# APPENDIX 28—BIOLOGICAL OPINION FOR THE PINEDALE RESOURCE MANAGEMENT PLAN

# United States Department of the Interior

FISH AND WILDLIFE SERVICE

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In Reply Refer To:
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Memorandum

To: Field Manager, Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming

From: Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne Scott Hicks

Subject: Biological Opinion for the Pinedale Resource Management Plan

This correspondence transmits the U.S. Fish and Wildlife Service (USFWS or Service) programmatic Biological Opinion (BO) in response to the U.S. Bureau of Land Management's (BLM or Bureau) request for consultation for the impacts from the Bureau's Pinedale Resource Management Plan (RMP) (BLM 2008a) and commitment to conservation measures (Proposed Action) to federally listed species in Wyoming in accordance with section 7 of the Endangered Species Act (ESA or Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your September 22, 2008, request for formal consultation was received September 25. On October 2, 2008, the Service notified the Bureau that all information necessary to begin consultation had been received or was otherwise accessible.

This correspondence addresses potential effects to the black-footed ferret (*Mustela nigripes*), Ute ladies'-tresses orchid (*Spiranthes diluvialis*), Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), and Colorado River downstream listed fishes and their designated critical habitats from all planned programs of the Pinedale RMP as well as the Bureau's commitment to the Conservation Measures listed in the Pinedale RMP Biological Assessment (BA) (BLM 2008b) and commitments in relevant Programmatic Statewide Species BAs.

The Bureau's September, 2008, Pinedale RMP BA also addressed potential effects to both the grizzly bear (*Ursus arctos*), and the bald eagle (*Haliaeetus leucocephalus*) from implementation of the Pinedale RMP. However, on March 29, 2007, and August 8, 2007, the Service removed the grizzly bear and the bald eagle that occur in Wyoming from the list of threatened and endangered species, respectively. Grizzly bears in Wyoming are currently managed by the Wyoming Game and Fish Department, while the bald eagle remains protected under the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. §§ 668-668d) and the Migratory Bird Treaty Act, 16 U.S.C. § 703. On May 20, 2008, the Service published final regulations that created a new permit category (50 CFR§ 22.28) to provide expedited permits under the BGEPA

to entities authorized to take bald eagles through ESA section 7 Incidental Take Statements. In addition to the new permit regulations at §22.28, the Service plans to finalize regulations in the future to establish a new permit that will authorize take of bald eagles and golden eagles that is associated with, but not the purpose of, an activity (proposed 50 CFR § 22.26, see 72 FR 31141, June 5, 2007). The Service appreciates the Bureau's commitment to continued protection of the grizzly bear and bald eagle (BLM 2008b) as well as its commitment to monitor the status of the grizzly bear and bald eagle on Bureau-administered lands. Effects to the grizzly bear and bald eagle will not be addressed further in this correspondence.

The planned programs of the Bureau's Pinedale RMP are (1) Air Quality, (2) Cultural, (3) Forestry, (4) Lands and Realty, (5) Livestock Grazing, (6) Minerals, (7) Paleontology and Natural History, (8) Recreation and Visitor Services, (9) Soil, (10) Transportation, Access, and Travel Management, (11) Vegetation, (12) Visual Resources, (13) Watershed and Water Quality, (14) Wildland Fire and Fuels, (15) Wildlife and Fish Habitat, and (16) Special Management Areas.

This correspondence includes an informal consultation/conference for "no effect" (NE) and "not likely to adversely affect" (NLAA) determinations for effects to listed species and designated critical habitats and "not likely to jeopardize" (NJ) determinations for the non-essential, experimental population of the gray wolf, and a programmatic BO for potential adverse effects from Bureau-authorized activities (Appendices 1, 2, and 3) within the Pinedale planning area. The Bureau-administered programs with potentially likely adverse effects include the Lands and Realty; Livestock Grazing; Minerals; Transportation, Access, and Travel Management, Wildland Fire and Fuels; and Wildlife and Fish Habitat Management Programs. This consultation is based on our review of your BA (BLM 2008b). A complete decision record of all documents and correspondence concerning this consultation are on file in the Wyoming Ecological Services Field Office.

**Consultation/Conference History**

The Service and the Bureau began informal consultation/conference on impacts of Bureau activities to the black-footed ferret, gray wolf, Ute ladies'-tresses, Colorado River downstream listed species in the Pinedale planning area on October 23, 2001. Between October 23, 2001, and September 22, 2008, the Service reviewed multiple drafts of the Pinedale RMP and Pinedale RMP BA, as well as, provided statewide species-specific section 7 consultation on individual Bureau RMPs (including the existing Pinedale RMP [BLM 1988] throughout Wyoming. The Service received all information necessary to begin formal consultation on the proposed Pinedale RMP (BLM 2008a) on October 2, 2008.

**Informal Consultation/Conference**

In the Pinedale RMP BA, the Bureau made NLAA, NE, and NJ determinations for the effect of certain programs on listed species in the Pinedale planning area in Wyoming. These are displayed in Table 1. When the Bureau makes a "no effect" determination, concurrence from the Service is not required, although we do appreciate receiving the information used to make the determination.

The Pinedale RMP is used by the Bureau to guide and control future actions and set standards, upon which future decisions on site-specific activities are based. An RMP only establishes

general management policy. An RMP is not used to make decisions that commit resources. An RMP identifies desired outcomes, also known as "desired future conditions." These outcomes are expressed in RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes, often referred to as RMP decisions or resource allocations. It is these decisions or resource allocations of the Pinedale RMP that the effects determinations in this *Informal Consultation/Conference* are based. As such, the Bureau is still obligated to conduct section 7 consultation at the project-specific level for all Bureau-authorized activities that "may affect" a listed species.

Since the gray wolf in Wyoming (outside of National Parks and National Wildlife Refuges) is part of a non-essential experimental population, for section 7 purposes according to the Act, it is treated as a species "proposed for listing." According, the appropriate conference determinations for the non-essential, experimental population of the gray wolf are "likely to jeopardize the continued existence of the species" or "not likely to jeopardize the continued existence of the species."

Table 1. Listed Species "likely to adversely affect" (LAA), "not likely to adversely affect (NLAA)", and "no effect (NE)" determinations made by the Bureau.

| Program \ Species/Critical Habitat | Black-footed Ferret | Colorado River Fishes | Canada Lynx | Gray Wolf | Ute ladies'-tresses |
|---|---|---|---|---|---|
| Air Quality | NLAA | NE | NE | NJ | NLAA |
| Cultural Resources | NLAA | NE | NLAA | NJ | NLAA |
| Forestry | NLAA | NE | NLAA | NJ | NE |
| Lands and Realty | NLAA | LAA | NLAA | NJ | NLAA |
| Livestock Grazing | NLAA | LAA | NLAA | NJ | LAA |
| Minerals | NLAA | LAA | NLAA | NJ | NLAA |
| Paleontology and Natural History | NLAA | NE | NLAA | NJ | NLAA |
| Recreation and Visitor Services | NLAA | NE | NLAA | NJ | NE |
| Soil | NLAA | NE | NLAA | NJ | NLAA |
| Transportation, Access, and Travel Management | NLAA | LAA | NLAA | NJ | NLAA |
| Vegetation | NLAA | NE | NLAA | NJ | NLAA |
| Visual Resources | NLAA | NE | NLAA | NJ | NE |
| Watershed and Water Quality | NLAA | NE | NLAA | NJ | NLAA |
| Wildland Fire and Fuels | NLAA | LAA | NLAA | NJ | NLAA |
| Wildlife and Fish Habitat | NLAA | LAA | NLAA | NJ | NLAA |
| Special Management Areas | NLAA | NE | NLAA | NJ | NLAA |

*Black-footed ferret.* The BA addressed activities that are not likely to adversely affect the black-footed ferret. The Bureau has based its determinations, in part, on the Service's February 2, 2004, letter, which informed the Bureau that all black-tailed prairie dog towns and many of the white-tailed prairie dog towns in Wyoming are not likely to be inhabited by black-footed ferrets (USFWS 2004a). Additionally, the Bureau's Pinedale Field Office is committed to maintaining the integrity of prairie dog complexes in habitat suitable for black-footed ferret reintroduction (if such habitat is identified in the Pinedale planning area). Furthermore, the Bureau has committed to other conservation measures designed to protect black-footed ferrets and their habitat

(Appendix 2). Based on this information, the Service concurs with your determinations that all activities described in the Proposed Action are not likely to adversely affect black-footed ferrets. Additionally, the Bureau has committed to conservation measures and adopted best management practices that will aid in the recovery of this species. This species will not be discussed further in this correspondence.

*Colorado River downstream listed species.* The Bureau has determined that activities described in the Proposed Action, with the exception of certain (1) Lands and Realty, (2) Livestock Grazing, (3) Minerals, (4) Transportation, Access, and Travel, (5) Wildland Fire and Fuels, and (6) Wildlife and Fish Habitat management actions will have no effect on the downstream listed species of the Colorado River systems because water depletions are not expected to occur in conjunction with those authorized activities. When the Bureau makes a "no effect" determination, concurrence from the Service is not required, although we do appreciate receiving the information used to make the determination. The six programs identified above may adversely affect Colorado River downstream listed species and as such are discussed in the following programmatic BO.

*Canada lynx.* The Bureau addressed activities that are not likely to adversely affect the Canada lynx. The Service concurs with your determinations that activities described in the Proposed Action will not likely adversely affect the Canada lynx. The Service's concurrence is based on the Bureau's commitment to implementing conservation measures (see Appendix 2) that are based on the Lynx Conservation Assessment and Strategy (Ruediger *et al.* 2000). In particular, the Bureau has committed to limiting disturbance within each Lynx Analysis Unit (LAU) to 30 percent of the suitable habitat within that LAU. The Bureau shall also not change more than 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period. Furthermore, the Bureau has committed to maintaining denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present within an LAU, management actions will be deferred that would delay development of denning habitat structure. The Bureau has also adopted best management practices (see Appendix 3) that will aid in the recovery of this species. Although considered unlikely to occur on Bureau-administered lands at a level that will result in adverse effects to the Canada lynx, possible, but highly unlikely detrimental impacts to the Canada lynx from programs as identified by the Bureau include: (1) the potential for lynx human conflicts, (2) the increase in human activity, construction, or development causing disturbance to lynx or alterations to denning, foraging or linkage habitat, (3) the increased potential for vehicle collision, (4) habitat fragmentation, (5) the decrease in effectiveness of habitat to support lynx prey, and (6) the increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats, which could compete with lynx.

The Service is currently revising the critical habitat for the Canada lynx. On February 28, 2008, the Service proposed to designate approximately 42,753 square miles of habitat in portions of northern Maine, northeastern Minnesota, the Northern Rocky Mountains (northwestern Montana and northeastern Idaho), the Northern Cascades (north-central Washington), and the Greater Yellowstone Area (southwestern Montana and northwestern Wyoming). However, none of these areas are included in the Pinedale RMP planning area and activities within the Pinedale RMP planning area are not anticipated to cause adverse modification of Canada lynx proposed critical habitat on other lands. According to the Bureau, if the Service does eventually designate critical habitat on the Pinedale RMP planning area or if any Bureau-authorized activity under the

Pinedale RMP may be determined to potentially affect designated critical habitat for the Canada lynx, then the Bureau would treat the designated critical habitat with the same lynx conservation measures as listed in Appendix 2.

*Gray wolf.* The Service concurs with your determination that activities described in the Bureau's Pinedale RMP will not jeopardize the continued existence of the gray wolf because (1) the gray wolf in the Bureau's Pinedale planning area is part of a non-essential experimental population, and by definition, any effects to a non-essential, experimental population of any species will not jeopardize the continued existence of the species, and (2) the Bureau has committed to conservation measures and adopted best management practices (see Appendices 2 and 3) that will aid in the recovery of this species. Potential adverse effects to the gray wolf from implementation of the Pinedale RMP as described in the BA (BLM 2008b) include (1) short-term behavioral avoidance of areas and (2) temporal displacement from habitat.

*Ute ladies'-tresses orchid.* The BA addressed several activities that will have no effect or are not likely to adversely affect the Ute ladies'-tresses orchid. The Service concurs with your determinations that activities described in the Proposed Action with the exception of certain livestock grazing activities will not likely adversely affect these plants. The livestock grazing program may adversely affect the Ute ladies'-tresses orchid and as such is the subject of the attached BO. The Service's concurrence for activities not likely to adversely affect this species is based on (1) the fact that there is no known occupied habitat (Ute ladies'-tresses) managed by the Bureau's office in Pinedale, and (2) the commitment by the Bureau to implement conservation measures adequate to ensure that if adverse activities with the exception of certain activities of the livestock grazing program did occur in the habitat of these listed plants, the effects from Bureau activities would be sufficiently minimized by protective buffers, timing restrictions, etc. (see Appendix 2).

## PROGRAMMATIC BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

The proposed action examined is the management of Bureau-administered lands according to the revised Pinedale Resource Management Plan (RMP) (BLM 2008a) as well as the Bureau's commitment to conservation measures (Appendix 2) listed in the Biological Assessment (BA) (BLM 2008b) for this RMP. The objective of the Pinedale RMP is to provide specific management direction to prevent or address potential conflicts among oil and gas development, recreational activities, livestock management, important wildlife habitat, and other important land and resource uses in the Pinedale planning area, as well as to determine the appropriate levels and timing of these activities. Decisions made as a result of the ROD for the Pinedale RMP will result in amending the existing Pinedale RMP (BLM 1988).

RMPs are used by the Bureau to guide and control future actions and set standards, upon which future decisions on site-specific activities are based. RMPs only establish general management policy. RMPs are not used to make decisions that commit resources. RMPs identify desired outcomes, also known as "desired future conditions". These outcomes are expressed in RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes, often referred to as RMP decisions or resource allocations. It is these decisions or resource

allocations that the effects determinations in this BO are based. As such, the Bureau is still be obligated to conduct section 7 consultation at the project-specific level for all Bureau-authorized activities that "may affect" a listed species.

The Pinedale RMP incorporates current laws and regulations and public land resource management initiatives to guide long-range land management decisions for public lands and resources in Sublette and Lincoln Counties in western Wyoming. The Bureau administers 922,880 acres of public land surface and 1,199,280 million acres of Federal mineral estate within the planning area. The Pinedale RMP does not include land management decisions where land surfaces and minerals are both privately owned, or owned by the State of Wyoming, or local governments, or those lands that are managed by other Federal agencies.

This formal consultation only addresses adverse effects to listed species that are likely-to-occur as a result of the Pinedale RMP (1) Lands and Realty; (2) Livestock Grazing; (3) Minerals; (4) Transportation, Access, and Travel Management, (5) Wildland Fire and Fuels; and (6) Wildlife and Fish Habitat Management Programs. Informal consultation on other actions identified in the RMP were covered previously in this document.

The activities of the Pinedale RMP that may affect, and are likely to adversely affect the Ute ladies'-tresses orchid (*Spiranthes diluvialis*) and the Colorado River downstream listed fishes and their designated critical habitats are presented in Table 2 and discussed in detail below. Conservation measures were included in the Pinedale BA (BLM 2008b) to address potential adverse effects. The Bureau has committed to implementing the conservation measures listed in that conservation strategy as part of their proposed action (RMP) (BLM 2008a). Therefore, the Service has evaluated the implementation of these conservation measures as part of the proposed action.

Table 2. Listed species "likely to adversely affect" determinations made by the Bureau.

| Program \ Species/Critical Habitat | Colorado River Downstream Species and Critical Habitat | Ute ladies'-tresses |
|---|---|---|
| Lands and Realty | LAA | ------- |
| Livestock Grazing | LAA | LAA |
| Minerals | LAA | ------- |
| Transportation, Access, and Travel Management | LAA | ------- |
| Wildland Fire and Fuels | LAA | ------- |
| Wildlife and Fish Habitat | LAA | ------- |

**Lands and Realty.** The Bureau's lands and realty program seeks to support multiple-use management goals of the Bureau's resource programs; respond to public requests for land use authorizations, sales, and exchanges; and acquire and designate ROW access to serve administrative and public needs. The Pinedale RMP addresses only those lands within Sublette and Lincoln counties that are administered by the Bureau (about 922,880 surface acres and 1,199,280 acres of Federal mineral estate).

Rights-of-way (ROWs) granted by the Bureau are used for access roads, well pads, pipelines, communication sites, ditches and canals, buried telephone lines and fiber optic lines, reservoirs, compressor stations and other facilities, and electrical distribution lines (power lines) associated with proposed projects and/or activities. In addition, the Bureau authorizes ROWs and leases for utility transportation corridors. A ROW is generally issued for a 30-year term and may be extended with the right of renewal.

Land tenure adjustment requests such as disposals of, transfer, or acquisition of public lands are also reviewed. Public lands have the potential for disposal when they are isolated and/or difficult to manage. Disposal actions usually occur in response to a public request or application that results in a title transfer, wherein the lands leave the public domain. All disposal actions are coordinated with adjoining landowners, local governments, and current land users. Acquisition of non-Federal lands would be pursued, if needed, to accomplish multiple use management objectives.

Withdrawals are initiated to preserve sensitive environmental values, protect major Federal investments in facilities, support national security, and provide for public health and safety. They segregate a portion of public lands and suspend certain operations of the public land laws, such as desert land entries or mining claims. Land withdrawals can be used to transfer jurisdiction to other Federal land-managing agencies.

In addition, the Lands and Realty program authorizes wind energy development. Wind energy development projects are considered on a case-by-case basis. Wind turbines authorized by the Bureau are typically up to 180 feet high, with an 80-foot turbine diameter. Each turbine would encompass approximately 1.2 acres. Ancillary activities would include meteorological towers, roads, and power lines.

**Livestock Grazing.** The Bureau's Pinedale RMP BA states that the Wyoming Standards for Rangeland Health and Guidelines for Livestock Grazing Management would apply to all livestock grazing activities on public lands. Numerous activities make up the Bureau's livestock management program, including livestock grazing management, vegetation treatments, and range improvements.

Livestock management includes authorizing livestock grazing; designing and implementing grazing systems (Allotment Management Plans [AMP]); converting types of livestock; abolishing stock trails and driveways; and adjusting seasons of use, distribution, kind, class, and number of livestock. Vegetation treatments for livestock grazing management include the use of prescribed fire; chemical, mechanical, and biological treatments; and noxious and invasive weed control. Other activities for livestock grazing management include the placement of salt and mineral supplements and livestock herding. Range improvements include fence construction, maintenance, and modification (e.g., exclosures and cattle guards); water development (reservoirs, seeps, springs, pipelines, catchments, and wells); and instream structures.

**Minerals.** The Bureau's mineral development program is divided into three categories: common variety minerals, leasable minerals, and locatable minerals.

The planning area contains approximately 1,199,280 acres of Federal mineral estate underlying 922,880 acres of federally owned surface and 276,400 acres private and State lands. The most

important potential mineral resources in the Pinedale planning area are hydrocarbon resources (BLM 2008a). The long history of natural gas production and developments in the last decade document the presence of source rocks, reservoir rocks, and trapping mechanisms that provide a significant hydrocarbon resource. Gas from geologic formations other than coalbeds has the greatest development potential; gas from coalbeds, also referred to as coalbed methane (CBM), is of lesser importance in the Pinedale planning area.

Leasable Minerals. Leasable minerals include solid minerals (e.g., coal) and fluid minerals (e.g., oil, gas, and coalbed methane gas).

*Leasable Minerals (Solid).* There are no known economic coal reserves in the Bureau's Pinedale planning area. Decisions on lands acceptable for leasing consideration for coal development would be made after an application is received. Leases would be considered, and the coal screening process would be conducted on a case-by-case basis as lease applications are received. If lease applications are approved, then appropriate mitigation measures are developed. The extent of wildlife and fish impacts is currently unknown, but would be determined when the lease application is considered.

*Leasable Minerals (Fluid).* Mineral leases, other than oil and gas, are subject to the same resource constraints established for other surface disturbing and disruptive activities. This usually would mean that wildlife and fish would be protected in a like manner. However, each lease would have to be reviewed on its own merits to ensure the appropriate protective measures were applied.

The Mineral Leasing Act of 1920 provides that all public lands are open to oil and gas leasing unless specifically designated by public law (43 *Code of Federal Regulations* [CFR] 3100.0-3). To acquire a lease, the public nominates acreage to be included in an oil and gas lease sale. This acreage is subdivided into parcels, and the information is sent to the appropriate Bureau field office. The field office reviews the parcel for potential conflicts with other resources, and appropriate stipulations for protection of wildlife and other sensitive resources are included in the lease language.

Mineral exploration involves opening new areas to geophysical exploration, leasing, and potentially drilling for oil, gas, CBM, and other leasable minerals. Mineral development involves an expansion of the exploration phase with construction and initial reclamation of well pads, access roads, reserve pits, windpower associated with leases, and other facilities that may include aboveground power lines and buried pipelines. Stipulations included in the lease language allow protection by controlled surface use (CSU) restrictions or No Surface Occupancy (NSO) restrictions if the resource requires these measures. Partial reclamation is required during the production phase, and full restoration is required after the project is abandoned.

Before seismic activity begins, a Notice of Intent (NOI), which details the location, type of activity, and a cultural inventory, must be filed in the Bureau's field office. The Bureau then conducts an in-office environmental analysis to determine whether any federally listed species would be affected. Recent seismic activity in this area has been three-dimensional (3-D) surveys, although two-dimensional (2-D) surveys are occasionally conducted.

Before drilling activities, an Application for Permit to Drill (APD) and a site-specific environmental assessment (EA) must be approved. APDs subject to site-specific conditions of

approval may be more or less restrictive than lease stipulations. Drilling and producing operations are inspected regularly to ensure that conditions of approval are followed. Activities that would occur as a result of authorizing APDs include the application of dust control measures, restriction of flaring of natural gas, control of light emissions, and construction of reservoirs associated with water disposal, compressor stations, product enhancement facilities, and disposal facilities.

Construction and operation of drill sites could result in limited commitment of certain resources. After the subsurface resource is extracted and the drill site reclaimed, the surface resource is reestablished. Site-specific commitment of resources includes the removal of vegetation and commitment of land surface to roads and well pads during the time that the subsurface resource is being extracted.

When split estate situations occur, wildlife restrictions for federally listed species are applied to the subsurface estate and the surface activities because of the Federal nexus of the actions. In this case, Federal minerals underlie a non-Federal surface, and federally listed species are protected with wildlife restrictions. Wildlife stipulations for other species not associated with the threatened and endangered species program would not apply when a split estate situation occurs (Federal minerals/non-Federal surface) and a proposed project is analyzed. The Bureau develops and implements surface disturbance restrictions by incorporation of conditions of approval in the site-specific analysis. These restrictions vary depending on the type of resource to be protected. Some examples of restrictions include No Surface Occupancy (NSO) restrictions on floodplains, wetlands, and riparian zones, and spatial/timing restrictions adjacent to greater sage-grouse leks and raptor nests.

*Locatable Minerals.* The Pinedale planning area is open to operation of the public land laws and to locatable mineral entry except for 148,510 acres of existing withdrawals. The Bureau has management authority over mining claim operations for locatable minerals conducted under the General Mining Law of 1872. These operations are managed using the surface regulations in 43 CFR 3809. Activity authorized under the General Mining Law is not subject to many of the special stipulations that are used in the common variety and leasable mineral programs to protect sensitive resources from surface disturbance caused by mineral development. However, they are subject to ESA, the National Historic Preservation Act (NHPA), and all applicable State requirements.

Bentonite, uranium, and gypsum are the principal locatable minerals of the Bureau in Wyoming. Other locatable metallic minerals include silver, gold, platinum, cobalt, and other precious minerals. At present, no active metallic mineral mining occurs on Bureau-managed public lands in the planning area except for occasional recreational mining.

Actions associated with commercial locatable minerals may include surface disturbance for mining (e.g., exploration and development), reclamation, and construction of access roads, buildings, and utility lines. Small-scale mining must be approved by a plan of operations and would require either an environmental assessment (EA) or an environmental impact statement (EIS). All lands must be reclaimed after cessation of mining activities.

*Salable Minerals.* Salable mineral mining is authorized under the Materials Act of 1947, as amended, and as such is a discretionary action. Salable minerals include sand, gravel, sandstone, shale, limestone, dolomite, and any material considered a common variety mineral. Historically,

these materials were used for building, resurfacing roads, and decorating landscapes. Today, common variety minerals are used mainly for maintaining roads and for activities associated with the oil and gas industry. The Bureau provides sand, gravel, and stone from Federal mineral deposits as necessary to meet the need for Federal, State, and local road construction and maintenance projects in the planning area. These materials may be available by a free use permit to State and local governments.

The demand for sand and gravel has increased in the field office as a result of road construction and maintenance. The planning area would be open to mineral material sales with the exception of 148,510 acres of presently withdrawn lands.

Before issuing contracts or free use permits for salable minerals, the Bureau conducts appropriate environmental assessments. These assessments include special studies or inventories of cultural values, federally listed plant and wildlife species, or other resources. Stipulations or conditions may be included in the terms of the contract to ensure protection of natural resources found there and reclamation of the land following project completion. Site reclamation is required following any surface disturbing mining activity for salable minerals. Reclamation of disturbed sites is important to ensure that the land can later be used productively for other purposes. Reclamation includes removing all surface debris, recontouring, reducing steep slopes, and planting vegetation. All reclamation proposals must conform to State agency requirements and must be approved by the Bureau.

**Transportation, Access, and Travel Management.** As part of the transportation, access and management program, the Bureau rehabilitates access roads that are no longer needed, proposes access easement acquisitions, and pursues legal access across private and State lands.

The Bureau designates areas as closed, limited, or open to off-highway vehicle (OHV) use. The Bureau posts signs, develops maps or brochures, and monitors OHV use. Over-the-snow vehicles (snowmobiles) are allowed to go cross-country on snow. OHV use would be limited to existing roads and trails, except where other restrictions apply in the Desert General Use area. Open OHV use areas would be designated in the Big Piney and LaBarge areas. The Bureau would coordinate with local interests to establish an open OHV use area in the Pinedale vicinity, after which an operation plan would be developed for use of this area.

Recreational OHV use would be restricted to existing roads and trails in most areas throughout the planning area. The Bureau would regulate OHV use on Federal lands consistent with Wyoming's OHV Sticker Program. Using OHVs to reach developed or semi-developed camping sites away from roads and trails or to retrieve harvested big game would be allowed. Seasonal closures may be applied in crucial wildlife habitats as needed, including over-the-snow use. In addition, OHVs are prohibited when their use will cause resource damage. The Bureau permits OHV events.

The Bureau recognizes the use of bicycles and other human-powered, mechanized conveyances as appropriate recreational activities. Federal regulations do not specifically address management of non-motorized vehicle use. The Bureau in Wyoming has adapted the national OHV strategy to meet local needs. Bicycles would be allowed on the Encampment River Trail within the WSA until Congress designates that area as wilderness. Wheelchairs would be allowed across the entire planning area despite any particular trail's or area's designation of use.

**Wildland Fire and Fuels.** The two major categories of activities involved with the Bureau's fire and fuels management program are fuels treatments (e.g., biological, chemical, prescribed burning, and mechanical treatments) and wildland fire suppression. During fuels treatment activities, the Bureau evaluates areas on a case-by-case basis; writes activity plans, which encompass any of the above listed treatments; coordinates with all necessary parties; and conducts treatment projects. Fuels treatments are used to enhance natural resources in the area. Fuels treatments can be used to dispose of slash and residue from timber sales. Fuels treatments are sometimes used to reduce the fuel levels before a treatment activity. Most fuels treatments are conducted to improve wildlife habitat and grazing operations.

Wildland fire suppression activities, on the other hand, are performed on an emergency basis. Wildland fire suppression activities in the planning area would be based on the Appropriate Management Response. The following areas would have a high priority for response to wildland fires and for fuels reduction and mitigation: areas of mixed land ownership, urban and industrial interfaces, important wildlife habitats, cultural sites, Areas of Critical Environmental Concern (ACECs), Wilderness Study Area (WSA), and other special management areas. Modified fire suppression would benefit various habitats by allowing fire to reduce climax communities and by stimulating growth of new vegetation.

Preplanning for wildland fire suppression takes place in many forms before a fire occurs. Wildland fire suppression activities, which vary with the intensity of the wildfire, may involve the use of OHVs, hand tools, aviation resources, and heavy equipment (e.g., bulldozers). Fire lines are constructed to contain wildland fires. Chemical fire suppression agents (ground- based) containing surfactant compounds, ammonium nitrate compounds, and chemical dyes may be used if needed. In addition, fire retardant drops containing chemical dyes (aircraft dispersal) are used. These drops may affect the aquatic environment if used where the chemicals may enter streams. Water is withdrawn from nearby sources to suppress the fire. Nearby sources may include streams, lakes, or public water supplies. After the fire is extinguished, the Bureau may use rehabilitation techniques to stabilize disturbed or burned areas. Rehabilitation techniques may involve planting small trees, grass, forbs, and shrubs to restore the site to its original or a compatible vegetative state. The Bureau uses Burned Area Emergency Rehabilitation (BAER) for seeding, replanting trees, placing mulch in stream banks, and using controlled grazing with fences. Through wildland fire suppression activities, the Bureau seeks to effectively protect life, property, and resource values from wildfire. The Bureau uses fire suppression on fires endangering human life or fires that come within 1 mile of State or private lands, structures, and facilities. Acres of wildland fire fluctuate annually. Recent trends throughout the Wyoming Bureau-administered lands are similar to trends throughout the west, with larger, catastrophic fires in recent years attributed to drought conditions and past fire suppression policies.

**Wildlife and Fish Habitat.** Through wildlife and fisheries habitat management, the Bureau maintains and enhances habitat for a diversity of wildlife and fish species and provides habitat for threatened, endangered, candidate, proposed, and special status animal and plant species in compliance with: the ESA, the Bureau's Manual 6840, and approved recovery plans. The Bureau's wildlife habitat management program supports population objective levels in the Wyoming Game and Fish Department strategic plan.

Wildlife program activities may include inventory and monitoring, habitat improvement projects, developing stipulations and protective measures, and predator control in coordination with the Animal and Plant Health Inspections Service—Wildlife Services, Animal Damage Control

(APHIS-WS ADC). Inventory and monitoring, which include habitat assessments and species surveys, are conducted to assess the effectiveness of the implementation of timing stipulations, reduce conflicts between species and other activities, and provide appropriate mitigation. In addition, inventory and monitoring are used to identify and describe habitat requirements and life history characteristics of federally-listed species.
The wildlife program supports other resources, including fire and fuels; forestry; minerals, including leasable, locatable, and common variety mineral exploration; recreation; cultural and paleontological; and lands and realty program activities.

Habitat improvement projects include the development of water sources, construction and maintenance of fences, management of other resource activities to conserve forage and protect habitat, improvement of forage production and quality of rangelands, and vegetative treatments (prescribed fires, mechanical, chemical, biological treatments, cutting, thinning, planting, seeding, and pitting). Other wildlife management activities include introducing species, developing islands, modifying existing projects, constructing artificial structures, constructing guzzlers, implementing road closures (permanent and seasonal), constructing exclosures, and using heavy equipment and hand tools.

In addition, wildlife management activities include improving fisheries and wildlife habitat; documenting resource damage; implementing stream improvement practices; chemically controlling non-native fish; using electro-shocking for sampling fish communities and population studies; constructing instream barriers to protect species from non-native invaders; installing revetments and fish passage structures, log over-pours, and gabion baskets; cabling junipers; placing large boulders for instream fish habitat; and restoring streams to a state of dynamic equilibrium by using restoration techniques.

## STATUS OF THE SPECIES

### Ute Ladies'-tresses Life History

Very little is known about the life history of Ute ladies'-tresses (USFWS 1995). Much of what is presumed about the species' life history is drawn from knowledge of other orchids. Orchids generally have very small seeds that require symbiotic associations with mycorrhizal fungi for germination. Many species of orchids are saprophytic, underground plants that may persist for many years underground before emerging above ground. The mycorrhizal stage is reported to last 8 years in *S. spiralis* and green leaves are first produced up to 11 years after germination in that species (Wells 1967). Studies of *S. magnicamporum* in western Kansas and Nebraska report that that species may bloom as rarely as once in 20 years. The mean life expectancy of *S. spiralis* plants studied over a nine year period was calculated to be more than 50 years (USFWS 1995).

Throughout its range, reproduction of the Ute ladies'-tresses orchid appears to be strictly sexual, with bumblebees (*Bombus* spp.) as the primary pollinators (Arditti 1992, Sheviak 1984). Flowers are protandrus (functionally male first and then female). As with other orchid species, it is thought that Ute ladies'-tresses does not reach sexual maturity for 5 to 10 years (USFWS 1995). Each orchid fruit can have several hundred to 10,000 seeds with an average of around 2,000 (Sipes and Tepedino 1994). These seeds may be dispersed by water (Carroll, *pers. comm.*) or wind (Wells 1967). The flowers, seed heads, and vegetative parts of the Ute ladies'-tresses

orchid are palatable and can be incidentally eaten by grazing livestock. The possibility that grazers could disperse the seeds of this species has not been evaluated. The blooming period is from early August to early September, with fruits produced in mid-August to September (Fertig 2000). Not all individual mature Ute ladies'-tresses orchids bloom every year and some may remain dormant beneath the ground surface and not show any above ground parts for at least one growing season (Arft 1995).

Populations of Ute ladies'-tresses may do well under a regime of somewhat heavy use, i.e., livestock grazing and hay mowing. Grazing may have beneficial effects to the plants, especially in early summer prior to flowering or fruit production (Arft 1995, Moseley 1998). Grazing may mimic the effects of flooding, fire, or other disturbances in maintaining low vegetative cover or reducing weed cover (Moseley 1998). Mowing may be beneficial by reducing competing vegetation cover, but can be detrimental if done before fruits ripen or if hay is cut too low (Arft 1995; Hazlett 1996, 1997). Ute ladies'-tresses does not tolerate dense competition of vegetation, although a few populations are found in riparian woodlands.

The Ute ladies'-tresses orchid inhabits early successional riparian habitats such as moist stream beds, wet meadows, point bars, sand bars, abandoned stream channels, and low lying gravelly, sandy, or cobbley edges (Fertig *et al.* 1994, USFWS 1995, Fertig 2000). Ute ladies'-tresses appears to have a close affinity with floodplain areas where the water table is near the surface throughout the growing season and into early autumn. The species is found in open riparian, floodplain areas where the competing vegetation has been removed by livestock grazing, mowing or by flooding events approximately one month prior to flowering. Ute ladies'-tresses is known to grow in agricultural lands managed for grazing in the winter and hay production in spring and summer, where mowing occurs in mid-July (USFWS 1995). The elevational range of known Ute ladies'-tresses occurrences for Wyoming populations ranges from 4650-5720 feet (Fertig 2000, USFWS unpublished data).

**Ute Ladies'-tresses Population Dynamics**

Ute ladies'-tresses population levels and viability are, at least in part, determined by habitat conditions created and maintained by natural water processes. Therefore, the significance of population size and distribution within a watershed can, at least partially, be assessed in terms of the ability of the watershed factors to perpetuate it. However, the linkages between watershed processes, habitat conditions, and Ute ladies'-tresses population response are complex and not completely understood.

The locations of populations within a watershed vary with the availability of suitable habitat. Sizes of populations fluctuate naturally. Some years not a single Ute ladies'-tresses individual appears above ground. The number of flowering adults does not give an accurate picture of population size nor tell us anything about population structure. More information is necessary regarding population viability (USFWS 1995).

If estimated population size is based on the number of Ute ladies'-tresses flowering spikes, then populations appear to fluctuate dramatically in size from year to year (USFWS 1992). For example, the primary site for the Boulder, Colorado population contained 5,435 plants in 1986, 200 plants in 1987, 131 plants in 1988, 1,137 plants in 1989, 1,894 plants in 1990, and at least 80 plants in 1991 (USFWS 1992). This variability in apparent population size is consistent with other observations made of other orchid species.

However, Wells (1967) questions that apparent fluctuations in orchid numbers are accurate descriptions of the actual dynamics of the orchid populations. According to Wells (1967), the criterion adopted for judging whether the number of orchids at a site has changed or not has been the number of flowering spikes displayed at the time of visit. This may be an unsatisfactory criterion for measuring a quantitative change in population because, as has been demonstrated, plants may spend several years as vegetative rosettes or as underground tubers (as many as 11 years) with no above-ground parts. Furthermore, according to Wells (1967), the autumn ladies'-tresses orchid (*S. spiralis)* grows mainly in short grassland, which is typically maintained in that condition by some kind of grazing, which can damage some of the flowering spikes making a visual estimate of number based on count of flowering spikes unreliable. Arft's (1995) work on Ute ladies'-tresses supports this theory as well.

At the time of listing of Ute ladies'-tresses, most of the species' historic western populations on the Wasatch Front and in the Great Basin were believed to have been extirpated by urbanization. Most known populations contained fewer than 1,000 plants when counted in 1990 and 1991. Eastern Utah populations were also typically small in size. Local extirpations may have taken place in currently unoccupied potential habitat similar to extirpations that occurred along the Wasatch Front, the Great Basin, and certain historic populations in Colorado (USFWS 1992).

In 1992, when the species was listed, the total known population size of Ute ladies'-tresses was fewer than 6,000 individuals from 11 known populations in Colorado, Utah, and Nevada (USFWS 1992). The January 17, 1992, listing of Ute ladies'-tresses resulted in an increase in surveys for the species. Since that time, additional populations have been located in Utah, Montana, Idaho, Nevada, Colorado, Nebraska, Washington, and Wyoming. In 1995, the total known population size of Ute ladies'-tresses was approximately 20,500 individuals (USFWS 1995). Since 1995, another 24 populations have been discovered, including several large occurrences along the Green River in Colorado and Utah, the Snake River in Idaho, and Niobrara River in Wyoming and Nebraska. Ute ladies'-tresses are now known to occupy 674-783 acres of habitat. The highest number of plants recorded in any one year was 38,438 in 1998, based on sampling 23 of 55 populations known at that time. Since these populations were not selected randomly, no useful extrapolations can be made to estimate rangewide numbers based on annual counts (Fertig *et al.* 2005).

**Ute Ladies'-tresses Status and Distribution**

On January 17, 1992, the Service listed Ute ladies'-tresses as threatened in its entire range under the Act (57 FR 2053). The Ute ladies'-tresses was first described as a species in 1984 by Dr. Charles J. Sheviak from a population discovered near Golden, Colorado (Sheviak 1984). At the time of its listing, Ute ladies'-tresses was known from 11 populations occurring in Colorado, Utah, and Nevada. Critical habitat has not been designated at this time. To date, no recovery plan has been approved for this species. However, a draft recovery plan has been written (USFWS 1995).

Ute ladies'-tresses was first discovered in Wyoming by the University of Wyoming, Rocky Mountain Herbarium in 1993. Formal surveys for Ute ladies'-tresses then began in Wyoming in 1994, one year after B. Ernie Nelson, manager of the Rocky Mountain Herbarium, discovered the state's first population in Goshen County. Nelson along with other researchers conducted general floristic surveys in southeast Wyoming, the Green River Basin, and Laramie Basin from

1994-1999, finding an additional new colony along Antelope Creek in Converse County in 1994 (Hartman and Nelson 1994).

Hartman and Nelson (1994) found that populations discovered in Wyoming occurred on terraces, low slopes, and oxbows adjacent to small streams on sandy to coarse gravelly alluvium or alkaline clays in wet meadow communities (Nelson and Hartman 1995). Based on short-term observation data, the populations that they found were thought to be stable or increasing. The sites were on lands managed for livestock grazing or hay production. Current land uses at the time appeared compatible with the habitat needs of Ute ladies'-tresses orchid populations. The timing of grazing and mowing was thought to be critical for successful seed production (Fertig 2000).

Surveys since 1992 have expanded the number of vegetation and hydrology types occupied by Ute ladies'-tresses to include seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lakeshores. In addition, 26 populations have been discovered along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other modified wetlands. New surveys have also expanded the elevational range of the species from 720-1830 feet (220-558 meters) in Washington to 7,000 feet (2134 meters) in northern Utah (Fertig *et al.* 2005).

Various environmental consulting firms (e.g., ERO Resources 1994) have searched for *S. diluvialis* across Wyoming since 1994. The Wyoming Natural Diversity Database (WYNDD) surveyed public lands in Jackson Hole and the lower Green River Basin in 1999, but did not find any new *S. diluvialis* sites. Staff of WYNDD also conducted unsuccessful searches in the Powder River Basin, National Elk Refuge, and F.E. Warren Air Force Base from 1995-1997. Because of the plant's irregular flowering pattern, sites that have been surveyed in the past could still harbor populations (Fertig 2000).

Since their discovery in Wyoming, Ute ladies'-tresses populations have been located in Goshen, Converse, Laramie, and Niobrara counties of southeastern Wyoming. The Ute ladies'-tresses orchid is currently known in Wyoming from five populations: a small population along a tributary to Antelope Creek (a tributary to the Cheyenne River) in northwest Converse County; a population along Bear Creek in southwestern Goshen County; a population along the Niobrara River near McMaster's Reservoir in southeastern Niobrara County; a population along Sprager Creek in Laramie County, and a recently discovered population along Horse Creek in Laramie County. These populations are monitored on a limited basis and appear to be stable (USFWS 2002).

To date, no populations have been discovered on land administered by the Bureau in the Pinedale planning area (BLM 2005). However, surveys have yet to be conducted on all potential existing orchid habitat on Bureau-administered lands within the Pinedale planning area. The annual variability of Ute ladies'-tresses emergence and flowering, makes it difficult to effectively locate populations and inventory them. Future surveys in the Pinedale planning area may find populations of Ute ladies'-tresses on Bureau-administered surface and/or split-estate lands on potential habitat along streams, rivers, and riparian areas with sandy or loamy clay soils.

**Ute Ladies'-tresses Threats**

In 1992, the Service identified habitat loss and alteration (through urbanization, water development, residential development, conversion of open space to parks, agricultural activities); overutilization for commercial, recreational, scientific, or educational purposes; excessive livestock grazing (although mild to moderate grazing may be beneficial); inadequacy of existing regulatory mechanisms; and other factors including localized catastrophic events, competition with invasive plant species, and indiscriminate use of herbicides as the primary threats to the long term conservation of this species. These activities historically have likely been a primary cause of the fragmentation of populations now currently observed. Fertig *et al.* (2005) identified additional threats including ecological succession, road and other construction, recreation, flooding, haying/mowing, natural herbivory, loss of pollinators, and drought. There is increasing pressure for urban, residential, and recreational development in these wetland and riparian areas, especially along the Front Range of Colorado and the Wasatch Front in Utah. As these areas are typically in private ownership, and the projects are often privately funded, there is very little regulatory protection for the orchid there, even though it is a federally-listed species.

Incompatible agricultural or other land management practices could also threaten the Ute ladies'-tresses orchid. The orchid is quite tolerant of grazing and other forms of land and vegetation disturbance. However, continuous grazing during the flowering season, severe trampling and soil compaction, untimely herbicide applications, proliferation of aggressive native and exotic plant species indicative of site degradation, and practices that result in habitat alteration from grass/forb/sedge to shrub/tree dominance, can result in loss of vigor and eventual demise of the orchid and/or orchid pollinators. Many riparian and other wetland and wetland/upland habitats suffer from these impacts, as well.

According to the Intergovernmental Panel on Climate Change (IPCC) (2007) ''warming of the climate system is unequivocal, as it is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.'' In general, a trend of warming in the mountains of western North America is expected to decrease snowpack, hasten spring runoff, and reduce summer flows (IPCC 2007). While this change could affect the Ute ladies'-tresses orchid or its habitat, to date, a negative impact has not been documented. A significant degree of uncertainty exists as to how projected climate changes, alone and in concert with other threats, will affect the Ute ladies'-tresses orchid or its habitat over the foreseeable future.

Average Northern Hemisphere temperatures during the second half of the 20th century were very likely higher than during any other 50-year period in the last 500 years and likely the highest in at least the past 1,300 years (IPCC 2007). It is very likely that over the past 50 years: cold days, cold nights, and frosts have become less frequent over most land areas, and hot days and hot nights have become more frequent (IPCC 2007). It is likely that: heat waves have become more frequent over most land areas, and the frequency of heavy precipitation events has increased over most areas (IPCC 2007). It is difficult to ascertain what impact these changes have had on the Ute ladies'-tresses orchid.

The IPCC (2007) predicts that changes in the global climate system during the 21st century are very likely to be larger than those observed during the 20th century. For the next two decades, a warming of about 0.2 °C (0.4 °F) per decade is projected (IPCC 2007). Afterward, temperature projections increasingly depend on specific emission scenarios (IPCC 2007). Various emissions

scenarios suggest that by the end of the 21st century, average global temperatures are expected to increase 0.6 to 4.0 °C (1.1 to 7.2 °F) with the greatest warming expected over land (IPCC 2007). Localized projections suggest the West may experience among the greatest temperature increase of any area in the lower 48 States (IPCC 2007). The IPCC says it is very likely that hot extremes, heat waves, and heavy precipitation will increase in frequency (IPCC 2007). There also is high confidence that many semi-arid areas like the western United States will suffer a decrease in water resources due to climate change (IPCC 2007).

Conflicts between human needs for water and maintenance of existing wetland and riparian habitats could be heightened. While fewer cold days and nights could result in increased vegetative yield in colder environments, increased summer heat may increase the frequency and intensity of wildfires, and areas affected by drought may increase (IPCC 2007). Overall, it appears reasonable to assume that the Ute ladies'-tresses orchid or its habitat may be affected negatively by climate change, and that changes in stream flows and resultant effects on riparian habitats may be a key factor. However, we believe the best available scientific and commercial data are insufficient to indicate the degree to which these factors will affect the long-term conservation status of the Ute ladies'-tresses orchid or its habitat.

Other alterations of stream hydrology could also threaten Ute ladies'-tresses. The orchid is supported by moist soil throughout the growing season, and by wet habitats that are dominated by grass/forb/sedge communities. During the past 150 years, and continuing today, water developments, diversions, stream channel alterations for flood control or other purposes (including oil and gas development and mining), and changes in hydrograph have altered hydrology, floodplain geomorphology, and vegetation composition and trends. While in some streams and reaches this may have provided improved conditions for the orchid, in many cases it has resulted in the loss of suitable habitat and likely fragmentation or loss of the orchid within watersheds (USFWS 2004c). Although some Bureau-authorized activities may affect stream hydrology, the Bureau in the Pinedale planning area is committed to not authorizing activities that might affect the hydrology of occupied Ute ladies'-tresses habitat (Appendix 2).

## ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed state or Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation process.

The action area is defined at 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of this consultation, the Service defines the action area as all lands within the Pinedale planning area in Wyoming that could potentially be impacted by decisions made in the Pinedale RMP (BLM 2008a) to include approximately 922,880 acres of public land surface and 1,199,280 million acres of Federal mineral estate within the planning area (Federal subsurface/non-Federal surface) and downstream aquatic environments of the Colorado River system.

Historic activities within or adjacent to the action area include residential, urban, commercial, industrial, and agricultural development; road construction; development for recreational use;

mining; oil and gas development and its associated infrastructure; airport construction; ski area development; levee construction and maintenance; and dam construction.

**Ute Ladies'-tresses Environmental Baseline**

Ute ladies'-tress may occur on floodplain areas in the Pinedale planning area. These areas are located where the water table is near the surface throughout the Ute ladies'-tresses growing season. The past and present impacts to Ute ladies'-tresses in the action area may have included increases, and decreases, in habitat suitability due to irrigation developments and other human-caused changes to stream hydrology. Human-caused changes to stream hydrology have taken the form of channelization of streams, construction and use of irrigation canals, water impoundment (pond) construction, increased water discharges to surface waters, and water depletions from surface waters. These activities occur across the Pinedale planning area.

Invasive plant species do occupy much of the planning area with resulting herbicide control by private citizens, industry, and/or the County Weed and Pest Districts. It is not known if any invasive plants may be adversely affecting Ute ladies'-tresses within the action area.

Grazing, haying and mowing activities are normally undertaken by private land owners as part of their agricultural operations. Grazing activities on Bureau-administered lands are authorized by the Bureau through a permitting process. These activities may be beneficial to Ute ladies'-tresses plants through the maintenance of habitat or they may be detrimental in that these activities if not timed properly may reduce the reproductive success of individual Ute ladies'-tresses plants.

Another impact to Ute ladies'-tresses plants in the action area may be herbivory by wildlife. Herbivory of the flowering spikes of *S. diluvialis* by voles (Arft 1994), deer (Fertig 2000), and moose (Moseley 1998) has been documented at some locations. Wells (1967) documented significant flowering stalk herbivory of the autumn ladies'-tresses orchid (*S. spiralis*) by rabbits. Arft (1994) speculated that vole herbivory could be the greatest single threat to the long-term survival of Ute ladies'-tresses at one study site. It is plausible that similar damage to Ute ladies'-tresses plants in the action area could be attributed to wildlife as well.

Numerous other existing actions including construction of electricity transmission lines, mining operations, and erection of telecommunication towers are present in the action area. These have been considered as part of the environmental baseline for this action.

**Status of the Ute Ladies'-tresses Within the Action Area**

Ute ladies'-tresses is currently not known to occur within the Pinedale planning area. The nearest population to the Pinedale planning area is located in Idaho approximately 100 miles to the west downstream from the Pallisades Reservoir.

Grazing activities may positively benefit Ute ladies'-tresses by reducing competing vegetation; however, if not timed properly, they can reduce the reproductive success of individual Ute ladies'-tresses plants. Wildlife herbivory of the flowering spikes of Ute ladies'-tresses orchids by voles (Arft 1994), deer (Fertig 2000), and moose (Moseley 1998) does occur at some locations across the species' range. Wells (1967) documented significant flowering stalk herbivory of the autumn ladies'-tresses orchid by rabbits.

Eight formal section 7 consultations have been completed that analyzed potential adverse effects to Ute ladies'-tresses orchids in Wyoming. Four of these were programmatic in nature. Of the four that were programmatic in nature, three of these analyzed potential adverse effects to Ute ladies'-tresses for livestock grazing in specific Bureau planning areas. Those consultations were prepared for the Bureau's Newcastle planning area (ES-6-WY-04-F025; October 5, 2004), Rawlins planning area (ES-6-WY-06-F002; January 16, 2002), and Casper planning area (ES-6-WY-06-F0309; November 2, 2007). None of those planning areas lies adjacent to the Pinedale planning area. Of the remaining programmatic formal consultation covered Bureau activities statewide across all Bureau planning areas in Wyoming (ES-6-WY-06-F003; April 5, 2007). The remaining consultations are site-specific, in nature. Two of these analyzed potential adverse effects associated with coalbed natural gas development in the Powder River Basin (WY4287, March 9, 2001; ES-6-WY-02-F006, December 2002) of Wyoming. The remaining two formal section 7 consultations analyzed surface disturbance in Ute ladies'-tresses habitat associated with pipeline construction (WY2567, July 16, 1999) and railroad expansion (ES-6-WY-01-F008, October 26, 2001), respectively.

The Bureau supports efforts to locate the orchid on Bureau-administered or nearby state or private lands (Hazlett 1995, 1997, 1999). Surveys have been conducted in what appeared to be suitable habitat in some parts of the action area, but no Ute ladies'-tresses have been found to date. Future surveys may reveal that additional populations occupy Bureau-administered surface lands, or on private lands where the Bureau may have discretionary authority of grazing management in the action area.

Within the Pinedale planning area, potentially suitable habitat exists along creeks, streams, and riparian areas that may support Ute ladies'-tresses. Locations where population of Ute ladies'-tresses may be discovered in the Pinedale planning area include, but are not limited to, moist meadows along streams. Surveys have not located populations in Sublette and Lincoln counties of Wyoming.

### Factors Affecting the Ute Ladies'-tresses Within the Action Area

Factors that could affect this orchid in the action area include irrigation developments and other human-caused changes to stream hydrology, introduction of invasive species, herbicide use, haying, mowing, or livestock grazing (USFWS 1995).

## EFFECTS OF THE ACTION

### Direct and Indirect Effects

Direct effects are effects that result directly or immediately from the proposed action on the species. For example, actions that would immediately remove or destroy habitat or displace the species from its habitat or an area would be considered direct effects. Indirect effects are effects that are caused by, or result from, the proposed action and occur later in time after the proposed action is completed, e.g., grazing over the life of the RMP (10-15 years) may maintain habitat for listed plants that may occupy the area 15 years from present. Effects of the action under consultation are analyzed together with the effects of the action that are interrelated to, or interdependent with, that action. An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an

activity that has no independent utility apart from the action under consultation. The effects discussed below are interrelated to the proposed action. No interdependent activities to the proposed action, as described above, have been identified in this consultation.

The Proposed Action is the management of the Pinedale planning area in Wyoming for up to 20 years. Given the length of the proposed action and the difficulty in distinguishing direct from indirect effects, the two types of effects are not differentiated here, but instead are discussed jointly.

**Effects on Ute Ladies'-tresses**

The Bureau's Pinedale RMP describes activities in the Livestock Grazing program that may affect and are likely to adversely affect the Ute ladies'-tresses orchid. These effects are (1) the trampling or destruction of the inflorescences (flowering spikes) of individual Ute ladies'-tresses plants by livestock grazing, and (2) any manipulation of the timing or intensity or cessation of grazing of the habitat of this plant.

**Analysis for Effects of the Action on Ute Ladies'-tresses**

*Analysis for effects of Livestock Grazing Management on Ute ladies'-tresses.* Habitat alterations resulting from agricultural use (grazing) may be beneficial, neutral, and/or detrimental to Ute ladies'-tresses orchid depending on when it occurs (McClaren and Sundt 1992, USFWS 1995). The Ute ladies'-tresses orchid is edible to livestock and depressed inflorescence (flowering spike) and fruit production has been observed at sites that are grazed in late summer (Arft 1995). However, populations are still capable of reproduction in the presence of long-term grazing, but may experience short-term impacts (Arft 1995).

Livestock management activities have variable effects on Ute ladies'-tresses. Grazing livestock could reduce competition with other grasses and forbs thereby allowing Ute ladies'-tresses to take advantage of sunlight, water, and nutrients that might otherwise be deprived of the plant.

In a 4-year study of a separate species of ladies'-tresses orchid (*S. spiralis*) in Great Britain, Wells (1967) discussed damage done by herbivores to that species (autumn ladies'-tresses). Wells (1967) found that herbivores did very little damage to the leaves of that species even under years of heavy grazing by sheep. Wells (1967) speculated that this unusually small amount of damage indicated how well-adapted ladies'-tresses orchids are to an open habitat, in which the turf is kept short by grazing animals.

In contrast, according to Wells (1967) damage to the flowering spike of some of those plants was observed in every year of the 4-year study. The number of plants with damage to the flowering spike varied in each year according to the type and intensity of grazing during the period of flowering. Wells (1967) reports that when sheep were removed in early June, less than 1 percent of the flowering spikes were recorded as damaged that year.

It can be presumed that similar damage could occur to Ute ladies'-tresses as it was recorded to occur to the autumn ladies'-tresses in Great Britain. The Bureau office in Pinedale does permit sheep and cattle grazing on the surface lands that they administer. Therefore, the livestock grazing program administered by the Bureau may influence the reproductive potential of any given Ute ladies'-tresses plant. Seed number is not thought to be limiting to populations of

*S. diluvialis* as flowering spikes have the potential to produce 5 to 30 fruits per flowering spike and each fruit can contain between 100 to 10,000 seeds (Sipes and Tepedino 1994). Therefore, even under heavy grazing pressure as described by Wells (1967), a small population of *S. diluvialis* has the potential to produce tens of thousands of seeds.

Arft (1994) studied the effects of cattle grazing on Ute ladies'-tresses orchids. The data suggested that the large fluctuations in population size reported in monitoring counts may actually be fluctuations in number of flowering individuals, with many individual plants remaining vegetative (non-flowering) or subterranean. During Arft's (1994) study, the proportion of flowering individuals fluctuated greatly between survey years, indicating flowering plants alone may not be a good indicator of population size.

It is plausible that livestock could also incidentally ingest Ute Ladies'-tresses seed heads and act as seed dispersal mechanisms to introduce the seeds to unoccupied areas and actually improve the reproductive fitness of any given plant although Wells (1967) did not mention any such documented occurrences in his study of the autumn ladies'-tresses. In that study, most of the damage done by cattle in his study was due to trampling and treading on the flowering spikes. No other documentation has been found in the literature relative to the topic of livestock acting as a potential seed disperser of Ute ladies' tresses orchids.

It is currently accepted that grazing activities generally benefit the habitat necessary for Ute ladies'-tresses populations if these activities are timed to occur up to one month prior to flowering. Fencing, changes in livestock seasons of use or type of livestock, and riparian improvement projects may be used to protect the flowering spikes of individual plants from crushing or removal.

The Bureau intends to continue grazing activities and surveys for Ute ladies'-tresses and if populations are discovered, grazing activities will be managed to maintain Ute ladies'-tresses populations (BLM 2005). The Bureau in Pinedale has committed to conservation measures to protect Ute ladies'-tresses (Appendix 2). The use of these conservation measures will reduce or eliminate the effects by ensuring that (1) populations are discovered prior to any surface disturbing activities, (2) surface disturbances do not take place in occupied habitat, (3) invasive plant species infestations are controlled in a manner conducive to the survival of Ute ladies'-tresses, (4) the hydrologic regime of the plant's habitat is maintained and studied, and (5) grazing activities are conducted in a manner that will maintain the habitat of the species while minimizing any removal of the plant's flowering spikes (BLM 2005).

**Summary of Effects on Ute Ladies'-tresses**

*Grazing.* Ute ladies'-tresses populations in Wyoming are typically found in areas where livestock grazing has maintained the habitat in areas where competing vegetation has been removed and there is a fair amount of bare ground surface (Fertig 2004) characteristic of an area that has been partially grazed regularly. However, activities authorized in the livestock grazing program may damage individual plants. The degree to which the plants can sustain damage and not be "adversely affected" is currently unknown, but it is suspected that the activities authorized in the livestock grazing program may affect individual Ute ladies'-tresses orchid's reproductive success. The Bureau has made a "may affect, likely to adversely affect" determination for the potential effect that Bureau-authorized livestock grazing activities may have on Ute ladies'-tresses that may exist on Bureau-administered surface acreage in the Pinedale planning area.

### Minimization of Effects to the Species

To minimize the effects to listed species, the Bureau will implement the conservation measures listed in Appendix 2. For all listed species, the Bureau will ensure that surveys are conducted in suitable habitat prior to implementation of potentially disturbing project activities. The Bureau's implementation of the conservation measures of Appendix 2 will reduce human and project disturbance to riparian areas for the protection of individual Ute ladies'-tresses orchids. The Bureau's implementation of the conservation measures will also minimize the potential for inadvertent spraying of herbicides or introduction of noxious weeds into the habitats of federally listed plants of the Pinedale planning area. The Bureau's application and enforcement of buffer restrictions for spraying of insecticides near listed plants will help ensure that populations of necessary insect pollinators of listed plants will be maintained.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Non-Federal activities that may cumulatively affect Ute ladies'-tresses across the Pinedale planning area include oil and gas (including coalbed natural gas) development, uranium mining, sand, gravel, and scoria mining, road and railroad construction, and rural and urban housing development, hard rock mining (including coal, trona, and phosphates), subdivision development along rivers, recreation along rivers and river corridors (including camping, rafting, hunting, and golf course development), municipal solid waste landfill expansions, housing developments, stockyard operations for livestock grazing, and farming near and within riparian corridors. Other potential effects from non-Federal actions in the planning area could include increases in urbanization (although this is not thought to be a significant impact in the planning area at this time).

Impacts to Ute ladies'-tresses orchids could result from livestock operations on private lands in the Bureau's planning areas in Wyoming. These impacts could be beneficial (maintaining habitat through grazing), or detrimental (limiting individual orchid reproductive fitness by removal of fruiting parts through trampling or ingestion). The nature of the impacts from livestock operations is likely to be fairly similar across land ownerships (BLM 2005).

Mowing and haying on private and state lands could be beneficial to Ute ladies'-tresses populations. However, these activities could also be detrimental if done before fruits have ripened, or if the height of hay cutting is too low. In many current management situations, the timing of mowing is related to growth conditions of the hay crop and weather patterns rather than the biological needs of these threatened plants.

Finally, the data are not adequate to determine the distribution and abundance of all Ute ladies'-tresses populations and suitable habitats on private or state-owned lands in the Bureau's planning areas. Of the roughly 922,880 acres within the Pinedale planning area, most are available to livestock operations. The Bureau in Pinedale also oversees the use of approximately 1.2 million

subsurface acres within the planning. The exact cumulative effects of the Ute ladies'-tresses orchid are not known at this time due to a lack of specific information on future, state, local, or private actions in the Pinedale planning area over the life of the RMP.

## CONCLUSION

After reviewing the current status of the Ute ladies'-tresses orchid; the environmental baseline for the action area; the effects of the Pinedale Resource Management Plan; and the cumulative effects, it is the Service's biological opinion that the direct and indirect effects of the implementation of the Pinedale Resource Management Plan, as proposed, are not likely to jeopardize the continued existence of the Ute ladies'-tresses orchid. No critical habitat has been designated for the Ute ladies'-tresses; therefore, none will be affected.

The Service has reached this conclusion by considering the following.

Ute Ladies'-tresses

1. It appears that this species is more widespread and numerous than was previously known. At the time of listing, the total known Ute ladies'-tresses population numbered approximately 6,000 individuals. Extensive census efforts between 1991-1995 revealed that known population size was approximately 20,500 individuals. Since 1995, several new populations have been located adjacent to the action area, one of which contained several thousand individuals. Between 1992-1999, the total known population of the Ute ladies'-tresses orchid observed across its range reached over 60,000 individuals (USFWS 2004c). It is expected that new populations will continue to be discovered as not all potential habitat has been surveyed. As a response to the plant's more widespread distribution, the Service has undertaken a 5-year status review and has begun preparing a 12 month finding on a petition to delist the species (USFWS 2004b).

2. The Bureau is not proposing to implement any significant changes to the management of any Ute ladies'-tresses potential habitat that may cause detrimental impacts to any populations.

3. The Bureau is committed to implementing protective measures (Appendix 2) to minimize potential impacts to Ute ladies'-tresses.

4. Although individuals can be adversely impacted by livestock grazing activities (trampling, ingestion, etc.), the population seems to withstand some grazing pressure and may actually rely on these activities for maintenance of their habitat.

## ACTIONS AFFECTING COLORADO RIVER FLOWS

Formal consultation is required for projects that may lead to depletions of water to the Colorado River system. A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) was initiated on January 22, 1988. The Recovery Program was intended to be the reasonable and prudent alternative to avoid jeopardy to the endangered fish by depletions from the Upper Colorado River. The Recovery Program provides a programmatic, streamlined process for section 7 consultation under the Act to expedite section 7 compliance on water projects in the Colorado River Basin. According to the Pinedale RMP BA (BLM 2008b), the Bureau will participate in this Recovery Program for activities that will deplete water from this river system (See Appendix 2). Participation in this recovery program provides section 7 compliance under the Act for the vast majority of new and existing water projects in this basin. Depletion consultations under section 7 are tiered to an existing Biological Opinion on the Recovery Program, facilitating the streamlined consultation process for all such future depletion consultations.

Federal agency actions resulting in water depletions to the Colorado River system may affect the bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus*) and their designated critical habitat downstream in the Colorado River system. While the proposed Pinedale RMP does not authorize site-specific or project-level actions leading to depletions in the Colorado River Basin, it identifies 1,377 existing projects that result in *minor* depletions (<100 a-f) to the Colorado River Basin (Table 3 of BLM 2008b). Future maintenance or expansion of these projects will require section 7 consultation for effects of depletions to downstream federally listed fishes of the Colorado River and their designated critical habitat.

The Pinedale RMP Revision also identifies several potential new projects that would result in *minor* depletions (<100 a-f) to the Colorado River (Table 4 of BLM 2008b), including: water development (5.3 a-f/project) and well construction activities (4.64 a-f/project). The proposed Pinedale RMP does not authorize these projects. Implementation of these projects, or any other projects leading to depletions to the Colorado River, will require individual or separate section 7 consultation at the project level for effects of depletions to downstream federally listed fishes and their designated critical habitat.

## INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed plants.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to

the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species.

CR1. The Service recommends that the Bureau follow all best management practices as identified in the Bureau's Pinedale RMP Biological Assessment (BLM 2008b) and the Bureau's Statewide Programmatic Ute ladies'-tresses Biological Assessment (BLM 2005).

CR2. In known occupied Ute ladies'-tresses habitat, the Service recommends that the Bureau use management actions that are compatible with protection and conservation of pollinators of this species.

CR3. The Service recommends that the Bureau monitor and manage invasive species so these do not impact the Ute ladies'-tresses orchid or its habitat.

CR4. The Service recommends that the Bureau not authorize herbicide use in known or occupied Ute ladies'-tresses habitat without prior review by Service biologists.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

## RE-INITIATION NOTICE

This concludes formal consultation on the Pinedale Resource Management Plan Revision as outlined in your March 17, 2005 request for formal consultation. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing take must cease pending re-initiation.

Thank you for your assistance in the conservation of this endangered, threatened, and candidate species. In future communications regarding this Biological Opinion, please refer to consultation number ES-6-WY-08-F0033. If we may be of further assistance, please contact Alex Schubert of my staff at (307) 772-2374, ext. 238.

cc: BLM, Endangered Species Coordinator, State Office, Cheyenne, WY (C. Keefe)
FWS, Endangered Species, Lakewood, CO (B. Fehey)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (V. Stelter)
WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)

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## APPENDIX 1 - DESCRIPTION OF PROGRAM ACTIVITIES FOR THE PINEDALE RMP

These U.S. Bureau of Land Management (Bureau or BLM) program descriptions are summarized from the Pinedale Final Resource Management Plan (RMP) (BLM 2008a) and Biological Assessment (BA) (BLM 2008b). It is expected that the activities described here will be implemented in the Pinedale planning area over the life of the approved Pinedale RMP (10-15 years).

**Air Quality.** The Bureau's air quality management objectives are to maintain or enhance air quality and minimize emissions that could result in atmospheric deposition (acid rain), violations of air quality standards, or reduced visibility. Laws controlling air pollutants in the United States are the Clean Air Act of 1970 and its amendments, and the 1999 Regional Haze Regulations. The concentrations of air contaminants in the planning area need to be within limits of Wyoming ambient air quality standards (WAAQS) and national ambient air quality standards (NAAQS). WAAQS and NAAQS are legally enforceable standards for particulate matter (PM10), nitrogen dioxide (NO2), ozone, sulfur dioxide (SO2), and carbon monoxide (CO).

In addition to complying with NAAQS and WAAQS, major new sources of pollutants or modifications to sources must comply with the New Source Performance Standards and Prevention of Significant Deterioration (PSD). The PSD increments measure PM10, SO2, and NO2. The PSD program is used to measure air quality to ensure that areas with clean air do not significantly deteriorate while a margin for industrial growth is maintained.

A qualitative emission comparison approach was selected for analysis of impacts to air quality. This approach was used because (1) no specific data were available on future projects, (2) limited time was available to complete the analysis, (3) quantitative analysis will be required as development projects are defined in the future, and (4) Wyoming Department of Environmental Quality–Air Quality Division (WDEQ-AQD) will require demonstration of compliance with Federal and State air quality regulations and standards for any future development projects. Given the uncertainties concerning the number, nature, and specific location of future emission sources and activities, the emission comparison approach provides a sound basis to compare the potential impacts under the various alternatives. A more detailed justification and a detailed list of all assumptions used in this impact assessment are presented in the Air Quality Technical Support Document (AQTSD).

Wildland fires and prescribed burns would result in emissions of particulates and polyaromatic hydrocarbons (PAH), as well as reduced visibility. Vehicular activity would also produce emissions that would degrade air quality. Permitted stationary sources of air emissions would continue to contribute to cumulative impacts to regional air quality.

Given the low ambient concentrations that exist in the Pinedale area for some of the pollutants, it is expected that the increase in emissions, under any of the alternatives, of carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO2), and particulate

matter (PM10, and PM2.5) would not cause any exceedance of State or Federal ambient air quality standards. Because it is unknown whether a quantitative relationship exists between expected air emissions and the subsequent potential impacts to the air quality values of ambient criteria pollutant concentration, visibility, atmospheric deposition, or ozone, conclusions cannot be drawn concerning potential impacts to these air quality values from the various alternatives.

**Cultural Resources.** Under this program, the Bureau performs a variety of activities to preserve, protect, and restore cultural and historical resources. The prehistoric and historic resources, primarily archaeological sites, date from 11,500 years before present (B.P.) to the 1950s. Native American resources include prehistoric and historic archaeological sites with particular characteristics, as well as locations historically and/or presently considered sacred by Native American groups.

During inventory activities, the Bureau inventories, categorizes, and preserves cultural resources; conducts field activities; performs excavations; maps and collects surface materials; researches records; and photographs sites and cultural resources. Temporary campgrounds may be authorized for these activities. Inventory data collection activities are used for documentation and development of mitigation plans before other resource program surface disturbing activities begin. Inventory activities commonly entail the use of hand tools. Data recovery activities occasionally entail the use of power tools and heavy equipment. The Bureau's cultural resource land management activities involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface disturbing activities; and preparing interpretive materials. The Bureau also seeks listing of eligible sites on the National Register of Historic Places, installs protective fencing of trail segments and other cultural resources, stabilizes deteriorating buildings and resources, acquires access to sites when necessary, performs data recovery excavations, pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets historic trails.

The Bureau performs cultural resource inventories normally in response to other surface disturbing activities. Inventories include transects set 30 meters (100 feet) apart from each other.

**Forestry.** The Bureau's forestry program includes various activities, most of which involve timber harvesting. Other activities involve managing the forest for other uses including recreation, livestock grazing, wildlife habitat, and prescribed burning. During forestry activities for timber production in the preharvest phase, The Bureau allows the cutting and removal of diseased trees and disease treatment by spraying. The Bureau allows precommercial thinning, chaining, and shearing. During actual harvesting activities, the Bureau allows timber harvesting; permits clear-cuts (e.g., stand replacements), permits selective cutting, ensures slash disposal occurs, and allows commercial thinning, logging, and skidder-type yarding and cable yarding. The Bureau permits the construction of roads and landings for use in timber harvesting operations.

Slash is to be lopped and scattered, roller chopped, or burned. The Bureau also permits helicopter logging. Noncommercial timber harvest involves the collection and cutting of firewood, Christmas trees, posts, poles, and wildlings. During restoration efforts following timber harvesting, the Bureau ensures site regeneration (natural), artificial regeneration (planting harvested areas, including new seedlings), and stand replacements; fences regenerated areas; and conducts rehabilitation surveys.

**Lands and Realty.** Under the lands and realty program, the Bureau seeks to support multiple-use management goals of the Bureau's resource programs; respond to public requests for land use authorizations, sales, and exchanges; and acquire and designate right-of-way (ROW) access to serve administrative and public needs. The Pinedale RMP addresses only those lands within Sublette and Lincoln counties that are administered by the Bureau (about 922,880 surface acres and 1,199,280 acres of Federal mineral estate).

ROWs granted by the Bureau are used for access roads, well pads, pipelines, communication sites, ditches and canals, buried telephone lines and fiber optic lines, reservoirs, compressor stations and other facilities, and electrical distribution lines (power lines) associated with proposed projects and/or activities. In addition, the Bureau authorizes ROWs and leases for utility transportation corridors. A ROW is generally issued for a 30-year term and may be extended with the right of renewal.

Land tenure adjustment requests such as disposals of, transfer, or acquisition of public lands are also reviewed. Public lands have potential for disposal when they are isolated and/or difficult to manage. Disposal actions usually occur in response to a public request or application that results in a title transfer, wherein the lands leave the public domain. All disposal actions are coordinated with adjoining landowners, local governments, and current land users. Acquisition of non-Federal lands would be pursued, if needed, to accomplish multiple use management objectives.

Withdrawals are initiated to preserve sensitive environmental values, protect major Federal investments in facilities, support national security, and provide for public health and safety. They segregate a portion of public lands and suspend certain operations of the public land laws, such as desert land entries or mining claims. Land withdrawals can be used to transfer jurisdiction to other Federal land-managing agencies.

In addition, the Lands and Realty program authorizes wind energy development. Wind energy development projects are considered on a case-by-case basis. Wind turbines authorized by the Bureau are typically up to 180 feet high, with an 80-foot turbine diameter. Each turbine would encompass approximately 1.2 acres. Ancillary uses would include meteorological towers, roads, and power lines.

**Livestock Grazing.** The Bureau's Wyoming Standards for Rangeland Health and Guidelines for Livestock Grazing Management would apply to all livestock grazing activities on public lands. Numerous activities make up the Bureau's livestock management program, including livestock grazing management, vegetation treatments, and range improvements.

Livestock management includes authorizing livestock grazing; designing and implementing grazing systems (Allotment Management Plan [AMP]); converting types of livestock; abolishing stock trails and driveways; and adjusting season of use, distribution, kind, class, and number of livestock. Vegetation treatments for livestock grazing management include the use of prescribed fire; chemical, mechanical, and biological treatments; and noxious and invasive weed control. Other activities for livestock grazing management include the placement of salt and mineral supplements and livestock herding. Range improvements include fence construction, maintenance, and modification (e.g., exclosures and cattle guards); water development (reservoirs, seeps, springs, pipelines, catchments, and wells); and instream structures.

**Minerals.** The Bureau's mineral development program is divided into three categories: common variety minerals, leasable minerals, and locatable minerals.

The planning area contains approximately 1,199,280 acres of Federal mineral estate underlying 922,880 acres of federally owned surface and 276,400 acres private and State lands. The most important potential mineral resources in the Pinedale planning area are hydrocarbon resources (BLM 2008a). The long history of natural gas production and developments in the last decade document the presence of source rocks, reservoir rocks, and trapping mechanisms that provide a significant hydrocarbon resource. Gas from geologic formations other than coalbeds has the greatest development potential; gas from coalbeds, also referred to as coalbed methane (CBM), is of lesser importance in the Pinedale planning area.

Leasable Minerals. Leasable minerals include solid minerals (e.g., coal) and fluid minerals (e.g., oil, gas, and coalbed methane gas).

*Leasable Minerals (Solid).* There are no known economic coal reserves in the Pinedale planning area. Decisions on lands acceptable for leasing consideration for coal development would be made after an application is received. Leases would be considered, and the coal screening process would be conducted on a case-by-case basis as lease applications are received. If lease applications were approved, the appropriate mitigation measures would be developed. The extent of wildlife and fish impacts is unknown and would be determined when the lease application is considered.

*Leasable Minerals (Fluid).* Mineral leases, other than oil and gas, are subject to the same resource constraints established for other surface disturbing and disruptive activities. This usually would mean that wildlife and fish would be protected in a like manner. However, each lease would have to be reviewed on its own merits to ensure the appropriate protective measures were applied.

The Mineral Leasing Act of 1920 provides that all public lands are open to oil and gas leasing unless specifically designated by public law (43 *Code of Federal Regulations* [CFR] 3100.0-3). To acquire a lease, the public nominates acreage to be included in an oil and gas lease sale. This acreage is subdivided into parcels, and the information is sent

to the appropriate Bureau field office. The field office reviews the parcel for potential conflicts with other resources, and appropriate stipulations for protection of wildlife and other sensitive resources are included in the lease language.

Mineral exploration involves opening new areas to geophysical exploration, leasing, and potentially drilling for oil, gas, coalbed methane (CBM), and other leasable minerals. Mineral development involves an expansion of the exploration phase with construction and initial reclamation of well pads, access roads, reserve pits, windpower associated with leases, and other facilities that may include aboveground power lines and buried pipelines. Stipulations included in the lease language allow protection by controlled surface use (CSU) restrictions or No Surface Occupancy (NSO) restrictions if the resource requires these measures. Partial reclamation is required during the production phase, and full restoration is required after the project is abandoned.

Before seismic activity begins, a Notice of Intent (NOI), which details the location, type of activity, and a cultural inventory, must be filed in the appropriate Bureau field office. The Bureau conducts an in-office environmental analysis to determine whether any federally listed species would be affected. Recent seismic activity in this area has been three-dimensional (3-D) surveys, although two-dimensional (2-D) surveys are occasionally conducted.

Before drilling activities, an Application for Permit to Drill (APD) and a site-specific environmental assessment (EA) must be approved. APDs subject to site-specific conditions of approval may be more or less restrictive than lease stipulations. Drilling and producing operations are inspected regularly to ensure that conditions of approval are followed. Activities that would occur as a result of authorizing APDs include the application of dust control measures, restriction of flaring of natural gas, control of light emissions, and construction of reservoirs associated with water disposal, compressor stations, product enhancement facilities, and disposal facilities.

Construction and operation of drill sites could result in limited commitment of certain resources. After the subsurface resource is produced and the drill site reclaimed, the surface resource is reestablished to a condition that may be better than the original. Site-specific commitment of resources includes the removal of vegetation and commitment of land surface to roads and well pads during the time that the subsurface resource is being recovered.

When split estate situations occur, wildlife restrictions for federally listed species are applied to the subsurface estate and the surface activities because of the Federal nexus of the actions. In this case, Federal minerals underlie a non-Federal surface, and federally isted species are protected with wildlife restrictions. Wildlife stipulations for other species not associated with the Threatened and Endangered species program would not apply when a split estate situation occurs (Federal minerals/non-Federal surface) and a proposed project is analyzed.

The Bureau develops and implements surface disturbance restrictions by incorporation of conditions of approval in the site-specific analysis. These restrictions vary depending on the type of resource to be protected. Some examples of restrictions include NSO on floodplains, wetlands, and riparian zones, and spatial/timing restrictions adjacent to greater sage-grouse leks and raptor nests.

*Locatable Minerals.* The Pinedale planning area is open to operation of the public land laws and to locatable mineral entry except for 148,510 acres of existing withdrawals. The Bureau has management authority over mining claim operations for locatable minerals conducted under the General Mining Law of 1872. These operations are managed using the surface regulations in 43 CFR 3809. Activity authorized under the General Mining Law is not subject to many of the special stipulations that are used in the common variety and leasable mineral programs to protect sensitive resources from surface disturbance caused by mineral development. However, they are subject to ESA, the National Historic Preservation Act (NHPA), and all applicable State requirements.

Bentonite, uranium, and gypsum are the principal locatable minerals of the Bureau in Wyoming. Other locatable metallic minerals include silver, gold, platinum, cobalt, and other precious minerals. At present, no active metallic mineral mining occurs on Bureau-managed public lands in the planning area except for occasional recreational mining.

Actions associated with commercial locatable minerals may include surface disturbance for mining (e.g., exploration and development), reclamation, and construction of access roads, buildings, and utility lines. Small-scale mining must be approved by a plan of operations and would require either an environmental assessment (EA) or an environmental impact statement (EIS). All lands must be reclaimed after expiration of mining.

*Salable Minerals.* Salable mineral mining is authorized under the Materials Act of 1947, as amended, and as such is a discretionary action. Salable minerals include sand, gravel, sandstone, shale, limestone, dolomite, and any material considered a common variety. Historically, these materials were used for building, road surfaces, and decorative stone. Today, common variety minerals are used mainly for maintaining roads and for activities associated with the oil and gas industry. The Bureau provides sand, gravel, and stone from Federal mineral deposits as necessary to meet the need for Federal, State, and local road construction and maintenance projects in the planning area. These materials may be available by a free use permit to State and local governments.

The demand for sand and gravel has increased in the field office as a result of road construction and maintenance. The planning area would be open to mineral material sales with the exception of 148,510 acres of presently withdrawn lands.

Before issuing contracts or free use permits for salable minerals, the Bureau conducts appropriate environmental assessments. These assessments include special studies or inventories of cultural values, federally listed plant and wildlife species, or other resources. Stipulations or conditions may be included in the terms of the contract to

ensure protection of the natural resource found there and reclamation of the land following project completion. Site reclamation is required following any surface disturbing mining activity for salable minerals. Reclamation of disturbed sites is important to ensure that the land can later be used productively for other purposes. Reclamation includes removing all surface debris, recontouring, reducing steep slopes, and planting vegetation. All reclamation proposals must conform to State agency requirements and must be approved by the Bureau.

**Paleontology and Natural History.** Under this program, the Bureau performs various activities to preserve, protect, and restore paleontological resources. During inventory activities, the Bureau inventories, categorizes, and preserves paleontological resources; conducts field activities; performs excavations; maps and collects surface materials; researches records; and photographs sites and paleontological resources. Inventory data collection activities are used for documentation and development of mitigation plans before other resource program surface disturbing activities. Inventory activities commonly entail the use of hand tools, power tools, or heavy machinery. These activities require an Environmental Assessment (EA). The Bureau's paleontological resource land management activities involve managing sites for scientific and public use, developing interpretive sites, restricting certain land uses, closing certain areas to exploration, prohibiting some surface disturbing activities, stabilizing erosion (e.g., burying exposed sites), preparing interpretive materials, and allowing the collection of certain invertebrate fossils. The Bureau also seeks listing of eligible sites on the National Register of Historic Places. The Bureau pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets paleontological sites.

**Recreation and Visitor Services.** Recreation management activities include allowing and improving recreational access, building and maintaining developed recreation sites, developing recreation trails, ensuring public safety, protecting the resources, and assessing impacts of recreation use on the environment. Recreational activities on Bureau-administered lands include hiking, hunting, mountain biking, floating, fishing, off-highway vehicle (OHV) use (including snowmobiles), horseback riding, backpacking, rock hounding, and camping. Large recreational events may be issued

*Special Recreation Permits.* The Bureau authorizes commercial recreation uses. Recreation site development includes facilities for camping, fishing, and floating, as well as associated signing, road development, and maintenance (of developed and undeveloped recreation sites). It also includes development of public water sources for recreation facilities. Recreation program management includes monitoring OHV use and high-use areas and contacting visitors in the field. The Bureau places signs, identifies hazards, constructs and uses roads for recreation activities, restricts recreational uses where adverse impacts have occurred, and conducts inventories of recreation resources. The recreation program monitors recreational use, develops management plans, and evaluates recreational potential for future planning and development. There is the potential for recreational activities to occur year-round in most of the planning area,

although some parcels would receive minimal use during the winter as a result of poor access and adverse weather conditions.

*Special Recreation Management Areas.* The objectives of the Special Recreation Management Areas (SRMA) program is to ensure continued public use and enjoyment of recreation activities while protecting and enhancing natural and cultural values, improving opportunities for high-quality outdoor recreation, and improving visitor services related to safety, information, interpretation, and facility development and maintenance. SRMAs in the planning area would include those at Scab Creek, Civilian Conservation Corps (CCC) Ponds, Boulder Lake, Upper Green River, Green River, and New Fork River.

**Soil.** The Bureau performs various activities designed to preserve and protect soil. Some of these activities are identifying heavy sediment loads, monitoring and minimizing soil erosion, and evaluating and restricting surface development activities. These activities occasionally involve fieldwork and the use of heavy equipment and hand tools.

Activities associated with soil resources may also include reclamation of abandoned mines and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. Soil sampling and surface soil erosion studies may also be conducted. These soil resource-related activities in the planning area are mainly in support of other programs.

**Transportation, Access, and Travel Management.** Under this program, the Bureau rehabilitates access roads that are no longer needed, proposes access easement acquisitions, and pursues legal access across private and State lands.

The Bureau implements management in areas designated as closed, limited, or open to OHV use. The Bureau posts signs, develops maps or brochures, and monitors OHV use. Over-the-snow vehicles (snowmobiles) are allowed to go cross-country on snow. OHV use would be limited to existing roads and trails, except where other restrictions apply in the Desert General Use area. Open OHV use areas would be designated in the Big Piney and LaBarge areas. The Bureau would coordinate with local interests to establish an open OHV use area in the Pinedale vicinity, following which an operation plan would be developed for use of this area.

Recreational OHV use would be restricted to existing roads and trails in most areas throughout the planning area. The Bureau would regulate OHV use on Federal lands consistent with Wyoming's Sticker Program. Using OHVs to reach developed or semi-developed camping sites away from roads and trails or to retrieve harvested big game would be allowed. Seasonal closures may be applied in crucial wildlife habitats as needed, including over-the-snow use. In addition, OHVs are prohibited when their use will cause resource damage. The Bureau permits OHV events.

The Bureau recognizes the use of bicycles and other human-powered, mechanized conveyances as appropriate recreational activities. Federal regulations do not specifically

address management of non-motorized vehicle use. The Bureau in Wyoming has adapted the national OHV strategy to meet local needs. Bicycles would be allowed on the Encampment River Trail within the wilderness strudy area (WSA) until the Congress designates that area as wilderness. Wheelchairs would be allowed across the entire planning area despite any particular trail's or area's designation of use.

**Vegetation.** Vegetation objectives for the Bureau are to maintain or improve the diversity of plant communities to support multiple uses such as livestock grazing, wildlife habitat, timber production, watershed protection, visual resources, reduction in the spread of noxious and invasive weeds, and the protection of important habitats for special status plant species. Projects that may affect federally listed plants or animals would be postponed or modified to protect the presence of these species, and consultation with the Service will be initiated.

As part of the vegetation management program, Bureau conducts prescribed burns as well as sprays and applications of light and heavy mechanical treatments; uses species-specific insects and livestock grazing; implements weed control programs; and plants vegetation. Light mechanical control includes cutting and thinning with hand tools. Heavy mechanical control includes brush beating, cutting, and thinning with machinery.

Noxious and invasive weeds are located in the Pinedale planning area. Noxious weeds are listed by the State, whereas invasive weed species are listed by the Bureau (BLM 2008a). Three types of noxious or invasive weed control measures are used by the Bureau on public lands: chemical, biological, and mechanical. Weed control is performed in cooperation with the counties of Sublette and Lincoln Weed and Pest Districts; permittees; grantors; lessees; and private landowners. Only federally approved pesticides and biological controls are used, and all label directions are followed. If herbicides are proposed for use, minimum toxicities would be used with appropriate buffer zones along streams, rivers, lakes, riparian areas, and ephemeral and intermittent streams.

Chemical controls include growth regulators, contact herbicides, and inhibitors. A majority of rangeland applications are applied with backpack sprayers; other treatments are applied using aircraft. Chemical treatments to ROWs and oil- and gas-related facilities are applied using vehicle-mounted sprayers and aircraft. Biological controls include using microbiotic organisms (fungus and rusts) and insects (beetles, midges, and wasps) and are applied by hand. Ungulates (goats and livestock) used to control weeds are herded. Mechanical control is normally achieved through hand pulling and digging, which is not as intrusive as mowing or other machine use.

**Visual Resources.** Through the visual resources management (VRM) program, the Bureau maintains or improves scenic values and visual quality, and it establishes VRM priorities in conjunction with other resource values. A visual resource inventory and classification process is a qualitative analysis performed throughout the planning area. A visual resource inventory provides a tool that portrays the relative visual quality of a landscape and a management tool that delineates visual protection standards, by which

surface disturbing activities may occur. This process also establishes guidelines for the rehabilitation of existing projects, facilities, and disturbances.

Class I areas preserve the existing character of the landscape, provide for natural ecological changes only, and allow very limited management activity. The level of change in the characteristic landscape should be extremely low, must not attract attention, and should include primitive areas, WSAs, some natural areas, some WSRs, and similar areas, in which landscape modification activities should be restricted.

To retain the characteristics of a Class II rating, management actions or authorizations could occur only if they are properly mitigated. These mitigations must prevent development from attracting the attention of the casual observer. They must adhere to the following limits: the existing character of the landscape should be retained, the level of change in the characteristic landscape should be low, management activities may be seen by, but should not attract the attention of, the casual observer, and any changes should repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. If a proposal cannot be adequately mitigated to retain the character of the landscape, modifications to the proposal are required.

Class III areas partially retain the existing character of the landscape and are areas, in which changes in the basic elements (e.g., form, line, color, or texture) caused by a management activity should not dominate the view of the casual observer and where changes should remain subordinate to the visual strength of the existing character.

In Class IV areas, management activities may dominate the view, and changes may subordinate the original composition and character; however, such changes should reflect what could be a natural occurrence in the characteristic landscape.

**Watershed and Water Quality (Surface and Groundwater).** Under this program, the Bureau performs various activities designed to preserve and protect soil, water, and watershed quality. Some of these activities are implementing watershed plans, identifying heavy sediment loads, monitoring and minimizing soil erosion, evaluating and restricting surface development activities, and monitoring water quality. These activities occasionally involve fieldwork and the use of heavy equipment and hand tools.

The Bureau's Watershed Management activities include evaluating proposed projects, applying soil management practices, applying seasonal closures, monitoring public drinking water, and completing groundwater studies. Some of these field activities involve the use of heavy machinery and hand tools. Field activities may involve developing riparian and wetland exclosures; constructing stream crossings that allow appropriate sediment and flow passage; practicing stream improvement methods, such as increasing sinuosity in channels by using hand tools to construct natural structures that include rock or other natural materials; constructing artificial instream structures (impoundments) using heavy equipment, steel, geotextile fabrics, and other materials; cutting, planting, and seeding to restore function in riparian and wetland areas;

implementing pitting; and maintaining water-spreader dikes. Other activities may involve imposing restrictions on activities and projects such as mineral exploration and development, pipelines, power lines, roads, recreation sites, fences, and wells.

Through water resource management, the Bureau seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable State and Federal water quality standards, provide for the availability of water to facilitate authorized uses, and minimize harmful consequences of erosion and surface runoff. Water resources are also to be protected or enhanced through site-specific mitigation guidelines.

During watershed management activities, the Bureau develops pollution prevention plans, ensures that rights to water-related projects are filed, delineates no-chemical-use buffer zones, designs activities to promote reduction of channel erosion, restricts surface disturbance near water sources and sensitive soils, and improves, maintains, and restores damaged wetlands or riparian areas by restoring hydrologic function. The Bureau provides not only technical expertise on other activities such as livestock ponds and waterfowl monitoring activities, but also impact analyses of oil and gas development or any surface disturbance projects.

The Bureau prohibits surface discharge of produced water in the Colorado River Basin. Surface disturbance is limited in watersheds, and new permanent structures are prohibited.

**Wildland Fire and Fuels.** The two major categories of activities involved with the Bureau's fire and fuels management program are fuels treatments (e.g., biological, chemical, prescribed burning, and mechanical treatments) and wildland fire suppression. During fuels treatment activities, the Bureau evaluates areas on a case-by-case basis; writes activity plans, which encompass any of the above listed treatments; coordinates with all necessary parties; and conducts treatment projects. Fuels treatments are used to enhance natural resources in the area. Fuels treatments can be used to dispose of slash and residue from timber sales. Fuels treatments are sometimes used to reduce the fuel levels before a treatment activity. Most fuels treatments are conducted to improve wildlife habitat and grazing operations.

Wildland fire suppression activities, on the other hand, are performed on an emergency basis. Wildland fire suppression activities in the planning area would be based on the Appropriate Management Response. The following areas would have a high priority for response to wildland fires and for fuels reduction and mitigation: areas of mixed land ownership, urban and industrial interfaces, important wildlife habitats, cultural sites, Areas of Critical Environmental Concern (ACECs), WSA, and other special management areas. This modified fire suppression would benefit various habitats by allowing fire to reduce climax communities and by spurring growth of new vegetation.

Preplanning for wildland fire suppression takes place in many forms before a fire occurs. Wildland fire suppression activities, which vary with the intensity of the wildfire, may

involve the use of OHVs, hand tools, aviation resources, and heavy equipment (e.g., bulldozers). Fire lines are constructed to contain wildland fires. Chemical fire suppression agents (ground based) containing surfactant compounds, ammonium nitrate compounds, and chemical dyes may be used if needed. In addition, fire retardant drops containing chemical dyes (aircraft dispersal) are used. These drops may affect the aquatic environment if used where the chemicals may enter the streams. Water is withdrawn from nearby sources to suppress the fire. Nearby sources may include streams, lakes, or public water supplies. After the fire is extinguished, the Bureau may use rehabilitation techniques to stabilize disturbed or burned areas. Rehabilitation techniques may involve planting small trees, grass, forbs, and shrubs to restore the site to its original or a compatible vegetative state. The Bureau uses Burned Area Emergency Rehabilitation (BAER) for seeding, replanting trees, placing mulch in stream banks, and using controlled grazing with fences.

Through wildland fire suppression activities, the Bureau seeks to effectively protect life, property, and resource values from wildfire. The Bureau uses fire suppression on fires endangering human life or fires that come within 1 mile of State or private lands, structures, and facilities. Acres of wildland fire fluctuate annually. Recent trends throughout the Wyoming Bureau are similar to trends throughout the west, with larger, catastrophic fires in recent years attributed to drought conditions and past fire suppression policies.

**Wildlife and Fish Habitat.** Through wildlife and fisheries habitat management, the Bureau maintains and enhances habitat for a diversity of wildlife and fish species and provides habitat for threatened, endangered, candidate, proposed, and special status animal and plant species in compliance with the ESA, the Bureau's Manual 6840, and approved recovery plans. The Bureau's wildlife habitat management program supports population objective levels in the Wyoming Game and Fish Department strategic plan.

Wildlife program activities may include inventory and monitoring, habitat improvement projects, developing stipulations and protective measures, and predator control in coordination with Animal and Plant Health Inspections Service—Wildlife Services, Animal Damage Control (APHIS-WS ADC). Inventory and monitoring, which include habitat assessments and species surveys, are conducted to assess the effectiveness of the implementation of timing stipulations, reduce conflicts between species and other activities, and provide appropriate mitigation. In addition, inventory and monitoring are used to identify and describe habitat requirements and life history characteristics of federally listed species.

The wildlife program supports other resources, including fire and fuels; forestry; minerals, including leasable, locatable, and common variety mineral exploration; recreation; cultural and paleontological; and lands and realty programs activities.

Habitat improvement projects include the development of water sources, construction and maintenance of fences, management of other resource activities to conserve forage and protect habitat, improvement of forage production and quality of rangelands, and

vegetative treatments (prescribed fires, mechanical, chemical, biological treatments, cutting, thinning, planting, seeding, and pitting). Other wildlife management activities include introducing species, developing islands, modifying existing projects, constructing artificial structures, constructing guzzlers, implementing road closures (permanent and seasonal), constructing exclosures, and using heavy equipment and hand tools.

In addition, wildlife management activities include improving fisheries and wildlife habitat; documenting resource damage; implementing stream improvement practices; chemically controlling non-native fish; using electro-shocking for sampling fish communities and population studies; constructing instream barriers to protect species from non-native invaders; installing revetments and fish passage structures, log over-pours, and gabion baskets; cabling junipers; placing large boulders for instream fish habitat; and restoring streams to a state of dynamic equilibrium by using restoration techniques.

**Special Management Areas.** Under the special management areas program, the Bureau closes areas, in which accelerated erosion is occurring, implements logging and heavy equipment use restrictions, applies restrictions on ground-disturbing activities, develops recreational trails, protects artifacts and cultural deposits from weathering and vandalism, and pursues land exchanges.

*Areas of Critical Environmental Concern.* Areas of Critical Environmental Concern (ACECs) contain one or more resources that require special management and protection for maintaining the value of the resource and the area. Areas designated as ACECs may contain such resources as rare or sensitive archaeological resources; habitat for endangered, sensitive, or threatened species; or rare geologic features. ACEC designations indicate areas, for which special management attention is necessary for protecting and preventing irreparable damage to important historic, cultural, and scenic values; for fish or wildlife resources or other natural systems or processes; or for protecting human life and safety from natural hazards. Management is considered special if it is unique to the area and includes terms and conditions specifically designed to protect the values within the ACEC.

*Wilderness Study Areas.* The purpose of the interim policy for WSAs is to retain their suitability for congressional designation as wilderness. Discretionary uses within or adjacent to the Scab Creek and Lake Mountain WSAs are reviewed to ensure that they do not impair wilderness values.

*Wild and Scenic Rivers.* The Bureau, under the Wild and Scenic Rivers Act, studied segments of streams throughout the Pinedale planning area to determine their eligibility and suitability for designation as wild and scenic rivers (WSRs). The East Fork, Green River, Scab Creek, and Silver Creek River units were found to be eligible and suitable for WSR designation. The Bureau would manage those segments to retain the wild and scenic values until the Congress considers the rivers for possible designation as WSRs.

## APPENDIX 1 - REFERENCES

-------. 2008a. Final Resource Management Plan and Environmental Impact Statement for the Pinedale Field Office. U.S. Bureau of Land Management. Pinedale, Wyoming.

-------. 2008b. Biological Assessment for the Pinedale Resource Management Plan. Pinedale Field Office.

## APPENDIX 2 – CONSERVATION MEASURES FOR THE PINEDALE RESOURCE MANAGEMENT PLAN

These conservation measures are taken from the U.S. Bureau of Land Management's (Bureau or BLM) Pinedale Resource Management Plan (RMP) (BLM 2008a) Biological Assessment (BA) (BLM 2008b). Implementation of the following conservation measures are intended to minimize, or eliminate, adverse impacts to Threatened, Endangered, Candidate, Proposed, and recently de-listed species that are likely to result from implementation of the management actions provided in the Pinedale planning area. The Bureau has been active in, and is committed to playing a key role in, the conservation of these species.

It is the Service's understanding that the Bureau has committed to implementing the following conservation measures. The conservation measures that follow will reduce potential effects to these species and their habitats and highlight the steps the Bureau can take to work towards their recovery and/or conservation. The Bureau has committed to implementing the following conservation measures within the Pinedale planning area where there is potential for these species to occur. The Bureau has stated that these conservation measures are binding measures that the Bureau will implement to facilitate the conservation of these species.

# SPECIES-SPECIFIC CONSERVATION MEASURES

Implementing the following species-specific conservation strategies is intended to minimize adverse impacts that are likely to result from implementing the management actions provided in the RMP. Specific to each species, this section discusses conservation measures committed to by the Bureau. In the event new populations of the species are discovered, the Bureau has stated that these conservation measures will apply until such time that further investigation and subsequent consultation with the Service result in more appropriate management prescriptions.

### Bald eagle

1. When project proposals are received, the Bureau should initiate coordination with the Service at the earliest possible date so that the Service can advise on project design. This should minimize the need to redesign projects at a later date to include bald eagle conservation measures, determined as appropriate by the Service.

2. Appropriately timed surveys in bald eagle habitats should be conducted prior to any activities and subsequent authorization that may disturb bald eagles or their habitats. A qualified biologist (not limited by job title) would be approved by the Bureau to conduct such bald eagle surveys. All nest surveys should be conducted using procedures that minimize the potential for adverse effects to nesting raptors.

3. In the event species occurrence is verified, the proponent may be required to modify operational plans, at the discretion of the authorized officer, to include the appropriate measures for minimization of effects to the bald eagle and its habitats.

4. Each year the Bureau should verify the status of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by the Bureau. As a matter of maintaining inventory information, the Bureau should coordinate annually

with the Service, the Wyoming Game and Fish Department (WGFD), and other appropriate entities to determine the status of known and new bald eagle nests, communal winter roosts, and other concentration areas. Known bald eagle nests, communal winter roosts, and concentration areas will be assumed active if status has not been verified.

5. Activities and habitat alterations that may disturb bald eagles will be restricted within suitable habitats that occur within bald eagle buffer zones.

   Zone 1 (½ mile, approximately 1 February to 15 August) is intended to protect active and alternative nests. For active nests, minimal human activity levels are allowed during the period of first occupancy to two weeks after fledging.

   Zone 2 (½ mile - 1 mile from the nest) is intended to protect bald eagle primary use areas and permits light human activity levels.

   Zone 3 is designated to protect foraging/concentration areas year-round Zone 3 would include one of two larger areas, depending on habitat types: (a) 2.5 miles extending in all directions from the nest or (b) ½ mile from the streambank of all streams within 2.5 miles of the nest. Site-specific habitat types and foraging areas will be evaluated to determine which Zone 3 buffer applies. Zone delineation depends on habitat types. Exceptions maybe made after consultation with the Service.

6. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 – April 1. No ground-disturbing activities will be permitted within 0.5 mile of active roost sites year round.

7. Bureau-administered lands that are within 1 mile of an integral part of bald eagle habitats including nests, communal winter roosts, and foraging/concentration areas should not be exchanged or sold.

8. Power lines should be built to standards identified by the Avian Power Line Interaction Committee (APLIC 1996, 2006).

9. Proponents of Bureau-authorized actions should be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.

10. The Bureau should coordinate with the Animal and Plant Health Inspections Service—Wildlife Services, Animal Damage Control (APHIS-WS ADC) Division to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. The Service should also be included in this coordination.

11. Proposed and future water projects should not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to minimize vehicle collisions with wildlife, using the water source and subsequent eagle-vehicle collisions.

12. The Bureau should provide educational information to project proponents and the general public pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over waterbodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.

13. In the event a dead or injured bald eagle is observed, the Service's Wyoming Field Office (307-772-2374) and the Service's Law Enforcement Office (307-261-6365) should be notified within 24 hours of the discovery.

14. The Bureau should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.

15. The Bureau should monitor and restrict, when and where necessary, authorized or casual use activities that may impact bald eagles or their habitats, including, but not limited to, recreational mining and oil and gas activities.

16. The Bureau should periodically review existing water quality records (e.g., Wyoming Department of Environmental Quality [WDEQ], Wyoming Game and Fish Department (WGFD), U.S. Geological Survey [USGS], etc.) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roosts, concentration areas) on public land for any conditions that could potentially adversely affect the species. If water quality problems are identified, the Bureau should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.

17. Projects with the potential to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle.

18. Projects with the potential to disturb bald eagles or their habitats should be monitored, and the monitoring results should be considered in the design and implementation of future projects.

**Black-footed ferret**

1. When project proposals are received for areas that still require black-footed ferret surveys (i.e., non-block-cleared [see Map 3 of the black-footed ferret biological assessment {BLM 2005}] or the Service's block clearance letter of February 2, 2004 [USFWS 2004]) and meet potential habitat criteria as defined by the Service's guidelines (USFWS 1989), the Bureau shall initiate coordination with the Service at the earliest possible date so that the Service can provide input. This should minimize the need to redesign projects at a later date to include black-footed ferret conservation measures, determined as appropriate by the Service.

2. In areas identified in conservation measure number one above (non-block-cleared areas), if suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets shall be conducted in accordance with current Service guidelines and recommendations. This information shall be provided to the Bureau and the Service in accordance with section 7 of the Endangered Species Act of

1973 (Act), as amended (50 CFR §402.10 and 13), and the Interagency Cooperation Regulations.

3. Observations of black-footed ferrets, their sign, or carcasses on a project area and the location of the suspected observation, however obtained, shall be reported within 24 hours to the appropriate local Bureau wildlife biologist and Field Supervisor of the Service's office in Cheyenne, Wyoming, (307) 772-2374. Observations will include a description including what was seen, time, date, exact location, suspected cause of death, and observer's name and telephone number. Carcasses or other "suspected" ferret remains shall be collected by Service or Bureau employees, and deposited with the Service's Wyoming Field Office or the Service's law enforcement office. This type of specimen collection is authorized as described in 50 CFR 17.21(c)(3-4). It is imperative that any fresh black-footed ferret carcass be salvaged and immediately transported to the Service so that the carcass would not be scavenged and as much pertinent information concerning the cause of death is gathered, including photographs, so that an accurate depiction of the fatality would be documented.

4. Discovery of a live black-footed ferret outside of the Experiment Non-essential population areas in Wyoming would have profound importance to the species' recovery. Reporting of such a discovery by staff, contractors, permittees, etc. will be fully encouraged by Bureau Staff and Management.

5. If black-footed ferrets or their sign are found on public lands outside of the Non-essential Experimental population areas in Wyoming, all previously authorized surface disturbing activities (or actions on any future application that may directly, indirectly, or cumulatively affect the colony/complex ongoing) in the complex, in which black-footed ferrets are found shall temporarily cease until further direction is developed by a task force consisting of the Bureau Field Office Manager, the Service's Wyoming Field Office Supervisor, the WGFD Non-game Coordinator, and other potentially affected parties. This task force will be formed within 48 hours of the find to determine appropriate conservation/protection actions. The Bureau shall coordinate with these affected parties to ensure that ferret surveys or appropriate actions are conducted as deemed necessary. The Bureau will also re-initiate section 7 consultation with the Service. An emergency road closure limiting access to the site would be enacted by the Bureau within 48 hours of the find to protect the newly discovered black-footed ferrets. This emergency road closure would be for all non-paved roads within at least one mile of the find. On a case-by-case basis and with approval of the Service, certain surface disturbing activities within the town or complex may be allowed to continue.

6. Information on ferret identification shall be provided and posted in common areas and circulated in a memorandum among all employees and service providers. This information shall illustrate the black-footed ferret and its sign; describe morphology, tracks, scat, skull, habitat characteristics, behavior, and current status; and the relationship between project development and possible impacts to black-footed ferrets, especially regarding canine distemper and recreational shooting.

7. New prairie dog towns shall be allowed to become established on public lands in all circumstances where they would not interfere with other previously established activities.

8. The Bureau shall work with the Service and the WGFD to identify and select Special Management Areas for potential reintroduction sites for black-footed ferrets. These areas will be selected based upon a number of factors including the Bureau's ability to protect and manage them, their size (5,000 to 10,000 acre sites, optimally), and potential utility to black-footed ferrets. Because of the need to manage reintroduction sites (of prairie dog complexes) on a landscape scale, and because plague is a significant, but unpredictable, event, Special Management Areas may be selected that are currently "plagued out", but may recover in time. Complexes can be selected from, but not necessarily restricted to, those shown in block cleared areas (see Map 3 of BLM 2005). Protective measures will be drawn up for these Special Management Areas, and may include being withdrawn from leasing and protected from commercial development (i.e., land disposal through Recreation and Public Purposes (R&PP) actions, etc.). Examples of protective measures that will be included in these Special Management Areas are:

   a. The Bureau shall work with respective state Game and Fish agencies and Services offices to ensure that enough reintroduction sites are maintained to successfully recover the black-footed ferret. If areas available for reintroduction are removed through the Bureau's authorized actions below a threshold level, so that the black-footed ferret can no longer be recovered, then those actions reducing availability of reintroduction sites will be modified or discontinued until the black-footed ferret has been recovered.

   b. The Bureau shall monitor and post restrictions, if necessary, on recreational opportunities and other uses on Bureau-administered lands within 1 mile of formally proposed and active reintroduction sites for black-footed ferrets.

   c. The Bureau and operators shall conduct educational outreach to employees regarding the nature, hosts, and symptoms of canine distemper and its effects on black-footed ferrets, focusing attention on why employees should not have pets on work sites during or after hours. The Bureau shall encourage operators to develop policies to prohibit dogs from operation sites or require current distemper vaccinations within black-footed ferret reintroduction areas. It is recommended that vaccinated puppies shall not be allowed until one month after their final distemper vaccination due to potential effects of the modified live virus vaccine.

9. All white-tailed prairie dog towns/complexes greater than 200 acres in size and black-tailed prairie dog towns/complexes greater than 80 acres shall be assessed and mapped for any projects that are proposed within such areas, and associated burrow densities on potentially affected towns shall be determined, when necessary, pursuant to Service and Bureau-approved techniques to determine whether the criteria established for ferret occupancy in the Service's guidelines (USFWS 1989) for black-footed ferrets are met.

**Canada lynx**

1. Within a Lynx Analysis Unit (LAU), the Bureau shall ensure lynx habitat and non-habitat, including denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. The Bureau or the project proponent shall identify whether all lynx habitat within an LAU is in suitable or unsuitable condition. This will involve interagency coordination where LAUs cross administrative boundaries.

2. The Bureau shall limit disturbance within each LAU to 30 percent of the suitable habitat within the LAU. If 30 percent of the habitat within an LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of management activities. The Bureau shall map oil and gas production and transmission facilities, mining activities and facilities, dams, timber harvest, and agricultural lands on public lands and evaluate projects on adjacent private lands to assess cumulative effects. This will involve interagency coordination, primarily with the U.S. Forest Service, where LAUs cross administrative boundaries.

3. The Bureau's management actions shall not change more that 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period. This will involve interagency coordination where LAUs cross administrative boundaries.

4. The Bureau shall maintain denning habitat in patches generally larger than 5 acres and comprising at least 10 percent of lynx habitat. Where less that 10 percent is currently present within an LAU, the Bureau will defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.

5. The Bureau shall ensure that key linkage areas that may be important in providing landscape connectivity within and between geographic areas across all ownerships are identified using the best available science.

6. The Bureau shall ensure that habitat connectivity within and between LAUs is maintained.

7. The Bureau shall document lynx observations (tracks, sightings, along with date, location, and habitat), provide these to the Wyoming Natural Diversity Database, and request from it an annual update on all sightings for review in each Bureau planning area.

8. Following a disturbance (blowdown, fire, and insects) that could contribute to lynx denning habitat, the Bureau shall allow no salvage harvest when the affected area is smaller than 5 acres. Some exceptions apply, as specified in the LCAS timber management project planning standards.

9. The Bureau shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.

10. In aspen stands, the Bureau shall ensure that harvest prescriptions favoring the regeneration of aspen apply.

11. The Bureau shall ensure that improvement harvests (commercial thinning, selection, etc.) are designed to retain and improve recruitment of an understory of small-diameter conifers and shrubs preferred by hares.

12. In the event of a large wildfire, the Bureau shall ensure that a post-disturbance assessment is conducted prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.

13. The Bureau shall ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and shall ensure revegetation of those that are necessary. Construction on ridges and saddles shall be avoided if possible.

14. The Bureau shall allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas in LAUs unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. This is intended to apply to dispersed recreation, rather than existing ski areas. Winter logging activity is not subject to this restriction.

15. In lynx habitat within an LAU, the Bureau shall ensure that Federal actions do not degrade or compromise landscape connectivity or linkage areas when planning and operating new or expanded recreation developments.

16. The Bureau shall ensure that trails, roads, and lift termini are designed to direct winter use away from diurnal security habitat.

17. To protect the integrity of lynx habitat, the Bureau shall ensure that (as new information becomes available) winter recreational special use permits (outside of permitted ski areas) promoting snow compacting activities in lynx habitat are evaluated and amended as needed.

18. The Bureau shall ensure that livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components is not allowed. This regeneration may take 3 years or longer and will depend on site-specific conditions.

19. The Bureau shall ensure that grazing in aspen stands is managed to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.

20. Within lynx habitat, the Bureau shall ensure that livestock grazing in riparian areas and willow patches is managed to maintain or achieve mid-seral or higher condition to provide cover and forage for prey species.

21. On projects where over-snow access is required, the Bureau shall ensure use is restricted to designated routes.

22. Predator control activities, including trapping or poisoning on domestic livestock allotments on Federal lands within lynx habitat, shall be conducted by Wildlife Services personnel in accordance with Service recommendations established through a formal section 7 consultation process.

23. The Bureau shall ensure that the potential importance of shrub-steppe habitats in the lynx habitat matrix and in providing landscape connectivity between blocks of lynx habitat is evaluated and considered as integral to overall lynx habitat where appropriate. Livestock grazing within shrub-steppe habitats in such areas shall 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 shall not be degraded.

24. In high-elevation riparian areas, especially those subject to grazing, the Bureau shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.

25. Within lynx habitat, the Bureau shall ensure that key linkage areas and potential highway crossing areas are identified using best available science.

26. The Bureau shall work cooperatively and proactively with the Federal Highway Administration (FHA) and the State Department of Transportation to identify land corridors necessary to maintain connectivity of lynx habitat and 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).

27. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) shall 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, or width of the cleared right-of-way (ROW) or will contribute to development or increased human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis shall be conducted on the potential direct and indirect effects to lynx and lynx habitat.

28. The Bureau shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on key linkage areas.

29. If activities are proposed in lynx habitat, the Bureau shall ensure that stipulation and conditions of approval for limitation on the timing of activities and surface use and occupancy are developed at the leasing and Notice of Stacking/APD stages. For example, requiring that activities not be conducted at night when lynx are active and avoiding activity near denning habitat during the breeding season (April or May to July) to protect vulnerable kittens.

30. The Bureau shall ensure that snow compaction is minimized when authorizing and monitoring developments. The Bureau shall encourage remote monitoring of sites that are located in lynx habitat so they do not have to be visited daily.

**Colorado River fishes**

1. The Bureau will continue to participate in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system, the Bureau would initiate formal consultation with the Service.

**Gray wolf**

1. No project actions will be located within 330 feet of den sites between April 1 and June 30. Areas within 0.8 kilometers (0.5 miles) of a den site are recommended for protection from disturbance.

2. The Bureau will take action to help reduce human-caused mortality wherever possible. For example, provide educational material, as appropriate, to avoid the inadvertent killing of a wolf mistaken for a coyote; provide information on compatible grazing practices (see #3 below); and avoid situations that lead to the adoption of human foods and garbage by wolves, which could lead to biting by and the subsequent elimination of the wolf.

3. The Bureau will disseminate information useful to livestock producers on wolf/livestock interactions; alternative livestock practices that minimize conflicts between wolves and livestock (e.g., dispersed grazing rather than concentrated grazing); and compatible lambing and calving methods that reduce or eliminate wolf depredation in occupied habitat.

4. The Bureau will designate a state representative to attend the annual interagency coordination meeting.

5. The Bureau will continue to attend the annual coordination meetings with the Wyoming Game and Fish Department.

**Grizzly bear**

1. The Bureau shall ensure that authorized activities planned to occur in currently occupied grizzly bear habitat shall be analyzed and planned with active grizzly bear protection measures. Restrictions on timing of activity and spatial considerations for grizzly bears, or other parameters, will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area.

2. The Bureau shall provide a packet of educational materials to authorized permittees in grizzly habitat, including, but not limited to, special recreation permittees, livestock permittees, and timber operators.

3. In occupied grizzly bear habitat, and in areas of bear conflicts, the Bureau shall install bear-resistant refuse containers in those developed campgrounds and picnic areas where refuse containers are provided and maintained. In areas receiving dispersed recreational use, the Bureau shall inform the public of proper storage techniques for food and refuse.

4. The Bureau shall ensure that operation plans and special use permits in occupied grizzly bear habitat will specify food storage and handling and garbage disposal standards. All temporary living facilities under temporary use permits in occupied grizzly bear habitat will be required to practice proper food storage and keep all potential attractants stored so they are unavailable to bears. Edibles and/or garbage will be secured from access by grizzly bears. Bear proof refuse containers, and timely refuse collection to prevent overflow, shall be required.

5. Important grizzly bear food resources that may occur on Bureau-administered land, particularly whitebark pine, army cutworm moths, ungulates (primarily elk calving grounds), and spawning cutthroat trout, shall be noted and monitored. Other important foods may be added to those listed above as our understanding of grizzly bear food resources on Bureau-administered land grows. Monitoring protocols for these food

resources can be adapted from Appendix E of the Conservation Strategy (ICST 2003) (http://www.fs.fed.us/r1/wildlife/igbc/ConservationStrategy/CSappendices.pdf).

6. The Bureau shall continue to attend, and be a member of, the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee (IGBC). After delisting, the Bureau shall continue to attend the appropriate coordination group(s) including the Yellowstone Grizzly Coordinating Committee.

7. The Bureau shall not approve commercial cutting or other removal of whitebark pine in the six Bureau administrative areas analyzed in this document in occupied or potential grizzly bear habitat.

8. The Bureau shall implement strategies to reduce human-bear and domestic livestock-bear conflicts by conducting an evaluation of the causes of such conflicts when they do occur and determining what can be done to avoid or reduce such conflicts in the future. Currently these conflicts are discussed at the Northwest Wyoming Level One Streamlining Team meetings held approximately every 45-60 days.

9. All permit holders that conduct activities on public lands in occupied grizzly bear habitat that could result in livestock carcasses being left in locations where bears might be attracted to them shall be informed that all livestock carcasses or parts of carcasses shall be either packed, dragged, or otherwise transported to a location a minimum of 1/2 mile from any inhabited dwelling, sleeping area, tent road, trail, or recreation site in as timely a manner as possible, unless otherwise directed by a Bureau range/wildlife specialist or ranger. Carcasses shall be moved at least 100 yards from live water. Other options for carcass disposal may include using explosives or burning the carcass at the discretion of a Bureau range/wildlife specialist or ranger. In cases of uncertainty on carcass disposition the permit holder (or lessee) shall contact the appropriate Bureau Field Office.

10. The Bureau shall require that the Proper Functioning Condition (PFC) of existing aquatic systems and riparian zones in occupied grizzly bear habitat will be maintained for all Bureau-administered Public Lands. If these areas are polluted and/or damaged from activities, lessee/permittee/grantee or the Bureau will be required to assume full responsibility for rehabilitation and restoration of such areas (from IGBC 1986).

11. The Bureau shall require that existing roads, drilling pads, and other areas with vegetation removed due to authorized activities in occupied grizzly bear habitat will be revegetated and reclaimed by lessee/permittee/grantee in a fashion that considers all grizzly bear needs or requirements.

12. Wild horse roundups and other intensive wild horse management activities will avoid areas in or immediately adjacent to occupied grizzly bear habitat.

**Ute ladies'-tresses**

1. The Wyoming Bureau of Land Management Standard Mitigation Guidelines for Surface Disturbing Activities requires any lessee or permittee to conduct inventories or studies in accordance with Bureau and Service guidelines to verify the presence or absence of threatened or endangered species before any activities can begin on site. In the event the

presence of one or more of these species is verified, the operation plans of a proposed action will be modified to include the protection of the species and its habitat, as necessary. Possible protective measures may include seasonal or activity limitations, or other surface management and occupancy constraints (BLM 1998).

Surface disturbance will be prohibited within 500 feet of surface water and/or riparian areas.

No Surface Occupancy will be allowed within special management areas (e.g., known threatened or endangered species habitat).

Portions of the authorized use area are known or suspected to be essential habitat for threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with Bureau's and the Service's guidelines to verify the presence or absence of this species. In the event that an occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

2. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming, specifically:

   Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

   Grazing management practices will restore, maintain, or improve plant communities. Grazing management strategies consider hydrology, physical attributes, and potential for the watershed and the ecological site.

   Upland vegetation on each ecological site consists of plant communities appropriate to the site, which are resilient, diverse, and able to recover from natural and human disturbance.

   Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

   Grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of Federal threatened and endangered species or the conservation of federally-listed species of concern and other state-designated Special Status Species. Grazing management practices will maintain existing habitat or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats.

3. The Bureau will maintain biological diversity of plant and animal species; support WGFD strategic plan population objective levels to the extent practical and to the extent

consistent with the Bureau's multiple use management requirements; maintain, and where possible, improve forage production and quality of rangelands, fisheries, and wildlife habitat; and to the extent possible, provide habitat for threatened and endangered and special status plant and animal species on all public lands in compliance with the ESA and approved recovery plans.

4. In any proposed new access, wetland and riparian areas will be avoided where possible (18 CFR 725.2 – Floodplain Management and Protection of Wetlands).

The following two conservation measures (5 and 6), will be added to grazing permit renewals in allotments with known populations of the orchid.

5. Place mineral supplements, new water sources (permanent or temporary), or supplemental feed for livestock for livestock, wild horses, or wildlife at least 1.0 mile from known orchid populations. Hay or other feed and straw must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from populations of the orchid and subsequent grazing on individual orchid plants. Surveys for the orchid will be conducted in potential orchid habitat prior to livestock operations projects. Placement of mineral supplements, straw or other feed for livestock within 1.0 mile of known populations of the orchid will be evaluated and approved by the Bureau with concurrence by the Service and implemented on a case-by-case basis only.

6. The Bureau will not increase permitted livestock stocking levels in any allotment with pastures containing known orchid populations without consulting with the Service. It is unknown to what extent overall impacts due to livestock grazing have on the orchid, whether it is detrimental due to actual grazing and trampling of plants or beneficial due to livestock removal of adjacent competing vegetation.

7. Grazing will be intensively managed within known habitat containing populations from July through September, to allow plants to bloom and go to seed.

8. Recreational site development will not be authorized in known Ute ladies'-tresses habitat.

9. The Bureau will manage stream habitats to retain, re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. Projects that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem, and cause direct ground disturbance will be evaluated and redesigned to ensure that adverse effects to populations of the orchid do not occur.

10. Biological control of noxious plant species will be prohibited within 1.0 mile from known orchid habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

11. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 miles of known populations of the orchid and insecticide/pesticide treatments will be prohibited within 1.0 mile of known populations of the orchid to protect pollinators.

Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed, and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specifics to dicots will be preferred where these are adequate to control the noxious weeds present.

Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of the orchid (outside of the 0.25 mile buffer). The Bureau will work with APHIS-WS ADC, the U.S. Fish and Wildlife Service, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the orchid.

12. If revegetation projects are conducted within 0.25 miles of known habitat for the orchid, only native species will be selected. This conservation measure will keep non-native species from competing with the orchid.

13. Limit the use of off road vehicles (OHVs) to designated roads and trails within 0.5 mile of known populations of the orchid, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known populations of the orchid. Roads that have the potential to impact the orchid and are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the Bureau.

14. Apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known populations of the orchid. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing populations of the orchid. Operations outside of the 0.25 mile buffer of orchid populations, such as "directional drilling" to reach oil or gas resources underneath the orchid's habitat, would be acceptable.

15. For known Ute ladies'-tresses populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of known Ute ladies'-tresses populations. For existing oil and gas leases with known Ute ladies'-tresses populations (these would be for newly discovered populations not currently documented), the Bureau will require the COA in conservation measure 14 above including the same 0.25 mile buffer area around those known Ute ladies'-tresses populations.

16. Prohibit the sale and disposal of salable minerals in habitat containing known populations of the orchid (within a 0.25 mile buffer area of known orchid populations), and where possible pursue acquisition of property with known populations of the orchid with salable minerals. The disposal (sale and removal) of salable minerals is a discretionary Bureau action and is prohibited within a 0.25 mile buffer area of known populations of the orchid.

17. To prevent loss of habitat for the orchid, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that

was used historically that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in known habitat for the orchid, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the orchid will not be exchanged or sold, unless it benefits the species.

18. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known orchid habitat to minimize disturbances. Rights-of-way actions for roads, powerlines, pipelines, etc. will avoid occupied habitat for the orchid. If avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the Service.

19. All proposed projects will be designed and locations selected to minimize disturbances to known populations of the orchid, and if the avoidance of adverse affects is not possible, the Bureau will re-initiate consultation with the Service. Projects will not be authorized closer than 0.25 miles from any known populations of the orchid without concurrence of the Service and the Bureau's authorized officer. No ground disturbing construction activities will be authorized within 0.25 miles of any known populations of the orchid during the essential growing season time period (from July to September, the growing, flowering and fruiting stages) to reduce impacts to this species.

20. In order to conserve and protect natural areas, planned recreational foot trails are created to control human traffic. The Bureau will create programs that will strive to protect the orchid's habitat and prevent new trails from being constructed within 0.25 miles from known occurrences of the orchid.

## APPENDIX 2 - REFERENCES


Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute/Raptor Research Foundation, Washington D.C.

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Interagency Grizzly Bear Committee (IGBC). 1986. Interagency grizzly bear guidelines. U.S. Forest Service, Washington, D.C.

United States Bureau of Land Management (BLM). 1998. Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming. U.S. Department of the Interior, Bureau of Land Management. January.

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-------. 2005. Final Statewide Programmatic Biological Assessment: Black-footed Ferret (*Mustela nigripes*). Submitted to U.S. Department of Interior, Bureau of Land Management. Wyoming State Office. Cheyenne, Wyoming.

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-------. 2008b. Biological Assessment for the Pinedale Resource Management Plan. Pinedale Field Office.

U.S. Fish and Wildlife Service (USFWS). 1989. Black-footed ferret survey guidelines for compliance with the Endangered Species Act, April 1989. U.S. Fish and Wildlife Service, Denver, Colorado and Albuquerque, New Mexico. 15 pp.

-------. 2004. Block clearance letter (ES-61411/BFF/WY7746) indicating that black-footed ferret surveys are no longer required in all black-tailed prairie dog colonies statewide or in white-tailed prairie dog towns except those noted in an attachment. February 2, 2004. Wyoming Field Office.

## APPENDIX 3 – BEST MANAGEMENT PRACTICES FOR THE PINEDALE RESOURCE MANAGEMENT PLAN

These U.S. Bureau of Land Management (Bureau or BLM) Best Management Practices (BMPs) are taken from the Pinedale Resource Management Plan (RMP) (BLM 2008a) Biological Assessment BA (BLM 2008b). Implementation of the following best management practices (BMPs) is intended to minimize, or eliminate, adverse impacts to federally-listed and Bureau sensitive species that are likely to result from implementation of the management actions provided in the Pinedale RMP. The Bureau has been active in conservation of listed and candidate species, and is committed to playing a key role in the recovery effort for these species. On August 8, 2007, the Service removed the bald eagle (*Haliaeetus leucocephalus*) from the list of threatened and endangered species. However, the Bureau remains committed to the continued protection and monitoring of the bald eagle on Bureau-administered lands (BLM 2007). The use of the following recommended Best Management Practices will reduce potential effects to species and their habitats. In the event new populations of the species are discovered, these measures will apply until such time that further investigation and subsequent consultation with the Service result in more appropriate management prescriptions.

### Bald eagle

1. The Service recommends that when project proposals are received, the Bureau should initiate coordination with the Service at the earliest possible date so that the Service can provide information on natural resource issues. This should minimize the need to redesign projects at a later date to include conservation measures that may be determined as appropriate by the Service.

2. The Service recommends that Bureau-administered lands within 1 mile of an integral part of bald eagle habitats including nests, communal winter roosts, and foraging/concentration areas not be exchanged or sold. If it is imperative that these lands are transferred out of Bureau ownership then every effort should be made to include conservation easements or voluntary conservation restrictions around the important bald eagle habitat to restrict activities of the property and protect the bald eagles from disturbance and their habitat from destruction.

3. The Service recommends that proponents of Bureau-authorized actions be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.

4. The Service recommends that the Bureau coordinate with Animal and Plant Health Inspections Service—Wildlife Services, Animal Damage Control (APHIS-WS ADC) to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. The Service should also be included in this coordination.

5. The Service recommends that proposed and future water projects not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to (1) minimize vehicle collisions with wildlife using

the water source, and (2) minimize the occurrence of eagle-vehicle collisions resulting from eagles feeding on road-killed wildlife.

6. The Service recommends that Bureau provide educational information to project proponents and the general public pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over water bodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.

7. The Service recommends that Bureau coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.

8. Since bald eagles are often dependent on aquatic species as prey items, the Service recommends that the Bureau periodically review existing water quality records (e.g., Wyoming Department of Environmental Quality [WDEQ], Wyoming Game and Fish Department (WGFD), U.S. Geological Survey [USGS], etc.) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roosts, concentration areas) on public land for any conditions that could adversely affect bald eagles or their prey. If water quality problems are identified, the Bureau should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.

9. The Service recommends that the Bureau's projects with the potential to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle.

**Black-footed ferret**

1. Develop prairie dog management plans with ongoing monitoring and protection of prairie dog towns and complexes on towns with high priority for black-footed ferret reintroductions.

2. Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan (Wyoming Black-tailed Prairie Dog Working Group 2001) and the White-tailed Prairie Dog Conservation Assessment (Seglund *et al.* 2004). Encourage the Wyoming Board of Agriculture to give regulatory management of Prairie Dogs to the Wyoming Game and Fish Department to remove unprotected, "pest" status on prairie dogs and provide regulatory mechanisms for recreational shooting of prairie dogs.

3. Establish land stewardship agreements with other agencies and/or private landowners where large (1,000 acres) prairie dog towns or complexes exist. These agreements can control potential uses that may be detrimental to prairie dogs and their habitats, while preserving the landowner's intent for use.

4. Avoid sale or exchange of lands with the potential for black-footed ferret reintroductions and attempt to acquire parcels with prairie dogs on them, especially those that have potential as part of a black-footed ferret reintroduction effort.

5. Initiate, to the extent feasible, land exchanges in the Thunder Basin and Shirley Basin in areas with potential for black-footed ferrets, in order to increase the land area in Federal ownership.

6. Avoid vegetation stand conversions that have been shown to be detrimental to prairie dogs, and reduce or eliminate any other suspected ecosystem-degrading practices.

7. Encourage, support, and/or establish a prairie dog research program, addressing issues such as the effect of recreational shooting and oil and gas development on prairie dogs, sylvatic plague control, and population viability analysis.

8. Because knowledge of the effects of resource extraction on white-tailed prairie dog populations is limited, monitoring at sites before, during, and after energy development is recommended (Seglund *et al.* 2004).

**Canada lynx**

1. Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris.

2. 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.

3. Provide for continuing availability of foraging habitat in proximity to denning habitat.

4. 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 because of plant succession, consider improvement harvests (commercial thinning, selection, etc). Improvement harvests should be designed to retain and recruit the understory of small diameter conifers and shrubs preferred by hares; retain and recruit coarse woody debris consistent with the likely availability of such material under natural disturbance regimes; and maintain or improve the juxtaposition of denning and foraging habitat.

5. Provide habitat conditions through time that support dense horizontal understory cover and a high density of snowshoe hares. This includes, for example, mature multi-storied conifer vegetation. Focus vegetation management, including timber harvest and use of prescribed fire, in areas that have potential to improve snowshoe hare habitat (dense horizontal cover) but that presently have poorly developed understories with little value to snowshoe hares.

6. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare and thus regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).

7. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.

8. Consider the need for pre-treatment of fuels before conducting management ignitions.

9. Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maximizes lynx denning habitat.

10. Map and monitor the location and intensity of snow compacting activities (for example, snowmobiling, snowshoeing, cross-county skiing, dog sledding, etc.) that coincide with lynx habitat to facilitate future evaluation of effects on lynx as information becomes available. Discourage recreational 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.

11. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged.

12. Identify and protect potential security habitats in and around proposed developments or expansions.

13. 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.

14. Minimize roadside brushing to provide snowshoe hare habitat.

15. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.

16. Limit public use on temporary and permanent roads constructed for access to timber sales, mines, and leases. Design new roads, especially the entrance, for effective closure. Upon project completion, reclaim or obliterate these roads.

17. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.

18. To reduce mistaken shooting of lynx, initiate and/or augment interagency information and education efforts throughout the range of lynx in the contiguous states. Use trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, and so on to inform the public of the possible presence of lynx and their field identification and status.

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

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

21. 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, or width of the cleared right-of-way (ROW) or would contribute to development of increased 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.

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

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

24. 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.

25. Using the best available science, develop 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.

26. When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.

27. Protect existing snowshoe hare and red squirrel habitat.

**Gray wolf**

1. The Bureau will avoid an increase in miles of road in crucial elk winter range.

2. The Bureau will avoid situations that allow for wolves to habituate to humans or become exposed to and use human refuse as a food source.

3. The Bureau will foster public outreach/education programs to provide wolf information in schools, campgrounds, and other places. Topics can include, but not be limited to, personal safety around wolves, wolf ecology, wolf mortality factors, and livestock grazing practices harmful to wolves.

4. The Bureau will continue to support the research and documentation of wolf/livestock interactions and livestock grazing practices to improve these practices so they are more compatible with wolves.

5. The Bureau will continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.

6. The Bureau will encourage reporting of wolf observations by the Bureau's staff and the public to the WGFD.

**Grizzly bear**

1. With the intent of reducing potential conflicts between grizzly bears and livestock and the Bureau should phase out sheep allotments in occupied grizzly bear habitat as the opportunity arises. Existing sheep allotments in occupied grizzly bear habitat should be monitored and evaluated for conflicts between grizzly bears and sheep. The Bureau should offer no new permitted sheep Animal Unit Months (AUMs) in grizzly bear habitat where conflicts have occurred in the past, or are likely to occur in the future.

2. The Bureau should adjust management of domestic livestock on public land allotments or leases to minimize grizzly bear-livestock conflicts (such as season of use, class of livestock, etc.).

3. The Bureau should include a clause on all use authorizations that allows for permanent cancellation, temporary cancellation, or temporary cessation of activities if such are needed to resolve a grizzly-human conflict situation.

4. Wherever possible, the Bureau should reduce motorized access routes in occupied grizzly bear habitat and will try to avoid authorizing any new motorized access in occupied grizzly bear areas (i.e., big game ranges).

5. Wherever possible, the Bureau will implement appropriate closures or seasonal restriction areas to cross-country motorized travel to provide more security in occupied grizzly bear habitat.

6. Where possible, maintain road densities of less than one mile per square mile in occupied grizzly bear habitat. Where existing road densities are currently below 1 mile per square mile, avoid increases in road density to maintain management options and secure habitat. Consider all big game winter range areas as areas where road density objectives are less than 1 mile of road per square mile.

7. The Bureau should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on Bureau lands will be done using Geographic Information System (GIS) technology. Secure habitat, open motorized access route density (OMARD, refers to roads that are actively used) greater than one mile/square mile, and total motorized access route density (TMARD, includes all roads, even gated roads) greater than two miles/square mile will be monitored utilizing the Yellowstone Grizzly Bear Cumulative Effects Model (CEM) GIS databases and will be reported annually, as is described in the Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area (Interagency Conservation Strategy Team [ICST 2003]) and conducted in the primary conservation area (PCA).

8. In areas of vital importance to grizzly bears (known denning areas, army cutworm moth aggregations, cutthroat trout spawning sites, spring ungulate concentration sites, etc.) activities that adversely affect grizzly bear populations and/or their habitat should be avoided. Adverse habitat effects could result from land surface disturbances; water table alterations; reservoirs, rights-of-way, roads, pipelines, canals, transmission lines, or other structures; increased human foods; and reduced availability of natural foods. Areas of vital importance to grizzlies are identified through the evaluation process described in the Grizzly Bear Management Guidelines (IGBC 1986).

**Ute ladies'-tresses**

1. When project proposals are received, the Bureau will initiate coordination with the Service at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include orchid conservation measures, determined as appropriate by the Service.

2. The Bureau will participate in the development of both, a conservation agreement/assessment strategy and a species specific recovery plan for the orchid in coordination with the Service and other agencies as appropriate. Orchid habitat on Bureau-administered lands will be monitored to determine if recovery/conservation objectives are being met.

3. The Bureau will coordinate with the Service, the National Resource Conservation Service (NRCS), and private landowners to ensure adequate protection for the orchid and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.

4. In the event that a new population of the orchid is found, the Service's Wyoming Field Office (307-772-2374) will be notified within 48 hours of discovery.

5. Livestock grazing, mowing/haying, and some burning are specific management tools that the Bureau may use to maintain favorable habitat conditions for the orchid where feasible. Mowing and grazing, with proper timing and intensity, reduce the native and exotic plant competition for light and possibly for water, space and nutrients.

6. Recreational foot trails that may be located adjacent to Ute ladies' tresses plant habitat should be constructed to reduce impacts to this species.

7. To prevent loss of habitat for the orchid, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in potential orchid habitat, the Bureau will survey to assess the potential for the existence of the orchid. While it is difficult to assess whether the orchid was historically present on such sites, the Bureau should try and retain in Federal ownership all habitats essential for the survival and recovery of the orchid, including habitat that was used historically that has retained its potential to sustain this listed may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

8. Prescribed fire and grazing activities shall be coordinated between biologists, rangeland management specialists, and fire personnel to ensure that no damage occurs to the plant habitat when being used to maintain the habitat for the species.

9. Maintain and restore the dynamics of stream systems, including the movement of streams within their floodplains, which are vital for the life cycle of the orchid. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur. The Bureau should continue water use in a manner that maintains suitable habitat for the Ute ladies' tresses orchid to benefit the species.

10. Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.

11. For the protection of the orchid and its potential habitat, surface-disturbing activities listed above, should be avoided in the following areas when they occur outside of the protective 0.25 mile buffer from populations of the orchid: (a) identified 100-year flood plains; (b) areas within 500 feet from perennial waters, springs, wells, and wetlands, and; (c) areas within 100 feet from the inner gorge of ephemeral channels.

12. Form a steering committee to develop and prioritize management practices and assist the Bureau and the Service with research projects.

13. Conduct inventories for the orchid in areas with potential habitat.

14. Maintain a database of all searched, inventoried, or monitored orchid sites.

15. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in known or potential habitat for the orchid to determine impacts to the species.

16. Establish monitoring, biological, ecological, population demographics, and life history studies as funding and staffing allow, such as, monitoring current populations each year for trends, studies regarding identification of pollinators, genetics, life history, effects of pesticides and herbicides, seed viability and germination, and studies regarding monitoring the success of reintroduction efforts. Monitor orchid population sites for invasion by noxious and invasive plant species.

17. Perform monitoring and analysis pertaining to flow timing, flow quantity, and water table characteristics with the goal of ensuring that riparian vegetation, in areas of known and potential habitat for the orchid, is maintained.

18. When possible, collect and bank orchid seeds at local, regional, national, and international arboreta, seed banks, and botanical gardens as insurance against catastrophic events, for use in biological studies, and for possible introduction/reintroduction into potential habitat.

19. Train law enforcement personnel on protections for the orchid and its habitat, its status, and current threats to its existence.

20. Educate resource specialists, rangers, and fire crews about the orchid and its habitat to help with project design for the general area and for fire suppression actions occurring in potential habitat for the orchid and on the habitat characteristics and plant identification for the plant, so that if they encounter the orchid occurring in riparian habitat, they can report it to their office threatened and endangered species specialist.

21. The Bureau should work towards developing reintroduction sites in coordination with the Service and to maintain the integrity of these sites for the survival of the orchid. The objective would be to reintroduce populations of the orchid into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.

22. Develop propagation techniques and use them to reintroduce/introduce the orchid and to repopulate known populations in the event population recovery becomes necessary.

## APPENDIX 3 - REFERENCES


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