Lynx may be able to adapt to the presence of regular and concentrated recreational use, so long as critical habitat needs are being met. Therefore it is essential that an interconnected network of foraging habitat be maintained that is not subjected to widespread human intervention or competition from other predator species.

In areas of concentrated recreational use (e.g., large ski areas), it may be necessary to maintain or provide "diurnal security habitat". In landscapes where there is widespread or intense recreational use, the natural diurnal patterns of human and lynx activity may provide the opportunity to maintain both uses in the landscape. Most human activity occurs during daylight hours, while lynx appear to be most active dusk to dawn, although weather may affect the time period when lynx are most active (Apps 1999). A key to providing temporal segregation of use may be in ensuring there are places in that landscape where lynx can bed during the day relatively undisturbed. Sites that are similar to denning habitat (i.e., areas that are tangled with large woody debris) will tend to exclude most human activity because of the inherent difficulty they pose for human movement. Di-

urnal security habitat should be sufficiently large to provide effective and visual insulation from human activity, and must be well distributed and in proximity to foraging habitat.

Where such diurnal security sites exist, they should be protected from actions or activities that would destroy or compromise their functional value. In landscapes where these areas are lacking or inadequate, it may be desirable to create them, focusing on location, adequate size, and an abundance of jackstrawed large woody debris.

Landscape connectivity may be provided by narrow forested mountain ridges, plateaus, or forest stringers that link more extensive areas of lynx habitat. Woodland riparian communities that provide travel cover across otherwise open areas may also provide connectivity.

Minimizing disturbance around denning habitat is important from May to August.

Programmatic planning - objectives

1. Plan for and manage recreational activities to protect the integrity of lynx habitat, considering as a minimum the following:
 - a) Minimize snow compaction in lynx habitat.
 - b) Concentrate recreational activities within existing developed areas, rather than developing new recreational areas in lynx habitat.
 - c) On federal lands, ensure that development or expansion of developed recreation sites or ski areas and adjacent lands address landscape connectivity and lynx habitat needs.

Programmatic planning - standards

1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.
2. Map and monitor the location and intensity of snow compacting activities (for example, snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.) that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes available.

Programmatic planning - guidelines

1. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged.
2. As information becomes available on the impact of snow-compacting activities and disturbance on lynx, limit or discourage this use in areas where it is shown to compromise lynx habitat. Such actions should be undertaken on a priority basis considering habitat function and importance.

Project planning - standards

Developed Recreation:

1. In lynx habitat, ensure that federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreation developments.
2. Design trails, roads, and lift termini to direct winter use away from diurnal security habitat.

Dispersed Recreation:

1. To protect the integrity of lynx habitat, evaluate (as new information becomes available) and amend as needed, winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat.

Project planning - guidelines.

Developed Recreation:

1. Identify and protect potential security habitats in and around proposed developments or expansions.
2. When designing ski area expansions, provide adequately sized coniferous inter-trail islands, including the retention of coarse woody material, to maintain snowshoe hare habitat.
3. Evaluate, and adjust as necessary, ski operations in expanded or newly developed areas to provide nocturnal foraging opportunities for lynx in a manner consistent with operational needs, especially in landscapes where lynx habitat occurs as narrow bands of coniferous forest across the mountain slopes.

Forest/Backcountry Roads and Trails

Forest and backcountry roads and trails are those that occur on public lands; highways are addressed separately. Refer also to the conservation measures in the Forest Management, Recreation, and Trapping sections.

Plowed roads and groomed over-the-snow routes may allow competing carnivores such as coyotes and mountain lions to access lynx habitat in the winter, increasing competition for prey (Buskirk et al. 1999). However, plowed or created snow roads may be necessary to accomplish winter logging, which may be desirable to meet a variety of resource management objectives.

Preliminary information suggests that lynx may not avoid roads, except at high traffic volumes. Therefore, at this time, there is no compelling evidence to recommend management of road density to conserve lynx. However, new road construction continues to occur in many watersheds within lynx habitat, many of which are already highly roaded, and the effects on lynx are largely unknown. Further research directed at elucidating the effects of road density on lynx is needed.

Programmatic planning - objectives

1. Maintain the natural competitive advantage of lynx in deep snow conditions.

Programmatic planning - standards

1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.

Programmatic planning - guidelines.

1. Determine where high total road densities (>2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.
2. Minimize roadside brushing in order to provide snowshoe hare habitat.
3. Locate trails and roads away from forested stringers.
4. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.
5. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.

Livestock Grazing

In riparian areas within lynx habitat, ungulate forage use levels may reduce forage resources available to snowshoe hares. Browsing or grazing can have a direct effect on snowshoe hare habitat if it alters the structure or composition of native plant communities.

Throughout the Rocky Mountains, grazing has been a factor in the decline or loss of aspen as a seral species in subalpine forests. Young, densely regenerating aspen stands with a well-developed understory provide good quality habitat for snowshoe hares and other potential lynx prey species, such as grouse. Grazing should be managed to allow for regeneration of aspen clones.

Particularly in the naturally fragmented habitats of the western United States, inclusions of high elevation shrub-steppe habitats often may exist within the home range of a lynx. Resident lynx are also known to occasionally make exploratory movements out of their home ranges (Squires and Laurion 1999, Aubry et al. 1999), encountering these habitats and potential alternate prey such as ground squirrels and jackrabbits. Therefore, shrub-steppe habitats within the elevational ranges of forested lynx habitat should be considered lynx habitat and be managed to maintain or achieve mid-seral or higher conditions, thereby providing maximum natural cover and prey availability. Those areas that are currently in late seral condition should not be degraded.

Programmatic planning - objectives

1. In lynx habitat and adjacent shrub-steppe habitats, manage grazing to maintain the composition and structure of native plant communities.

Project planning - objectives

1. Manage livestock grazing within riparian areas and willow carrs in lynx habitat to provide conditions for lynx and lynx prey.
2. Maintain or move towards native composition and structure of herbaceous and shrub plant communities.
3. Ensure that ungulate grazing does not impede the development of snowshoe hare habitat in natural or created openings within lynx habitat.

Project planning - standards

1. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components. Delay livestock use in post-fire and post-harvest created openings until successful regeneration of the shrub and tree components occurs.
2. Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.
3. Within the elevational ranges that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to maintain or achieve mid seral or higher condition.
4. Within lynx habitat, manage livestock grazing in riparian areas and willow carrs to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.

Other Human Developments: Oil & Gas Leasing, Mines, Reservoirs, Agriculture

Most of these activities affect lynx habitat by changing or eliminating native vegetation, and may also contribute to fragmentation. The primary effects of leases and mines on lynx are probably related to the potential for plowed roads to provide access for lynx competitors, particularly coyotes. Construction of reservoirs will be handled under normal FERC and consultation procedures, and no conservation measures were developed specific to those projects.

Programmatic planning - objectives

1. Design developments to minimize impacts on lynx habitat.

Programmatic planning - guidelines

1. Map oil and gas production and transmission facilities, mining activities and facilities, dams, and agricultural lands on public lands and adjacent private lands, in order to assess cumulative effects.

Project planning - standards

1. On projects where over-snow access is required, restrict use to designated routes.

Project planning - guidelines

1. If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.
2. Minimize snow compaction when authorizing and monitoring developments. Encourage remote monitoring of sites that are located in lynx habitat, so that they do not have to be visited daily.
3. Develop a reclamation plan (e.g., road reclamation and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.
4. Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.

CONSERVATION MEASURES TO ADDRESS MORTALITY RISK FACTORS

Trapping (legal and non-target)

Lynx are known to be very vulnerable to trapping. Ward and Krebs (1985) stated that trapping was the single most important mortality factor in their Yukon study area. Incidental trapping of lynx can occur in areas where regulated trapping of other species overlaps with lynx habitat (Mech 1973, Carbyn and Patriquin 1983, Squires and Laurion 1999). Lynx may be more vulnerable to trapping near open roads (Koehler and Aubry 1994, Bailey et al. 1986).

The U.S. Fish and Wildlife Service (FWS) is proposing to work with the States to develop a 4-d. rule for all regulated or unregulated trapping (e.g., coyote, wolverine, bobcat, fox) in lynx habitats by establishing adequate trapping protocols to minimize incidental take. Each state would work with FWS to customize the protocol for their specific regions.

Programmatic planning - objectives

1. Reduce incidental harm or capture of lynx during regulated and unregulated trapping activity, and ensure retention of an adequate prey base.

Programmatic planning - guidelines

1. Federal agencies should work cooperatively with States and Tribes to reduce incidental take of lynx related to trapping.

Predator Control

Predator control activities conducted on federal lands by Wildlife Services include trapping, shooting, and poisoning animals on domestic livestock allotments, occasionally within lynx habitat. Similar efforts may be conducted on adjacent private lands. Although such actions are intended to target the offending animal, non-target animals including lynx may be impacted.

Programmatic planning - objectives

1. Reduce incidental harm or capture of lynx during predator control activities, and ensure retention of adequate prey base.

Programmatic planning - standards

1. Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, will be conducted by Wildlife Services personnel in accordance with FWS recommendations established through a formal Section 7 consultation process.

Shooting

Lynx may be mistakenly shot by legal predator hunters seeking bobcats, or illegally by poachers. Prey species, such as snowshoe hares and ground squirrels, may also be affected by legal shooting.

Programmatic planning - objectives

1. Reduce lynx mortalities related to mistaken identification or illegal shooting.

Programmatic planning - guidelines

1. Initiate interagency information and education efforts throughout the range of lynx in the contiguous states. Utilize trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, etc., to inform the public of the possible presence of lynx, field identification, and their status.
2. Federal agencies should work cooperatively with States and Tribes to ensure that important lynx prey are conserved.

Competition and Predation as Influenced by Human Activities

Habitat changes that benefit competitor/ predator species, including some vegetation management practices and providing packed snow travel ways, may lead to increased starvation or direct mortality of lynx. Refer also to applicable conservation measures in the Forest Management, Recreation, and Forest/ Backcountry Roads and Trails sections.

Programmatic planning - objectives

1. Maintain the natural competitive advantage of lynx in deep snow conditions.

Programmatic planning - standards

1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.

Highways

Direct mortality from vehicular collisions may be detrimental to lynx populations in the lower 48 states. Mortality levels can drastically increase with relatively small increases in traffic volumes and speed.

Programmatic planning - objectives

1. Reduce the potential for lynx mortality related to highways.

Programmatic planning - standards

1. Within lynx habitat, identify key linkage areas and potential highway crossing areas.

Programmatic planning - guidelines

1. Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.

CONSERVATION MEASURES TO ADDRESS MOVEMENT AND DISPERSAL

It is essential to provide landscape connectivity so that all or most habitat has the potential of being occupied, and populations remain connected.

At the southern periphery and eastern portions of lynx range, habitat occurs in narrow fragmented bands (man-made or naturally-occurring), or has been fragmented by human developments. Connected forested habitats allow lynx, and other large and medium size carnivores, to easily move long distances in search of food, cover and mates. Highways and private lands that are subdivided for commercial or residential developments or have high human use patterns, can interrupt existing habitat connectivity and further fragment lynx habitat, reducing the potential for population interchange. In some areas, particularly the eastern United States, habitat connectivity may be difficult to achieve because of mixed ownerships. Land exchanges and cooperative management with private landowners may be the only options available to provide landscape connectivity.

Shrub-steppe habitats provide connectivity between mountain ranges and other blocks of primary forested lynx habitat. Where blocks of lynx habitat are separated by intervening basins, valleys, or high mesas of shrub-steppe, land managers should evaluate those shrub-steppe expanses for potential to provide landscape connectivity. Vegetative or geomorphic features within shrub-steppe habitats that may be particularly important are riparian systems and relatively high ridge systems. Where such features exist, land management practices should be consistent with maintaining landscape connectivity. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

Programmatic planning - objectives

1. Maintain and, where necessary and feasible, restore habitat connectivity across forested landscapes.

Programmatic planning - standards

1. Identify key linkage areas that may be important in providing landscape connectivity within and between geographic areas, across all ownerships.
2. Develop and implement a plan to protect key linkage areas on federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project.
3. Evaluate the potential importance of shrub-steppe habitats in providing landscape connectivity between blocks of primary lynx habitat. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

Programmatic planning - guidelines

1. Where feasible, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey, within identified key linkage areas. Pursue opportunities for cooperative management with other landowners.

Highways

Highways impact lynx and other carnivores by fragmenting habitat and impeding movements. As traffic lanes, volume, speeds, and right-of-way width increase, the effects on lynx and other carnivores are magnified. As human demographics change, highways tend to increase in size and traffic density. Special concern must be given to the development of new highways (gravel roads being paved), and changes in highway design, such as additions in the number of traffic lanes, widening of rights-of-way, or other modifications to increase highway capacity or speed.

Within key linkage areas, highway crossing structures should be employed to reduce effects on wildlife. Information from Canada (Trans-Canada Highway) suggests crossings should generally be at 1/2-mile intervals and not farther than 1 mile apart, depending on topographic and vegetation features.

Programmatic planning - objectives

1. Ensure that connectivity is maintained across highway rights-of-way.

Programmatic planning - standards

1. Federal land management agencies will work cooperatively with the Federal Highway Administration and State Departments of Transportation to address the following within lynx geographic areas:
 - a) Identify land corridors necessary to maintain connectivity of lynx habitat.
 - b) Map the location of “key linkage areas” where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).

Programmatic planning - guidelines

1. Evaluate whether land ownership and management practices are compatible with maintaining lynx highway crossings in key linkage areas. On public lands, management practices will be compatible with providing habitat connectivity. On private lands, agencies will strive to work with landowners to develop conservation easements, exchanges, or other solutions.

Project planning - standards

1. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx.
2. Within the range of lynx, complete a biological assessment for all proposed highway projects on federal lands. A land management agency biologist will review and coordinate with highway departments on development of the biological assessment.

Project planning - guidelines

1. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. Such projects may increase habitat fragmentation, create a barrier to movements, increase mortality risks due to vehicle collisions, and generate secondary adverse effects by inducing, facilitating, or exacerbating development and human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for

such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

Land Ownership

Lynx exemplify the need for landscape-level ecosystem management. Contiguous tracts of land in public ownership (national forests, national parks, wildlife refuges, and BLM lands) provide an opportunity for management that can maintain lynx habitat connectivity. Throughout most of the lynx range in the lower 48 states, connectivity with habitats and populations in Canada is critical for maintaining populations in the U.S.

Programmatic planning - objectives

1. Retain lands in key linkage areas in public ownership.

Programmatic planning - standards

1. Identify key linkage areas by management jurisdiction(s) in management plans and prescriptions.

Programmatic planning - guidelines

1. In land adjustment programs, identify key linkage areas. Work towards unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisition.

Project planning - standards

1. Develop and implement specific management prescriptions to protect/ enhance key linkage areas.
2. Evaluate proposed land exchanges, land sales, and special use permits for effects on key linkage areas.

Ski Areas/Large Resorts and Associated Activities

Ski areas and large resorts are often developed in and across bands of high elevation boreal forests containing lynx habitat. Landscape location, the high intensity of recreational and operational use, and associated development pose a risk to lynx movement and dispersal. Developments that may impede lynx movement occur in Utah and western Wyoming (Northern Rocky Mountains Geographic Area), Colorado (Southern Rocky Mountains Geographic Area), and possibly portions of the Northeast Geographic Area.

Programmatic planning - objectives

1. When conducting landscape level planning on Federal lands, allocate land uses such that landscape connectivity is maintained.

Programmatic planning - standards

1. Within identified key linkage areas, provide for landscape connectivity.

Project planning - standards

1. When planning new or expanding recreational developments, ensure that key linkage areas are protected.

Project planning - guidelines

1. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.

This information has been excerpted from the Canada Lynx Conservation Assessment and Strategy. The entire assessment and strategy, along with the amendment proposed for the Northern Rockies can found on the U.S. Fish and Wildlife Service website at: <http://www.fs.fed/r1/planning/lynx/reports/lcas.pdf>.

APPENDIX X

SAGE GROUSE MANAGEMENT

INTRODUCTION

Conservation measures delineated in the Montana Sage Grouse Conservation Strategy developed by a joint working group will be considered and used as the basis for conserving sage grouse populations through implementation of the Dillon RMP. Conservation measures would guide habitat management recommendations during watershed assessments and project level analysis under Alternative A, B and D. The measures would be applied as standards under Alternative C, along with the Western Association of Fish and Wildlife Agencies (WAFWA) guidelines which are summarized in this appendix. Only habitat-related conservation measures from the plan and guidelines are utilized in RMP alternatives. The Montana Conservation Strategy is in conformance with the draft National BLM sage grouse habitat conservation strategy.

RISKS TO SAGE GROUSE AND THEIR HABITAT

The Montana Sage Grouse Working Group identified risks to sage grouse and their habitat during the conservation planning effort. Conservation actions proposed in the strategy would address the 12 major issues presented in the plan and reduce the identified risks. The conservation actions are related to:

- *Fire Management*
- *Grazing Management*
- *Harvest Management*
- *Noxious Weed Management*
- *Managing Other Wildlife in Sage Grouse Habitats*
- *Mining and Energy Development*
- *Outreach and Education*
- *Power Lines and Generation Facilities*
- *Predation*
- *Recreational Disturbance*
- *Roads and Motorized Vehicles*
- *Vegetation*

CONSERVATION ACTIONS

The following conservation actions delineated in the Montana Sage Grouse Conservation Strategy by issue would be used in the watershed assessment process and in project level analysis for actions on BLM lands.

Fire Management

Issue: Reduction of sagebrush by prescribed fire.

1. Sites should not be burned unless:
 - a) biological and physical limitations of the site and impact on sage grouse are identified and considered,
 - b) management objectives for the site, including those for wildlife, are clearly defined,
 - c) potential for weed invasion and successional trends are well understood, and
 - d) capability exists to manage the post-burn site properly, including a funded monitoring schedule, to achieve a healthy sagebrush community.
2. Develop local or regional guidelines, such as the Beaverhead-Deer Lodge Forest/FWP guidelines in the intermountain valleys, or consider the following guidelines if fire is used as a tool elsewhere:
 - a) analyze cumulative effects of sagebrush treatment by considering ecological units, evaluate the degree of fragmentation, and maintain a good representation of mature sagebrush,
 - b) predict effects for the length of time necessary for sagebrush to return to desired condition for determine treatment types and intervals,
 - c) identify suitable patch size based on site-specific characteristics of the natural community and treat patches in a mosaic pattern that provides sagebrush cover for snow capture, hiding cover, and a seed source,
 - d) use available literature to research the effects of fire on sagebrush communities,
 - e) use caution in reducing sagebrush cover in and following drought periods,
 - f) work cooperatively with public agencies, academia, and private landowners to establish conservation objectives for the project area, and
 - g) map all burns within one year of treatment, monitor vegetative response, and develop a GIS layer of burn history.
3. Develop treatments to improve habitats over the long term if sagebrush stands do not meet objectives for sage grouse, such as confining treatments to small patches.
4. Consider mechanical treatment as the primary method and prescribed fire as a secondary method to remove conifers that encroach on sage grouse habitat, except where forested habitat is limited.
5. Avoid treatments to sage grouse habitat in areas that are susceptible to invasion by cheatgrass or other invasive plant species. Treatment will be accompanied by restoration, and reseeded if necessary, to re-establish native vegetation.

6. Protect sagebrush along riparian zones, meadows, lakebeds, and farmlands that include important sage grouse habitat:
 - a) winter habitat,
 - b) breeding habitat, and
 - c) nesting habitat.
7. Wash vehicles and heavy equipment for fires prior to arrival at a new location to avoid introduction for noxious weeds.

Issue: Reduction of sagebrush by wildfire.

1. Schedule annual coordination meetings – with appropriate resource staff including fire specialists, wildlife biologists, and range ecologists – to incorporate new sage grouse habitat and other wildlife habitat information needed to set wildfire suppression priorities related to resources. Distribute updates to fire dispatchers for initial attack planning.
2. Identify the location of known sage grouse habitat and other wildlife habitats of concern, such as latitude and longitude with a polygon and radius, to avoid disturbance or degradation by temporary facilities, such as fire camps, staging areas, and helibases.
3. Incorporate known sage grouse habitat information into each Wildfire Situation Analysis to help determine appropriate suppression plans and prioritize multiple fires.
4. Retain unburned areas of sage grouse habitat, such as interior islands and patches between roads and fire perimeter, unless compelling safety, resource protection, or control objectives are at risk.

Issue: Rehabilitation and restoration of sagebrush grasslands.

1. Assure that long-term wildfire rehabilitation objectives are consistent with the desired natural plant community.
2. Re-vegetate burned sites in sage grouse habitat within one year unless natural recovery of the native plant community is expected. Areas disturbed by heavy equipment will be given priority consideration.
3. Emphasize native plant species adapted to the site that are readily available and economically and biologically feasible.
4. Monitor the site and treat for noxious weeds.
5. Allow a minimum of two growing seasons of rest from grazing by domestic livestock unless there are specific restoration objectives using livestock.

Issue: Proactive treatments that could reduce the risk of loss of habitat critical to sage grouse.

1. Develop criteria for managing fuels and other risks to sage grouse habitat.
2. Identify critical sage grouse habitats and prioritize on the basis of risk of loss to wildfire.

3. Develop appropriate actions on a site by site basis, such as using existing roads as fire breaks.

Grazing Management

Issue: Conflicting priorities for land uses, species, and habitats.

1. Use scientific data and historic information to establish baseline information when evaluating soil conditions and ecological processes and when monitoring seasonal sage grouse habitats.
2. Set specific habitat objectives and implement appropriate grazing management to achieve those objectives and maintain or improve vegetation condition and trends.
3. Offer private landowners incentives when and where appropriated to achieve sage grouse objectives.

Issue: Some sagebrush communities may have been significantly altered by past grazing management practices.

1. Implement appropriate grazing management strategies and range management practices where soil conditions and ecological processes will support sage grouse and desired commodities and societal values.
2. Establish suitable goals for sagebrush communities that have deteriorated to such an extent that livestock management alone may not contribute to habitat objectives.
3. Offer private landowners incentives when and where appropriate to achieve sage grouse objectives.

Issue: Drought may result in the degradation of native plant communities, and reduces forage production and sage grouse habitat.

1. Livestock managers should have drought management strategies or plans, e.g. water facilities; forage sources formulated for implementation during periods of drought.
2. Consider effects of livestock and wildlife distribution on sage grouse prior to developing additional water sources.
3. Offer private landowners incentives when and where appropriate to achieve sage grouse objectives.

Issue: Improper grazing or lack of grazing can change the composition and/or structure of the native plant community and thereby reduce or eliminate food and cover for sage grouse.

1. Monitor the response of forbs (kinds, vigor, and production), and the compositional diversity of native species with respect to livestock grazing, evaluate the data, and make necessary adjustments.
2. Identify reasons for lack of grass and forb cover in sagebrush communities and recommend practices to in-

crease the native herbaceous understory.

3. Identify critical sage grouse areas, and adjust grazing to minimize conflict among the production of commodities and protection of societal values.
4. use monitoring methods that are best suited to the type of grazing management being incorporated at a site.
5. Adjust stocking levels (up or down) within the carrying capacity of the pasture or range. Adjustments should be based on monitoring program evaluating plant and soil response with respect to actual livestock use, weather, wildlife use, insects, and other environmental factors.

Issue: Riparian areas (wet meadows, seeps, streams) are important resources for sage grouse and livestock.

1. Design and implement livestock grazing management practices (riparian pastures, seasonal grazing, development of off-stream water facilities, etc.) to achieve riparian management objectives.
2. Modify or adapt pipelines and natural springs, where practical, to create small wet meadows as brood habitat.
3. ensure the sustainability of desired soil conditions and ecological processes within upland plant communities following implementation of strategies to protect riparian areas. This can be achieved by:
 - protecting natural wet meadows and springs from over-use while developing water for livestock, and
 - plan the location, design, and construction of new fences to minimize impacts on sage grouse.

Issue: Potential for sage grouse to be disturbed or displaced by concentrations of livestock near leks or winter habitat.

1. Discourage concentration of livestock on leks or other key sage grouse habitats.
 - Avoid placement of salt or mineral supplements near leks during the breeding season (March-June), and
 - Avoid supplemental winter feeding of livestock, where practical, on sage grouse winter habitat and around leks.

Issue: Sage grouse seasonal ranges often encompass private, tribal, state, and federal land. Habitat values across the respective ownership are important to sage grouse.

1. Encourage land management practices that provide for maintaining or enhancing sage grouse habitat on private, tribal, state, and federal land.
2. Encourage the coordination of management activities on both properties to provide yearlong benefits to sage grouse. This may require reasonable compromise in establishing management practices to achieve specific goals.

3. Offer private landowners incentives when and where appropriate to achieve sage grouse objectives.

Issue: Existing fences near breeding, brood-rearing, or winter habitats can increase the risk of collision mortalities and /or predation on sage grouse by hawks, eagles, and ravens by providing perches.

1. If portions of existing fences are found to pose a significant threat to sage grouse as strike sties or raptor perches, mitigate through moving or modifying posts, implementation of predator control programs, etc. Actions may include increasing the visibility of the fences by flagging or by designing “take-down” fences.
2. Offer private landowners incentives when and where appropriate to achieve sage grouse objectives.

Issue: Pesticides and herbicides may adversely impact the kinds and number of foods available in the form of insects and forbs and can directly affect chick survival.

1. Evaluate ecological consequences of using pesticides to control grasshoppers or other insects.
2. Evaluate ecological consequences of broadcast herbicide use on forbs and other important sage grouse foods.
3. Minimize use of pesticides and herbicides within 1 mile of known grouse nests, leks, or brood-rearing areas.
4. Develop educational materials detailing the effects of pesticides and herbicides that can be used to evaluate their effects on sage grouse.

Harvest Management

Issue: There is a single harvest structure for the entire state, but regionally sage grouse may have different population characteristics and status.

1. Divide sage grouse habitat into ecoregions based on clearly defined differences in ecological and/or population characteristics, which would allow for different season structures.
2. Develop an adaptive harvest management strategy including closed, conservative, and standard season structures. Clearly define “triggers” for each season structure based on population trend.
3. Establish sage grouse seasons on an annual basis using the current year’s lek data and other appropriate survey data. This would include the development of a statistically reliable trend monitoring protocol for inventorying lek attendance of male sage grouse.

Issue: There strongly opposed viewpoints on the influences of hunting on sage grouse populations.

1. Develop graduate level studies to evaluate the influence of hunting on sage grouse in Montana and what would constitute a maximum harvest rate.

2. Establish standardized wing collection protocol to evaluate the influence of environmental conditions on sage grouse productivity and population trends.
3. Identify small populations of sage grouse that are genetically isolated from other populations that could be at risk of overharvest.
4. Expand public information efforts designed to increase public awareness of the role of sage grouse hunting.

Managing Other Wildlife in Sage Grouse Habitats

Issue: High concentrations of wild herbivores in localized areas may reduce habitat effectiveness for sage grouse.

1. Identify and map key sage grouse habitats where other wild herbivores are having significant impacts.
2. Establish an inventory and vegetative monitoring schedule to quantitatively determine the extent of the effects in key areas.
3. Determine seasons of expected use and assess the potential impact to sage grouse habitat.
4. Develop plans that keep ungulate population levels consistent with the sites capability to support them.

Issue: Wetlands and other riparian habitats may be vulnerable to overuse by wild herbivores on some sites. This can sometimes be exacerbated seasonally, during droughts, and/ or by other land use practices.

1. Identify levels of use by wild herbivores in affected riparian areas.
2. Identify other land use practices occurring in riparian habitats.
3. Assess current management practices in respect to findings.
4. Determine whether management changes are needed.
5. Have drought management plans in place to allow for the rapid implementation of alternate management strategies.

Mining and Energy Development

Issue: Energy development may adversely affect sage grouse.

1. Work cooperatively – agencies, utilities, and landowners – to identify and map important seasonal ranges for sage grouse.
2. Complete a broad scale assessment to identify important areas that require additional protection or conservation during land use planning and leasing of energy reserves.
3. Prioritize areas relative to their need for protection – ranging from complete protection to availability for moderate to high levels of energy development.

4. Encourage development in incremental stages to stagger disturbance (federal leases range from 3-10 years); design schedules that include long-term strategies to localize disturbance and recovery within established zones over a staggered time frame.
5. Provide technical assistance to private landowners who lease privately owned fee minerals.
6. Use off-site mitigation, such as the creation of sagebrush habitat, or purchase conservation easements with industry dollars to offset habitat losses.
7. Remove facilities and infrastructure when use is completed.
8. Enhance our understanding of the effects of energy development through:
 - a) pre-activity inventory,
 - b) monitoring over the life of the development, and
 - c) annual evaluations.

Issue: Increased human disturbance.

1. Allow no surface occupancy within 0.25 miles of an active lek. Use the best available information for siting structures near important breeding, brood-rearing, and winter habitat considering the following:
 - a) size of the structure(s),
 - b) life of the operation,
 - c) extent to which impacts would be minimized by topography, and
 - d) disturbance by noise and maintenance.
2. Allow no surface use in nesting habitat within 2 miles of an active lek during a period of breeding and nesting – March 15 – June 15.
3. Restrict maintenance and related activities in sage grouse breeding/nesting complexes – March 15 – June 15 – between the hours of 4:00 – 8:00 a.m. and 7:00 – 10:00 p.m.
4. Allow no surface use activities within crucial sage grouse wintering areas during December 1 – March 15.
5. Remove structures and associated infrastructure when project is completed.

Issue: Increased roads, pipelines, and power lines can fragment sagebrush habitats.

1. Develop a comprehensive infrastructure plan prior to energy development activities to minimize road densities.
2. Avoid locating roads and power lines in crucial sage grouse breeding, nesting, and wintering areas.
3. See conservation actions for siting and constructing power lines.
4. Use minimal surface disturbance to install roads and pipelines and reclaim site of abandoned wells to natural communities.

Issue: Energy-related facilities located within 2 miles of a sage grouse lek can degrade habitat quality within existing leases.

1. Locate storage facilities, generators, and holding tanks outside the line of sight and sound of important breeding habitat.
2. Minimize ground disturbance in sagebrush stands with documented use by sage grouse:
 - a) breeding habitat – the lek and associated stands of sagebrush,
 - b) nesting habitat – stands of sagebrush within 2 miles of a lek, and
 - c) wintering habitat – sagebrush stands with documented winter use by sage grouse with portions that would remain above the snow even during years of deep-snow conditions.
3. Concentrate energy-related facilities when practicable.

Issue: Energy-related activities can cause invasion of noxious weeds and other non-native plants.

1. See conservation actions related to preventing the spread of weeds and controlling infestations of noxious weeds.
2. Engage industry as a partner to develop and establish new sources of seed of native plant species for restoration of sites disturbed by development.

Issue: Noise can disrupt breeding rituals and cause abandonment of leks.

1. Restrict noise levels from production facilities to 49 decibels (10 dba above background noise at the lek).
2. Restrict use of any heavy equipment that exceeds 49 decibels within 2 miles of a lek to hours from 8:00 a.m. to 7:00 p.m. and 10:00 p.m. to 4:00 a.m. March 15 to June 15.

Issue: Water discharge and impoundments can degrade or inundate breeding, nesting, and winter habitat.

1. Design impoundments and manage discharge so as not to degrade or inundate leks, nesting sites, and wintering sites.
2. Protect natural springs from any source of disturbance or degradation from energy-related activities.

Issue: Siting requirements need to be re-examined as technological advances make development more compatible with sage grouse needs.

1. Provide for long-term monitoring of siting requirements to examine effects of current and future development on sage grouse.
2. Set up a schedule for reviewing and revising siting and use criteria with industry.

Noxious Weed Management

Issue: Current information on existing weed infestations is insufficient for successful weed management.

- Inventory and map existing noxious weed populations within and adjacent to occupied sage grouse habitat or suspected range.

Issue: Appropriate weed management can't be performed without habitat-specific information.

- Develop habitat-specific weed management plans for known sage grouse ranges, using the inventory and map information developed in the action described above.

Issue: Weed infestations result in loss of native grass, forb, and sagebrush abundance and diversity.

- Promote measures that prevent the introduction and spread of weed seeds and other reproducing plant parts.

Issue: Noxious weeds spread quickly and without regard to ownership or management boundaries. Without immediate treatment, noxious weeds become a problem to all surrounding landowners. Effective weed management cannot occur in isolation or to the exclusion of any land managers within an area.

1. Develop and implement management techniques that minimized the risk of infestation.
2. Use weed seed-free livestock forage and mulch.
3. Thoroughly clean personal clothing, pets, all vehicles and machinery before moving into non-infested areas.
4. Where feasible, isolate livestock from known infestations and avoid vehicle movement through infested areas.
5. Delay movement of livestock for a time period necessary to prevent viable weed seeds from passing through animals' digestive tracts or remaining physically attached when moving from infested to non-infested areas.
6. Use weed-free seed for re-establishment of vegetation.
7. Eliminate unnecessary soil disturbance and vehicle access/movement into occupied sage grouse habitat. Limit vehicle use to established roads only.
8. Regularly monitor access points and roads for weed establishment.

Issue: Cooperative integrated weed management efforts are essential in order to have successful sage grouse habitat.

1. Develop partnerships with regional public and private land management units. Solicit involvement of local weed management specialists, private landowners, wild-life biologists, and range ecologists to share knowledge and responsibilities on noxious weed issues.

2. Establish goals and set priorities that encompass the needs of both livestock and wildlife managers so all parties are working under a similar plan.
3. Provide training to appropriate staff on the proper selection and use of herbicides, including effects that climatic conditions and soils types have on applications of herbicides.
4. Maintain proper operating herbicide application equipment as well as proper herbicide application records, according to Montana pesticide laws.
5. Conduct monitoring and develop follow-up procedures for treated areas.
6. Participate in integrated weed management training conducted by state and federal agencies, local experiment stations, and local (county) weed districts.
7. Educate all field personnel on weed identification, manner in which weeds spread, and methods of treating weed infestations.

Issue: It is important to maintain viable sagebrush habitat and populations of sage grouse while eradicating infestations of noxious weeds.

1. Employ integrated weed management treatment methods such as a combination of biological and cultural, such as grazing, mowing, or seeding treatments in conjunction with herbicides to manage weeds in sage grouse habitat.
2. Use the most selective herbicides where chemical treatment is appropriate, to minimize loss of non-target plant species.
3. Restore plant communities with desired species adapted to the site, using proven management techniques where biologically feasible. A restoration program may be necessary if conditions prevent natural plant species.

Issue: New weed infestations are often undetected.

- Establish a monitoring protocol to detect new infestations.

Issue: Weed management may not be identified budget item in sage grouse management plans.

- Weed management costs should be an identified budget item in sage grouse management plans. Money should be dedicated for monitoring and education as well as direct treatment expenses.

Issue: Funding and/or human resources may not be available when new infestations are discovered.

- Establish partnerships or formal agreements with local (county) weed districts if appropriate to utilize their equipment and/or personnel.

Outreach, Education, and Implementation

Issue: The general public and agency staffs have not been exposed to current information on ecological needs and methods for conserving sage grouse and sagebrush habitats. Materials are needed to present this information.

1. Develop educational materials (brochure, Power Point presentation, camera-ready ads, press releases, public service announcements, event invitations and surveys, websites, newsletters, and research information).
2. Present materials in a series of community meetings that bring statewide technical groups participants and regional agency staff together with local people.
3. consider Resource Advisory Committees and other regional and local opportunities for education and outreach.
4. Encourage public participation in censusing leks and other volunteer projects, including the general public on public lands and private landowners on their own properties.

Issue: The general public and agency staff may not initially understand, and therefore support, the plan.

1. Distribute the plan via hard copy and website.
2. Develop and implement a communications plan that identifies the audience and the message.
3. Prepare an executive summary of the plan.
4. Review and reconcile public concerns.

Issue: Implementing a statewide plan in light of diverse geographical, cultural, and socio-economic challenges poses a challenge.

1. Implement the local work group concept.
2. Coordinate efforts among work groups.

Issue: Educational materials are needed for the sage grouse conservation effort in Montana.

1. Develop a list of incentive programs presently offered that could be used to prevent the loss of sage grouse habitat.
2. Develop and distribute information on best management practices and is and agencies to designate a sage grouse contact person in interface with county planning authorities.
3. Request counties and agencies to designate a sage grouse contact person to interface with county planning authorities.
4. Provide sage grouse habitat maps and recommendations to county planners, public land agencies, and other interest groups and land managers.
5. Encourage county governments to offer incentives to developers who protect and enhance sage grouse habitat.

Powerlines and Generation Facilities

Issue: Existing power lines near a lek, brood-rearing habitat, or winter habitat increases the risk of predation on sage grouse by raptors.

1. Document the segment(s) of line causing problems.
2. Determine by cooperative action- agencies, utilities, and landowners- whether or not modification of poles to limit perching will prevent electrocution of raptors and decrease predation on sage grouse.
3. Emphasize the following if perch prevention modifications do not work to protect sage grouse and sagebrush habitat:
 - a) reroute the line using distance, topography, or vegetative cover; or
 - b) bury the line.
4. Explore opportunities for technical assistance and funding.
5. Remove power line when use is completed.

Issue: New power lines proposed in areas that provide sage grouse habitat can pose threats to sage grouse.

1. Minimize the number of new lines in sage grouse habitat.
2. Site new lines in existing corridors wherever practicable.
3. Encourage the use of off-grid systems such as solar, natural gas micro-turbines, and wind power where feasible in sage grouse habitats.
4. Use the best available information for siting power lines on important breeding, brood-rearing, and winter habitat in an appropriate vicinity of the proposed line.
5. Develop a route – with agencies, utilities, and landowners cooperating – that uses topography, vegetative cover, site distance, etc. to effectively protect identified sage grouse habitat in a cost efficient manner.
6. Restrict timing for construction to prevent disturbance during critical periods:
 - a) breeding – March 15 – May 15
 - b) winter – December 1 – March 15.
7. Take appropriate measures to prevent introduction or dispersal of noxious weeds during construction and planned maintenance.
8. Remove power line when use is completed.

Issue: Existing power line is causing consistent or significant collision mortality on sage grouse.

1. Document the segment(s) of line causing consistent or biologically significant mortality- with agencies, utilities, and landowners cooperating in the effort.
2. Initiate collision prevention measures using guidelines (Avian Power Line Action Committee 1994) on identi-

fied segments. Measures are subject to restriction or modification for wind and ice loading or other engineering concerns, or updated collision prevention information.

3. Remove power lines that traverse important sage grouse habitats when facilities being serviced are no longer in use or when projects are completed.

Issue: Fossil fuel generation may impact sage grouse and sage grouse habitat.

1. Use the best available information to :
 - a) identify important sage grouse breeding, brood-rearing, and winter habitat in an appropriate vicinity of a proposed facility and associated infrastructure; and
 - b) site fossil fuel generation facilities and associated infrastructure – with developers, agencies, utilities, and landowners cooperating – using topography, vegetative cover, site distance, etc., to effectively protect identified sage grouse habitat.

Issue: Wind generation may impact sage grouse and sage grouse habitat.

1. Consult with USFWS Ecological Services for site selection evaluation information.
2. Use the best available information to:
 - a) identify important sage grouse breeding, brood-rearing , and winter habitat in an appropriate vicinity of a proposed facility and associated infrastructure; and
 - b) site wind generation facilities – with agencies, utilities, and landowners cooperating – using topography, vegetative cover, site distance, etc. to effectively protect identified sage grouse habitat.
3. Identify and avoid both local (daily)and seasonal migration routes.
4. Restrict timing of construction to minimize disturbance during critical periods:
 - a) breeding – March 15 – May 15
 - b) winter – December 1 – March 15
5. Take appropriate measures to prevent introduction or dispersal of noxious weeds during construction, maintenance, and operation as required by federal and state laws.
6. Develop offsite mitigation strategies in situations in which fragmentation or degradation of sage grouse habitat is unavoidable.

Predation

Issue: Predator numbers and species composition have changed, and the predator-prey relationship for sage grouse in Montana needs further investigation.

1. Initiate studies to better understand sage grouse mortality rates, the factors that influence these rates and the effectiveness of management actions to change them.
2. Assess population status and trends of important predator species (both native and invasive).
3. Expand public information efforts designed to increase public awareness on the role of habitat predation, and weather on sage grouse population trends.

Issue: Habitat fragmentation and poor quality habitat may be affecting mortality rates by allowing increased predation.

1. Initiate studies to determine the relationships between predation, habitat fragmentation, and habitat condition.
2. Implement actions to improve the structure and composition of sagebrush communities to meet desired conditions for sage grouse seasonal habitats.
3. Maintain and restore sagebrush communities where appropriate for sage grouse populations.
4. Protect existing habitats through conservation easements, incentives, or other practices such as long-term leases.

Issue: Man-caused alterations on the landscape have modified conditions and may directly facilitate increased predation.

1. Reduce man-made perches and conifer encroachment in sage grouse breeding, nesting, and wintering habitats.
 - a) Placement of power poles should follow prescription detailed in the discussion transmission lines.
 - b) Placement of fences should follow prescriptions detailed in the discussion of grazing management, and
 - c) Treatment of conifer encroachment should be implemented in ways to minimize loss of sagebrush habitats.
2. Reduce the availability of predator ‘subsidies’ such as human-made den sites (nonfunctioning culverts, old foundations, wood piles) and supplemental food sources (garbage dumps, spilled grains, etc.) that contribute to increased predator numbers.
3. If predation is shown to be depressing sage grouse populations, consider predator management actions specific to the predator species, site, and situation.
4. Consider expanded opportunities to take non-protected, invasive species where appropriate.

Recreational Disturbance of Sage Grouse

Issue: Citizens should be able to view and photograph sage grouse breeding displays. However, viewing may disturb breeding activities, displace leks, and reduce reproductive success.

1. Agencies should document leks where recreational viewing is occurring.
2. Working together, the agency(ies) and interested public should determine whether or not management of viewing is needed to reduce disturbance of leks.
3. Educational materials should be developed and provided to the public indicating the effects of concentrated recreational activities and the importance of seasonal ranges to sage grouse.

Issue: Management of lek viewing may be necessary.

1. Establish viewing guidelines, i.e., distance, timing, approach methods, signage, parking areas, and area closures.
2. Consider sage grouse needs when developing roads and OHV management plans.
3. Develop and provide educational materials to the public describing effects of concentrated recreational activities and the importance of seasonal ranges to sage grouse.
4. Encourage recreationists to avoid continuous or concentrated use within 1.5 miles of leks from March 15 to May 15.
5. Issue special use permits for certain activities with distance and timing restrictions to maintain the integrity of breeding habitat.
6. Discourage concentration of hunters on critical seasonal habitats, such as during late big game seasons, when sage grouse are present.

Roads and Motorized Vehicles

Issue: Roads may increase sage grouse mortality through collisions with vehicles, displacement because of human disturbance, or other factors.

1. Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage grouse winter ranges.
2. Consider impacts to sage grouse when designing new roads and modifying existing roads.
3. Consider seasonal use restrictions or signing to avoid disturbance of critical times, such as winter and nesting periods.
4. Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such as during oil and gas development.
5. Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.
6. Plan or permit organized events to avoid increased traffic and impacts to sage grouse.
7. Manage motorized and mechanized travel to minimize impacts to sage grouse and their habitat by developing standards for future roads to give to BLM, FS, BIA, state, county, and private parties.

8. Manage motorized and mechanized travel to minimize impacts to sage grouse by increasing enforcement of existing OHV and travel management plans.
9. Provide educational opportunities for users of OHVs dealing with the possible effects they may have on sage grouse.

Issue: Roads and their associated disturbances and cumulative effects contribute to the loss of habitat and declining sage grouse populations.

1. Develop a transportation management plan across ownership boundaries in critical sage grouse habitats.
2. Participate in travel planning efforts and educate the general public about the impacts of roads on sage grouse and critical habitat.
3. Consider buffers, removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.
4. Re-vegetate closed roads with plant species beneficial to sage grouse.
5. Close and re-vegetate travel ways in sage grouse habitats where appropriate.
6. Provide sage grouse habitat information during the planning phases of transportation development, working with MDOT, FHWA, industry, counties, etc.

Vegetation

Issue: Conifer encroachment reduces sagebrush habitat.

1. Map and inventory areas believed to be impacted by conifer expansion.
2. If conifer encroachment is a concern, options for treatment include:
 - a) prescribed fires when and where feasible,
 - b) remove trees mechanically when feasible, and
 - c) apply herbicides when and where feasible.
3. Reclaim and/or re-seed areas disturbed by treatments when necessary. Include native forbs and grasses in all reclamation and seeding activities.

Issue: Information regarding sagebrush distribution is incomplete.

1. Identify the remaining breeding and winter areas for sage grouse.
2. Improve the classification of sagebrush cover to distinguish density and species.
3. Complete a mid to broad scale assessment to identify conservation priorities across the state.

Issue: The age distribution of sagebrush may have been altered by management, such as a young stand recovering from disturbance or a mature stand with poor regeneration.

1. Map and inventory areas believed to be deficient in quality of habitat or exhibiting poor health.
2. Evaluate the site potential and desired condition, and develop specific objectives accordingly within specific landscapes.
3. If sagebrush is lacking:
 - a) develop and implement grazing practices that influence sagebrush growth,
 - b) inter-seed historical breeding and winter habitats with the appropriate sagebrush species,
 - c) identify and promote seed sources for habitat restoration efforts,
 - d) encourage the voluntary use of sagebrush in habitat incentive programs, such as the Conservation Reserve Program, and work to develop additional funding sources for such programs,
 - e) reclaim and/or re-seed areas disturbed by treatments when necessary, and
 - f) promote sage plantings, where appropriate, on project areas occurring within sage grouse habitats.
4. If mature sagebrush dominates with suppressed herbaceous understory:
 - a) identify areas of dense mature cover that do not appear to be serving as quality habitat and analyze these areas within the context of a larger landscape,
 - b) design sagebrush treatments to be compatible with sage grouse needs,
 - c) develop specific objectives for sage grouse in breeding or winter habitats, and
 - d) if treatment is deemed appropriated, interrupt several stages within the appropriate patch size using the appropriate method, such as brush beating, chaining, chemical means, prescribed fire, etc. that are compatible with local conditions.

Issue: The plant community has been altered and lack a diverse herbaceous understory.

1. Map and inventory areas believed to be important sage grouse breeding habitats.
2. Evaluate the site potential and desired condition within the context of a larger landscape.
3. Develop and implement techniques to increase herbaceous diversity and density in sagebrush-steppe within ecological limits.
4. Ensure that grazing practices allow plants to grow to seed ripe on a rotational basis.
5. Adjust livestock grazing management when necessary, such as the season of use/projects, to promote forb establishment and recruitment.
6. Identify large areas of introduced plant species, such as crested wheat, and determine if restoration efforts are deemed appropriate.
7. Interseed appropriate breeding habitats with forbs as identified by the specialists and affected interests.

8. If mature sagebrush dominates with suppressed herbaceous understory:
 - a) identify areas of dense mature cover that do not appear to be serving as quality habitat and analyze these areas within the context of a larger landscape,
 - b) design sagebrush treatments to be compatible with sage grouse need,
 - c) develop specific objectives for sage grouse in breeding or winter habitats, and
 - d) if treatment is deemed appropriate, interrupt seral stages within the appropriate patch size using the appropriate method, such as brush beating, chaining, chemical means, prescribed fire, etc. compatible with local conditions.
9. Identify and promote seed sources for habitat restoration efforts.
10. Identify landowner incentives and additional funding sources to enhance existing programs, such as to enhance the CRP.

Issue: Residual understory is lacking in sagebrush stands, mainly in breeding habitats.

1. Develop incentives to promote desired habitat conditions on private lands.
2. Manage grazing by domestic livestock and wild herbivores to retain and promote adequate residual cover in all breeding habitats with an emphasis on nesting areas.
3. Ensure that grazing allotment plans include objectives for sage grouse in sage grouse habitats.
4. Monitor USFS/BLM/State allotment plans and regulations, and make changes where necessary.
5. Include native grasses in all reclamation and restoration activities.

SAGE GROUSE GUIDELINES (WAFWA)

Sage grouse populations occupy relatively large areas on a year-round basis (Berry and Eng 1985, Connelly et al. 1988, Wakkinen 1990, Leonard et al. 2000), invariably involving a mix of ownerships and jurisdictions. Thus, state and federal natural resource agencies and private landowners must coordinate efforts over at least an entire seasonal range to successfully implement these guidelines. Based on current knowledge of sage grouse population and habitat trends, these guidelines have been developed to help agencies and landowners effectively assess and manage populations, protect and manage remaining habitats, and restore damaged habitat. Because of gaps in knowledge and regional variation in habitat characteristics (Tisdale and Hironaka 1981), the judgment of local biologists and quantitative data from population and habitat monitoring are necessary to implement the guidelines correctly. Further, agencies are urged

to use an adaptive management approach (Macnab 1983, Gratson et al. 1993), using monitoring and evaluation to assess the success of implementing these guidelines to manage sage grouse populations. These are the guidelines that will be used as standards in Alternative C management along with the Montana Sage Grouse Conservation Strategy conservation measures.

Activities responsible for the loss or degradation of sagebrush habitats also may be used to restore habitat. These activities include prescribed fire, grazing, herbicides, and mechanical treatments. Decisions on land treatments using these tools should be based on quantitative knowledge of vegetative conditions over an entire population's seasonal range.

Generally, the treatment selected should be that which is least disruptive to the vegetation community and has the most rapid recovery time. This selection should not solely be based on economic cost.

Definitions

For the purpose of these guidelines, an occupied lek is defined as a traditional display area in or adjacent to sagebrush-dominated habitats that has been attended by ≥ 2 male sage grouse in ≥ 2 of the previous 5 years. A breeding population is defined as a group of birds associated with one or more occupied leks in the same geographic area separated from other leks by ≥ 20 km. This definition is somewhat arbitrary but generally based on maximum distances females move to nest.

General Habitat Management

The following guidelines pertain to all seasonal habitats used by sage grouse.

1. Monitor habitat conditions and only propose treatments if warranted by range condition (i.e., the area no longer supports habitat conditions described in the following guidelines under habitat protection). Do not base land treatments on schedules, targets, or quotas.
2. Use appropriate vegetation treatment techniques (e.g., mechanical methods, fire) to remove junipers and other conifers that have invaded sage grouse habitat (Commons et al. 1999). Whenever possible, use vegetation control techniques that are least disruptive to the stand of sagebrush, if this stand meets the needs of sage grouse (Table 3).
3. Increase the visibility of fences and other structures occurring within one km of seasonal ranges by flagging or similar means if these structures appear hazardous to flying grouse (e.g., birds have been observed hitting

or narrowly missing these structures or grouse remains have been found next to these structures).

4. Avoid building powerlines and other tall structures providing perch sites for raptors within 3 km of seasonal habitats. If these structures must be built, or presently exist, the lines should be buried or poles modified to prevent their use as raptor perch sites.

Breeding Habitat Management

For both migratory and non-migratory populations, lek attendance, nesting, and early brood rearing occur in breeding habitats. These habitats are sagebrush-dominated rangelands with a healthy herbaceous understory and are critical for survival of sage grouse populations. Mechanical disturbance, prescribed fire, and herbicides can be used to restore sage grouse habitats to those conditions identified as appropriate in the following sections on habitat protection. Local biologists and range ecologists should select the appropriate technique on a case-by-case basis. Generally, fire should not be used in breeding habitats dominated by Wyoming big sagebrush if these areas support sage grouse. Fire can be difficult to control and tends to burn the best remaining nesting and early brood rearing habitats (i.e., those areas with the best remaining understory), while leaving areas with poor understory. Further, using fire in habitats dominated by xeric mountain big sagebrush (*A. t. xericensis*) is not recommended because annual grasses commonly invade these habitats and much of the original habitat has been altered by fire (Bunting et al. 1987).

Although mining and energy development are common activities throughout the range of sage grouse, quantitative data on the long-term effects of these activities on sage grouse are limited. However, some negative impacts have been documented (Braun 1998, Lyon 2000). Thus, these activities should be discouraged in breeding habitats, but, when unavoidable, restoration efforts should follow procedures outlined in these guidelines.

Habitat Protection

1. Manage breeding habitats to support 15-25% canopy cover of sagebrush, perennial herbaceous cover averaging ≥ 18 cm in height with $\geq 15\%$ canopy cover for grasses and $\geq 10\%$ for forbs and a diversity of forbs (Barnett and Crawford 1994, Drut et al. 1994a, Apa 1998) during spring (Table 3). Habitats meeting these conditions should have a high priority for wildfire suppression and should not be considered for sagebrush control programs. Sagebrush and herbaceous cover should provide overhead and lateral concealment from predators. If average sagebrush height is ≥ 75 cm, herbaceous cover may need to be substantially greater than 18 cm to provide this protection. There is much vari-

ability among sagebrush-dominated habitats (Tisdale and Hironaka 1981, Hironaka et al. 1983) and some Wyoming sagebrush and low sagebrush breeding habitats may not support 25% herbaceous cover. In these areas, total herbaceous cover should be $\geq 15\%$. Further, the herbaceous height requirement may not be possible in habitats dominated by grasses that are relatively short when mature. In all of these cases, local biologists and range ecologists should develop height and cover requirements that are reasonable and ecologically defensible. Leks tend to be relatively open, thus cover on leks should not meet these requirements.

2. For non-migratory grouse occupying habitats that are distributed uniformly (i.e., habitats have the characteristics described in guideline 1 and are generally distributed around the leks), protect (i.e., do not manipulate) sagebrush and herbaceous understory within 3.2 km of all occupied leks. For non-migratory populations, consider leks the center of year-round activity and use them as focal points for management efforts (Braun et al. 1977).
3. For non-migratory populations where sagebrush is not distributed uniformly (i.e., habitats have the characteristics described in guideline 1 but distributed irregularly with respect to leks), protect suitable habitats for ≤ 5 km from all occupied leks. Use radiotelemetry, repeated surveys for grouse use, or habitat mapping to identify nesting and early brood rearing habitats.
4. For migratory populations, identify and protect breeding habitats within 18 km of leks in a manner similar to that described for non-migratory sage grouse. For migratory sage grouse, leks generally are associated with nesting habitats but migratory birds may move > 18 km from leks to nest sites. Thus, protection of habitat within 3.2 km of leks may not protect most of the important nesting areas (Wakkinen et al. 1992, Lyon 2000).
5. In areas of large-scale habitat loss ($\geq 40\%$ of original breeding habitat), protect all remaining habitats from additional loss or degradation. If remaining habitats are degraded, follow guidelines for habitat restoration listed below.
6. During drought periods (≥ 2 consecutive years), reduce stocking rates or change management practices for livestock, wild horses and wild ungulates if cover requirements during the nesting and brood rearing periods are not met. Grazing pressure from domestic livestock and wild ungulates should be managed in a manner that, at all times, addresses the possibility of drought.
7. Suppress wildfires in all breeding habitats. In the event of multiple fires, land management agencies should

have all breeding habitats identified and prioritized for suppression, giving the greatest priority to breeding habitats that have become fragmented or reduced by $\geq 40\%$ in the last 30 years.

- Adjust timing of energy exploration, development, and construction activity to minimize disturbance of sage grouse breeding activities. Energy-related facilities should be located ≥ 3.2 km from active leks whenever possible. Human activities within view of or ≤ 0.5 km from leks should be minimized during the early morning and late evening when birds are near or on leks.

Habitat Restoration

- Before initiating vegetation treatments, quantitatively evaluate the area proposed for treatment to ensure that it does not have sagebrush and herbaceous cover suitable for breeding habitat. Treatments should not be undertaken within sage grouse habitats until the limiting vegetation factor(s) has been identified, the proposed treatment is known to provide the desired vegetation response, and land use activities can be managed after treatment to ensure that vegetation objectives are met.
- Restore degraded rangelands to a condition that again provides suitable breeding habitat for sage grouse by including sagebrush, native forbs (especially legumes), and native grasses in reseeding efforts (Apa 1998). If native forbs and grasses are unavailable, use species that are functional equivalents and provide habitat characteristics similar to those of native species.
- Where the sagebrush overstory is intact but the understory has been degraded severely and quality of nesting habitat has declined, use appropriate techniques (e.g., brush beating in strips or patches and interseed with native grasses and forbs) that retain some sagebrush but open shrub canopy to encourage forb and grass growth.
- Do not use fire in sage grouse habitats prone to invasion by cheatgrass and other invasive weed species unless adequate measures are included in restoration plans to replace the cheatgrass understory with perennial species using approved reseeding strategies. These strategies could include, but are not limited to, use of pre-emergent herbicides (e.g., Oust®, Plateau®) to retard cheatgrass germination until perennial herbaceous species become established.
- When restoring habitats dominated by Wyoming big sagebrush, regardless of the techniques used (e.g., prescribed fire, herbicides), do not treat $>20\%$ of the breeding habitat (including areas burned by wildfire) within a 30-year period (Bunting et al. 1987). The 30-year period represents the approximate recovery time for a stand of Wyoming big sagebrush. Additional treatments should be deferred until the previously treated area again provides suitable breeding habitat. In some cases, this may take <30 years and in other cases >30 years. If 2,4-D or similar herbicides are used, they should be applied in strips such that their effect on forbs is minimized. Because fire generally burns the best remaining sage grouse habitats (i.e., those with the best understory) and leaves areas with sparse understory, use fire for habitat restoration only when it can be convincingly demonstrated to be in the best interest of sage grouse.
- When restoring habitats dominated by mountain big sagebrush, regardless of the techniques used (e.g., fire, herbicides), treat $<20\%$ of the breeding habitat (including areas burned by wildfire) within a 20-year period (Bunting et al. 1987). The 20-year period represents the approximate recovery time for a stand of mountain big sagebrush. Additional treatments should be deferred until the previously treated area again provides suitable breeding habitat. In some cases, this may take <20 years and in other cases >20 years. If 2,4-D or similar herbicides are used, they should be applied in strips such that their effect on forbs is minimized.
- All wildfires and prescribed burns should be evaluated as soon as possible to determine if reseeding is necessary to achieve habitat management objectives. If needed, reseed with sagebrush, native bunchgrasses, and forbs whenever possible.
- Until research unequivocally demonstrates that using tebuthiuron and similar acting herbicides to control sagebrush have no long-lasting negative impacts on sage grouse habitat, use these herbicides only on an experimental basis and over a sufficiently small area that any long-term negative impacts are negligible. Because these herbicides have the potential of reducing but not eliminating sagebrush cover within grouse breeding habitats, thus stimulating herbaceous development, their use as sage grouse habitat management tools should be examined closely.

Summer-Late Brood Rearing Habitat Management

Sage grouse may use a variety of habitats, including meadows, farmland, dry lakebeds, sagebrush, and riparian zones from late June to early November (Patterson 1952, Wallestad 1975, Connelly 1982, Hanf et al. 1994). Generally, these habitats are characterized by relatively moist conditions and many succulent forbs in or adjacent to sagebrush cover.

Habitat Protection

1. Avoid land use practices that reduce soil moisture effectiveness, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs.
2. Avoid removing sagebrush within 300 m of sage grouse foraging areas along riparian zones, meadows, lakebeds, and farmland, unless such removal is necessary to achieve habitat management objectives (e.g., meadow restoration, treatment of conifer encroachment).
3. Discourage use of very toxic organophosphorus and carbamate insecticides in sage grouse brood rearing habitats. Sage grouse using agricultural areas may be affected adversely by pesticide applications (Blus et al. 1989). Less toxic agri-chemicals or biological control may provide suitable alternatives in these areas.
4. Avoid developing springs for livestock water, but if water from a spring will be used in a pipeline or trough, design the project to maintain free water and wet meadows at the spring. Capturing water from springs using pipelines and troughs may affect adversely wet meadows used by grouse for foraging.

Habitat Restoration

1. Use brush beating or other mechanical treatments in strips 4-8 m wide in areas with relatively high shrub canopy cover (>35% total shrub cover) to improve late brood rearing habitats. Brush beating can be used to effectively create different age classes of sagebrush in large areas with little age diversity.
2. If brush beating is impractical, use fire or herbicides to create a mosaic of openings in mountain big sagebrush and mixed shrub communities used as late brood rearing habitats where total shrub cover is >35%. Generally, 10-20% canopy cover of sagebrush and <25% total shrub cover will provide adequate habitat for sage grouse during summer.
3. Only construct water developments for sage grouse in or adjacent to known summer use areas and provide escape ramps suitable for all avian species and other small animals. Water developments and "guzzlers" may improve sage grouse summer habitats (Autenrieth et al. 1982, Hanf et al. 1994). However, sage grouse used these developments infrequently in southeastern Idaho because most were constructed in sage grouse winter and breeding habitat, rather than summer range (Connelly and Doughty 1989).

4. Whenever possible, modify developed springs and other water sources to restore natural free-flowing water and wet meadow habitats.

Winter Habitat Management

Sagebrush is the essential component of winter habitat. Sage grouse select winter use sites based on snow depth and topography and snowfall can affect the amount and height of sagebrush available to grouse (Connelly 1982, Hupp and Braun 1989, Robertson 1991). Thus, on a landscape scale, sage grouse winter habitats should allow grouse access to sagebrush under all snow conditions.

Habitat Protection

1. Maintain sagebrush communities on a landscape scale, allowing sage grouse access to sagebrush stands with canopy cover of 10-30% and heights of at least 25-35 cm regardless of snow cover. These areas should be high priority for wildfire suppression and sagebrush control should be avoided.
2. Protect patches of sagebrush within burned areas from disturbance and manipulation. These areas may provide the only winter habitat for sage grouse and their loss could result in the extirpation of the grouse population. They also are important seed sources for sagebrush reestablishment in the burned areas. During fire suppression activities do not remove or burn any remaining patches of sagebrush within the fire perimeter.
3. In areas of large-scale habitat loss ($\geq 40\%$ of original winter habitat), protect all remaining sagebrush habitats.

Habitat Restoration

1. Reseed former winter range with the appropriate subspecies of sagebrush and herbaceous species unless the species are re-colonizing the area in a density that would allow recovery within 15 years.
2. Discourage prescribed burns >50 ha and do not burn >20% of an area used by sage grouse during winter within any 20-30 year interval (depending on estimated recovery time for the sagebrush habitat).

APPENDIX Y

TENTATIVE IMPLEMENTATION SCHEDULE

FY 2006

Lead Program	Action
Fish	Review and evaluate pending ACEC nominations <ul style="list-style-type: none"> • Clark Canyon Watershed ACEC Nomination • Greater Yellowstone Elk and Bison ACEC Nomination
Fish	Develop a Cooperative Agreement with FWP for adequate protection and access to the fluvial arctic grayling brood pond in the Axolotl Lakes area, and prepare a management plan in cooperation with FWP for management of acquisition lands.
Fish	Coordinate with private entities to modify dams or outlets on Axolotl Lake, Reservoir Lake, and Twin Lakes to maintain a residual pool.
Geology	Post signs at the following geologic features: Wedding Ring Rock, Squirrel Rock, and Road Agents Rock.
Lands	Terminate the C&MU classification at Road Agents Rock.
Recreation	Complete and sign the BLM-managed portions of the Continental Divide National Scenic Trail.
Recreation	Formalize an agreement between BLM, ARS and USFS on Continental Divide National Scenic Trail responsibilities.
Recreation	Establish use levels for OPAs for outfitted big game hunting in coordination with those affected.
Wilderness	Complete the evaluation and update of the Bear Trap Canyon Wilderness Management Plan.
Wildlife/Recreation	Post major public land trailheads and access points in the South Madison, East Fork of the Blacktail, Axolotl Lakes, and Centennial Mountain areas to advise recreationists about proper food storage to avoid back country conflict with grizzly bears.
Recreation	Complete development and maintenance of sites in 2002 FERC re-licensing agreement for the Missouri-Madison hydroelectric project.
Wildlife	Update and revise the Red Rock Waterfowl Habitat Management Plan.
Wildlife	Update and revise the Blacktail Habitat Management Plan.
Wildlife/Range	Amend grazing permits that lie within wildlife migration/dispersal corridors to state that depredation losses are possible.
Wildlife	Place or construct barriers to prevent unauthorized travel into Blue Lake ACEC.

FY 2007

Lead Program	Action
Geology	Develop educational materials/brochure for Block Mountain ACEC.
Cultural/Lands	Withdraw 2,160 acres of Everson Creek ACEC from locatable mineral entry.
Cultural	Prepare Everson Creek Archaeological District NRHP nomination package.
Fish	Update and revise the Sheep Creek Aquatic Habitat Management Plan.
Wildlife/Recreation	Develop interpretive materials about axolotl at appropriate locations.
Recreation/Lands	Withdraw developed recreation sites not already withdrawn from locatable mineral entry.
Recreation/Lands	Withdraw land along the Madison River between Warm Springs and the planning boundary to the north from locatable mineral entry.
Recreation	Complete and sign the BLM-managed portions of the Continental Divide National Scenic Trail.
Wilderness	Complete the evaluation and update of the Bear Trap Canyon Wilderness Management Plan.
Recreation	Develop a boat launch, parking area, and toilet along the Madison River Storey Property.
Wildlife	Update and revise the Hidden Pasture Bighorn Habitat Management Plan.
Range	Adopt or develop a habitat management plan and conservation strategies for: <ul style="list-style-type: none"> • In riparian habitats: <i>Carex idahoensis</i> (<i>Idaho Sedge</i>) • In sagebrush-steppe habitats: <i>Penstemon lemhiensis</i> (<i>Lemhi Beardtongue</i>)
Recreation	Establish use levels for OPAs for outfitted big game hunting in coordination with those affected.

FY 2008

Lead Program	Action
Cultural	Prepare Muddy Creek Archaeological District NRHP nomination package.
Recreation	Develop a boat launch, parking area, and toilet along the Madison River Storey Property.
Range	Adopt or develop a habitat management plan and conservation strategies for one of the special status plant species and habitats identified below: <ul style="list-style-type: none"> • In riparian habitats: <i>Primula alcalina</i> (<i>Alkali Primrose</i>) • In sagebrush-steppe habitats: <i>Astragalus scaphoides</i> (<i>Bitterroot Milkvetch</i>)
Recreation	In coordination with the Beaverhead-Deerlodge National Forest, prepare a Recreation Area Management Plan for the South Pioneers to consider opportunities for motorized and/or mountain bike trail development.

FY 2009**Lead Program****Action**

Cultural/Lands

Withdraw Beaverhead Rock ACEC from locatable mineral entry.

Recreation

Complete and sign the BLM-managed portions of the Continental Divide National Scenic Trail.

Recreation

Develop additional recreational support facilities at the Maiden Rock Boat Launch site.

Wildlife/Fish

Update and revise the Axolotl Lakes Habitat Management Plan.

Wildlife

Update and revise the Wall Creek Habitat Management Plan.

Range

Adopt or develop a habitat management plan and conservation strategies:

- In riparian habitats: *Taraxacum eriophorum* (*Rocky Mountain Dandelion*)
- In sagebrush-steppe habitats: *Astragalus terminalis* (*Railhead Milkvetch*)

FY 2010**Lead Program****Action**

Cultural/Lands

Withdraw Virginia City ACEC from locatable mineral entry.

Cultural/Lands

Withdraw Christnot Mill from locatable mineral entry.

Recreation

Develop additional recreational support facilities at the Maiden Rock Boat Launch site.

Range

Adopt or develop a habitat management plan and conservation strategies for:

- In riparian habitats: *Thalictrum alpinum* (*Alpine Meadowrue*)

FY 2011**Lead Program****Action**

Cultural/Geol/Lands

Withdraw Wedding Ring Rock, Squirrel Rock, and Road Agent Rock from locatable mineral entry.

Cultural/Lands

Withdraw Lewis's Lookout from locatable mineral entry

Lands

Review and update, if necessary, the communication site plans for:

- the Armstead Mountain designated use area.
- Maurer Mountain designated use area.
- Pipe Organ designated use area.
- Bear Trap designated use area.
- Virginia City Hill designated use area.

APPENDIX Z
PLAN MAINTENANCE ROSTER

Dillon RMP Maintenance Roster

Changes made (list page number(s) and wording):

Reason(s);

Date _____ Signature _____

Title _____

APPENDIX AA PLAN MONITORING ROSTER

Dillon RMP Monitoring Roster

Portion of Plan Monitored:

Date(s):

Results:

Is any modification needed to adjust the plan?

If so, please explain.

Date _____ Signature _____

Title _____