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FINAL BIOLOGICAL ASSESSMENT



Pinedale Resource Management Plan/ Final Environmental Impact Statement



TABLE OF CONTENTS

1.0	INTRODUCTION.....	7
1.1	DESCRIPTION OF THE PREFERRED ALTERNATIVE (ALTERNATIVE 4)	8
1.1.1	Minerals	8
1.1.2	Other Resources	8
1.2	SPECIAL MANAGEMENT AREAS	9
2.0	DESCRIPTION OF THE AFFECTED ENVIRONMENT	9
2.1	DESCRIPTION OF THE PLANNING AREA	9
2.2	LISTING STATUS AND RECOVERY PLANS	9
2.2.1	Mammals	11
2.2.1.1	Black-footed Ferret (<i>Mustela nigripes</i>).....	11
	Species Description	11
	Life History	11
	Population Distribution.....	11
	Field Office Distribution.....	12
	Reproduction and Survivorship	13
	Threats From Human Activity	13
2.2.1.2	Grizzly Bear (<i>Ursus arctos horribilis</i>).....	14
	Species Description	14
	Life History	14
	Population Distribution.....	15
	Field Office Distribution.....	16
	Reproduction and Survivorship	16
	Threats From Human Activity	16
2.2.1.3	Canada lynx (<i>Lynx canadensis</i>)	16
	Species Description	17
	Life History	17
	Population Distribution.....	18
	Field Office Distribution.....	18
	Reproduction and Survivorship	19
	Threats From Human Activity	19
2.2.1.4	Gray Wolf (<i>Canis lupus</i>).....	21
	Species Description	22
	Life History	22
	Population Distribution.....	23
	Field Office Distribution.....	23
	Reproduction and Survivorship	24
	Threats From Human Activity	24
2.2.2	Avifauna	24
2.2.2.1	Bald Eagle (<i>Haliaeetus leucocephalus</i>)	24
	Species Description	24
	Life History	24
	Population Distribution.....	25
	Field Office Distribution.....	25
	Reproduction and Survivorship	25
	Threats From Human Activity	25
2.2.2.2	Western Yellow-billed Cuckoo (<i>Coccyzus americanus</i>).....	26
	Species Description	26
	Life History	26
	Population Distribution.....	26
	Field Office Distribution.....	26
	Reproduction and Survivorship	27
	Threats From Human Activity	27
2.2.3	Fish	27
2.2.3.1	Kendall Warm Springs Dace (<i>Rhinichthys osculus thermalis</i>).....	27
2.2.4	Plants	27
2.2.4.1	Ute Ladies' Tresses Orchid (<i>Spiranthes diluvialis</i>).....	27
	Species Description	27
	Life History	28

Population Distribution.....	28
Field Office Distribution.....	28
Reproduction and Survivorship	29
Threats from Human Activity.....	29
2.2.5 Colorado River Species	29
2.2.5.1 Consultation History and Historic Depletions.....	30
2.2.5.2 Colorado Pikeminnow (<i>Ptychocheilus lucius</i>)	31
Species Description	31
Life History	31
Population Distribution.....	32
Field Office Distribution.....	32
Reproduction and Survivorship	32
Threats From Human Activity	32
2.2.5.3 Razorback sucker (<i>Xyrauchen texanus</i>)	33
Species Description	33
Life History	33
Population Distribution.....	33
Field Office Distribution.....	34
Reproduction and Survivorship	34
Threats From Human Activity	34
2.2.5.4 Bonytail (<i>Gila elegans</i>).....	34
Species Description	34
Life History	34
Population Distribution.....	35
Field Office Distribution.....	35
Reproduction and Survivorship	35
Threats From Human Activity	35
2.2.5.5 Humpback chub (<i>Gila cypha</i>).....	35
Species Description	35
Life History	36
Population Distribution.....	36
Field Office Distribution.....	36
Reproduction and Survivorship	36
Threats From Human Activity	36
2.2.6 Platte River System Species	37
3.0 METHODS AND CONTEXT OF THE ANALYSIS	37
3.1 ACTIVITY DESCRIPTIONS.....	37
3.1.1 Air Quality	37
3.1.2 Cultural Resources.....	38
3.1.3 Forestry.....	38
3.1.4 Lands and Realty	39
3.1.5 Livestock Grazing.....	39
3.1.6 Minerals.....	40
3.1.6.1 Leasable Minerals	40
3.1.6.2 Leasable Minerals (Solid).....	40
3.1.6.3 Leasable Minerals (Fluid).....	40
3.1.6.4 Locatable Minerals.....	41
3.1.6.5 Salable Minerals	42
3.1.7 Paleontology and Natural History.....	42
3.1.8 Recreation and Visitor Services.....	43
3.1.8.1 Special Recreation Management Areas.....	43
3.1.9 Soil.....	43
3.1.10 Transportation, Access, and Travel Management.....	43
3.1.11 Vegetation.....	44
3.1.12 Visual Resources.....	45
3.1.13 Watershed and Water Quality (Surface and Groundwater).....	45
3.1.14 Wildland Fire and Fuels.....	46
3.1.15 Wildlife and Fish Habitat.....	47
3.1.16 Special Management Areas.....	47

3.1.16.1	Areas of Critical Environmental Concern	48
3.1.16.2	Wilderness Study Areas	48
3.1.16.3	Wild and Scenic Rivers	48
3.2	EFFECTS ANALYSIS	48
3.3	EFFECTS DETERMINATIONS	49
3.3.1	Threatened and Endangered Species (includes recently de-listed species).....	49
3.3.2	Candidate and Proposed Species (includes Nonessential Experimental Populations).....	50
3.4	COORDINATION/CONSERVATION MEASURES	50
4.0	EFFECTS DETERMINATIONS BY SPECIES	54
4.1	BLACK-FOOTED FERRET	54
4.1.1	Effects Determination for BLM-Administered Programs.....	55
4.1.1.1	Air Quality	55
4.1.1.2	Cultural Resources	55
4.1.1.3	Forestry	55
4.1.1.4	Lands and Realty	55
4.1.1.5	Livestock Grazing	55
4.1.1.6	Minerals	55
4.1.1.7	Paleontology and Natural History	56
4.1.1.8	Recreation and Visitor Services	56
4.1.1.9	Soil.....	56
4.1.1.10	Transportation, Access, and Travel Management	56
4.1.1.11	Vegetation.....	56
4.1.1.12	Visual Resources.....	57
4.1.1.13	Watershed and Water Quality (Surface and Groundwater).....	57
4.1.1.14	Wildland Fire and Fuels.....	57
4.1.1.15	Wildlife and Fish Habitat.....	57
4.1.1.16	Special Management Areas.....	57
4.1.2	Management Status Recovery and Conservation Planning.....	58
4.1.2.1	Conservation Measures	58
4.1.2.2	Best Management Practices	60
4.1.3	Determinations Summary	61
4.2	GRIZZLY BEAR	61
4.2.1	Effects Determination for BLM-Administered Programs.....	62
4.2.1.1	Air Quality	62
4.2.1.2	Cultural	62
4.2.1.3	Forestry	62
4.2.1.4	Lands and Realty	62
4.2.1.5	Livestock Grazing	62
4.2.1.6	Minerals	63
4.2.1.7	Paleontology and Natural History	63
4.2.1.8	Recreation and Visitor Services	63
4.2.1.9	Soil.....	63
4.2.1.10	Transportation, Access, and Travel Management	63
4.2.1.11	Vegetation.....	64
4.2.1.12	Visual Resources.....	64
4.2.1.13	Watershed and Water Quality (Surface and Groundwater).....	64
4.2.1.14	Wildland Fire and Fuels.....	64
4.2.1.15	Wildlife and Fish Habitat.....	64
4.2.1.16	Special Management Areas.....	64
4.2.2	Management Status, Recovery, and Conservation Planning.....	65
4.2.2.1	Conservation Measures (from the Grizzly Bear Programmatic BA).....	65
4.2.2.2	Best Management Practices	66
4.2.3	Determinations Summary	67
4.3	CANADA LYNX.....	68
4.3.1	Effects Determination for BLM-Administered Programs.....	68
4.3.1.1	Air Quality	68
4.3.1.2	Cultural	68
4.3.1.3	Forestry	68
4.3.1.4	Lands and Realty	69
4.3.1.5	Livestock Grazing.....	69

4.3.1.6	Minerals	69
4.3.1.7	Paleontology and Natural History	69
4.3.1.8	Recreation and Visitor Services	69
4.3.1.9	Soil.....	70
4.3.1.10	Transportation, Access, and Travel Management	70
4.3.1.11	Vegetation.....	70
4.3.1.12	Visual Resources.....	70
4.3.1.13	Watershed and Water Quality (Surface and Groundwater).....	70
4.3.1.14	Wildland Fire and Fuels.....	71
4.3.1.15	Wildlife and Fish Habitat.....	71
4.3.1.16	Special Management Areas.....	71
4.3.2	Management Status Recovery and Conservation Planning.....	71
4.3.2.1	Conservation Measures	72
4.3.2.2	Best Management Practices	74
4.3.3	Determinations Summary	77
4.4	GRAY WOLF.....	77
4.4.1	Effects Determination for BLM-Administered Programs.....	77
4.4.1.1	Air Quality	77
4.4.1.2	Cultural	77
4.4.1.3	Forestry	77
4.4.1.4	Lands and Realty	78
4.4.1.5	Livestock Grazing.....	78
4.4.1.6	Minerals.....	78
4.4.1.7	Paleontology and Natural History	78
4.4.1.8	Recreation and Visitor Services	78
4.4.1.9	Soil.....	79
4.4.1.10	Transportation, Access, and Travel Management	79
4.4.1.11	Vegetation.....	79
4.4.1.12	Visual Resources.....	79
4.4.1.13	Watershed and Water Quality (Surface and Groundwater).....	79
4.4.1.14	Wildland Fire and Fuels.....	79
4.4.1.15	Wildlife and Fish Habitat.....	80
4.4.1.16	Special Management Areas.....	80
4.4.2	Management Status, Recovery, and Conservation Planning.....	80
4.4.2.1	Conservation Measures	81
4.4.2.2	Best Management Practices	81
4.4.3	Determinations Summary	81
4.5	BALD EAGLE	82
4.5.1	Effects Determination for BLM-Administered Programs.....	82
4.5.1.1	Air Quality	82
4.5.1.2	Cultural	82
4.5.1.3	Forestry	83
4.5.1.4	Lands and Realty	83
4.5.1.5	Livestock Grazing.....	83
4.5.1.6	Minerals	83
4.5.1.7	Paleontology and Natural History	84
4.5.1.8	Recreation and Visitor Services	84
4.5.1.9	Soil.....	84
4.5.1.10	Transportation, Access, and Travel Management	84
4.5.1.11	Vegetation.....	84
4.5.1.12	Visual Resources.....	85
4.5.1.13	Watershed and Water Quality (Surface and Groundwater).....	85
4.5.1.14	Wildland Fire and Fuels.....	85
4.5.1.15	Wildlife and Fish Habitat.....	85
4.5.1.16	Special Management Areas.....	85
4.5.2	Management Status Recovery and Conservation Planning.....	85
	Bald Eagle Conservation Measures	85
4.5.3	Determinations Summary	87
4.6	WESTERN YELLOW-BILLED CUCKOO	88
4.6.1	Effects Determination for BLM-Administered Programs.....	88
4.6.1.1	Air Quality	88

4.6.1.2	Cultural	88
4.6.1.3	Forestry	88
4.6.1.4	Lands and Realty	88
4.6.1.5	Livestock Grazing	89
4.6.1.6	Minerals	89
4.6.1.7	Paleontology and Natural History	89
4.6.1.8	Recreation and Visitor Services	89
4.6.1.9	Soil	89
4.6.1.10	Transportation, Access, and Travel Management	89
4.6.1.11	Vegetation	90
4.6.1.12	Visual Resources	90
4.6.1.13	Watershed and Water Quality (Surface and Groundwater)	90
4.6.1.14	Wildland Fire and Fuels	90
4.6.1.15	Wildlife and Fish Habitat	90
4.6.1.16	Special Management Areas	91
4.6.2	Management Status Recovery and Conservation Planning	91
4.6.3	Determinations Summary	92
4.7	UTE LADIES' TRESSES ORCHID	93
4.7.1	Effects Determination for BLM-Administered Programs	93
4.7.1.1	Air Quality	93
4.7.1.2	Cultural	93
4.7.1.3	Forestry	93
4.7.1.4	Lands and Realty	93
4.7.1.5	Livestock Grazing	94
4.7.1.6	Minerals	94
4.7.1.7	Paleontology and Natural History	94
4.7.1.8	Recreation and Visitor Services	94
4.7.1.9	Soil	94
4.7.1.10	Transportation, Access, and Travel Management	94
4.7.1.11	Vegetation	95
4.7.1.12	Visual Resources	95
4.7.1.13	Watershed and Water Quality (Surface and Groundwater)	95
4.7.1.14	Wildland Fire and Fuels	95
4.7.1.15	Wildlife and Fish Habitat	95
4.7.1.16	Special Management Areas	95
4.7.2	Management Status Recovery and Conservation Planning	96
4.7.2.1	Conservation Measures	96
4.7.2.2	Best Management Practices	99
4.7.3	Determinations Summary	101
4.8	COLORADO RIVER FISH SPECIES	102
4.8.1	Effects Determination for BLM-Administered Programs	102
4.8.1.1	Air Quality	102
4.8.1.2	Cultural	102
4.8.1.3	Forestry	102
4.8.1.4	Lands and Realty	102
4.8.1.5	Livestock Grazing	102
4.8.1.6	Minerals	103
4.8.1.7	Paleontology and Natural History	103
4.8.1.8	Recreation and Visitor Services	103
4.8.1.9	Soil	103
4.8.1.10	Transportation, Access, and Travel Management	103
4.8.1.11	Vegetation	103
4.8.1.12	Visual Resources	103
4.8.1.13	Watershed and Water Quality (Surface and Groundwater)	103
4.8.1.14	Wildland Fire and Fuels	104
4.8.1.15	Wildlife and Fish Habitat	104
4.8.1.16	Special Management Areas	104
4.8.2	Management Status Recovery and Conservation Planning	104
4.8.2.1	Conservation Measures	104
4.8.3	Determinations Summary	104

5.0 SUMMARY OF CUMULATIVE EFFECTS 105

6.0 SUMMARY OF EFFECTS DETERMINATIONS..... 106

7.0 SUMMARY OF SPECIES-SPECIFIC COORDINATION AND CONSERVATION MEASURES 107

7.1 BLACK-FOOTED FERRET..... 107

7.1.1 Conservation Measures..... 108

7.1.2 Best Management Practices 110

7.2 GRIZZLY BEAR..... 110

7.2.1 Conservation Measures..... 111

7.2.2 Best Management Practices 112

7.3 CANADA LYNX..... 113

7.3.1 Conservation Measures..... 114

7.3.2 Best Management Practices 116

7.4 GRAY WOLF..... 118

7.4.1 Conservation Measures..... 119

7.4.2 Best Management Practices 119

7.5 BALD EAGLE 120

7.5.1 Conservation Measures..... 120

Bald Eagle Survey Methodology Guidelines for Breeding/Nesting Site Populations..... 122

Bald Eagle Habitat Management Zones..... 130

7.6 WESTERN YELLOW-BILLED CUCKOO 132

7.6.1 Conservation Recommendations 132

7.6.2 Best Management Practices 132

7.7 UTE LADIES’ TRESSES..... 133

7.7.1 Conservation Measures..... 134

7.7.2 Best Management Practices 137

7.8 COLORADO RIVER FISH SPECIES 139

7.8.1 Conservation Measures..... 139

7.8.2 Best Management Practices 140

8.0 REFERENCES..... 8-141

LIST OF TABLES

Table 1. Species List for the Pinedale Resource Management Plan 10

Table 2. Black-footed Ferret Surveys in the Pinedale Field Office Area 2001–2008..... 12

Table 3. Historic and Post-Formal Consultation Water Depletions 1983–1999 and 2002–Present 31

Table 4. Future Water Depletions..... 31

Table 5. BLM Requirements for Inventory, Protection, and Monitoring of T&E/Special Status Species 52

Table 6. Summary of Effects Determinations..... 106

ACRONYMS

2-D	Two-Dimensional
3-D	Three-Dimensional
ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
APD	Application for Permit to Drill
APHIS-WS ADC	Animal and Plant Health Inspections Service—Wildlife Services, Animal Damage Control
APLIC	Avian Power Line Interaction Committee
AQTSD	Air Quality Technical Support Document
AUM	Animal Unit Month
BA	Biological Assessment

BAER	Burned Area Emergency Rehabilitation
BI	Beneficial Impact
BLM	Bureau of Land Management
BO	Biological Opinion
BOR	Bureau of Reclamation
BRD	Biological Resources Division
BTNF	Bridger-Teton National Forest
CBM	Coalbed Methane
CCC	Civilian Conservation Corps
CFR	<i>Code of Federal Regulations</i>
CO	Carbon Monoxide
COA	Condition of Approval
CSU	Controlled Surface Use
DEIS	Draft Environmental Impact Statement
DPS	Distinct Population Segments
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FHA	Federal Highway Administration
GIS	Geographic Information System
GTNP	Grand Tetons National Park
GYA	Greater Yellowstone Area
IGBC	Interagency Grizzly Bear Committee
LAA	<i>likely to adversely affect</i>
LAU	Lynx Analysis Unit
LCAS	Lynx Conservation Assessment Strategy
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NE	No Effect
NEPA	National Environmental Policy Act
NER	National Elk Refuge
NFWF	National Fish and Wildlife Foundation
NHPA	National Historic Preservation Act
NJ	Not Likely to Jeopardize the Continued Existence
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOS	Notice of Staking
NO _x	Nitrogen Oxide
NRCS	National Resource Conservation Service
NSO	No Surface Occupancy
OHV	Off-Highway Vehicle
PAH	Polyaromatic Hydrocarbons
PCA	Primary Conservation Area
PFC	Proper Functioning Condition
PFO	Pinedale Field Office
PSD	Prevention of Significant Deterioration
R&PP	Recreation and Public Purposes
RAMP	Recreation Area Management Plan
RMP	Resource Management Plan

ROD	Record of Decision
ROW	Right-of-Way
SO ₂	Sulfur Dioxide
SRMA	Special Recreation Management Area
T&E	Threatened and Endangered
U.S.C.	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
VRM	Visual Resource Management
WAAQS	Wyoming Ambient Air Quality Standards
WDEZ-AQD	Wyoming Department of Environmental Quality–Air Quality Division
WFU	Wildland Fire Use
WGFD	Wyoming Game and Fish Department
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WYNDD	Wyoming Natural Diversity Database
YNP	Yellowstone National Park

1.0 INTRODUCTION

This biological assessment (BA), prepared for the Final Environmental Impact Statement (EIS), describes the comprehensive analysis of alternatives for the planning and management of public lands and resources administered by the Bureau of Land Management (BLM) in the Pinedale area of Wyoming. The public lands and federal mineral estate within the Pinedale planning area are the subject of the planning effort (final EIS) and this document. This document, a component of the RMP/EIS, is prepared in compliance with the National Environmental Policy Act (NEPA). The Act requires that an EIS be prepared for any federal actions that might significantly affect the human environment. The preparation and adoption of an RMP by BLM is such a federal action.

Under provisions of the federal Endangered Species Act (ESA) of 1973, as amended (16 USC Section 1531, et seq.), federal agencies are directed to conserve threatened and endangered (T&E) species and the habitats in which these species are found. Section 7(c) of the ESA requires the BLM Pinedale Field Office (PFO) to complete a BA to determine the effects of implementing the RMP on listed and proposed species, based on compliance with Section 102 of NEPA. Federal agencies are required to consider, avoid, or prevent adverse impacts to fish and wildlife species. Federal agencies are also required to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of T&E species or their Critical Habitat. The ESA requires action agencies, such as BLM, to not only consult or confer with the U.S. Fish and Wildlife Service (USFWS) when there is discretionary federal involvement or control over the action but also ensure that resources are afforded adequate consideration and protection. Formal consultation becomes necessary when the action agency requests consultation after determining that the proposed action is likely to adversely affect listed species or Critical Habitat, or the aforementioned federal agencies do not concur with the action agency's finding (USFWS, Consultation Handbook, 1998). In addition, under the 1994 Memorandum of Understanding (MOU) and the 2000 Memorandum of Agreement (MOA) among BLM, U.S. Forest Service (USFS), USFWS, and National Marine Fisheries Service (NMFS), all four agencies agreed to promote the conservation of candidate and proposed species (Special Status) and streamline the Section 7 consultation and coordination process.

This programmatic BA provides documentation and analysis for the proposed action to meet the federal requirements and agreements set forth among the federal agencies. It addresses federally listed T&E, candidate, and proposed species, and it has been prepared under the 1973 ESA Section 7 regulations, in accordance with not only the 1998 procedures set forth by USFWS and NMFS but also the 1994 and 2000 MOU and MOA, respectively. Site-specific evaluations would be conducted for activities authorized under the RMP, and consultation or conference would occur with the USFWS for those activities that may affect T&E, candidate, or proposed species. In addition, BLM would evaluate site-specific activities that may affect BLM Wyoming Sensitive Species (Sensitive Species), in compliance with BLM Manual 6840. This BA will not address Sensitive Species; these are addressed in the final EIS.

As part of this BA, BLM requests formal consultation for proposed actions that would lead to water depletion (consumption) in the Colorado River systems. This consultation is required for the four federally listed species of fish in the upper Colorado River system: endangered Colorado pikeminnow (*Ptychocheilus lucius*), endangered humpback chub (*Gila cypha*), endangered bonytail chub (*Gila elegans*), and endangered razorback sucker (*Xyrauchen texanus*).

In addition, formal consultation and conferencing are requested for the federally endangered black-footed ferret (*Mustela nigripes*), endangered Kendall Warm Springs dace (*Rhinichthys osculus thermalis*), threatened Canada lynx (*Lynx canadensis*), and threatened Ute ladies' tresses plant (*Spiranthes diluvialis*). The grizzly bear (*Ursus arctos horribilis*), the bald eagle (*Haliaeetus leucocephalus*), and the non-

essential, experimental population of the gray wolf (*Canis lupus*) have recently been removed from the endangered species list.

BLM also requests recommendations from the USFWS on the management of habitat for candidate Western yellow-billed cuckoo (*Coccyzus americanus*). This species, which is a candidate for listing as T&E, may occur within the planning area. BLM has a requirement under BLM Manual 6840 to protect candidate species from further population declines.

1.1 DESCRIPTION OF THE PREFERRED ALTERNATIVE (ALTERNATIVE 4)

Alternative 4 is designed to evaluate the impacts of optimizing production of oil and gas resources while providing the appropriate level of environmental protection for all competing resources. Land allocations and areas unavailable for oil and gas leasing would be implemented. Additional goals of Alternative 4 are to protect and sustain resources and land uses, such as livestock grazing and recreation, in the planning area. To meet these additional goals, BLM would implement objectives and management actions that include restrictions and protective impact minimizing measures for each resource and land use.

1.1.1 Minerals

Alternative 4 would make available approximately 1,024,880 acres for oil and gas leasing and development (final EIS Table 2-32, p. 2-169). The planning area would be divided into four areas for management of oil and gas leasing and development (final EIS Map 2-9). “Intensively Developed Fields” would be managed for intensive oil and gas activities while protecting wildlife habitats to the extent practicable. “Minimally Developed Areas” would be managed for protection of important values during oil and gas exploration but would provide an opportunity for intensive oil and gas activities. “Large Block NSO Areas” would be managed for protection of wildlife habitats through offering oil and gas leases with No Surface Occupancy (NSO) stipulations. “Unavailable Areas” would be managed for protection of wildlife habitats through indefinitely postponing the availability of lands for oil and gas leasing. Transportation planning would be required in all areas to reduce road density, duplication of routes, and unnecessary routes. Sensitive aquatic species habitats would be maintained or improved. In addition, 13,770 acres (New Fork Potholes and Trapper’s Point Areas of Critical Environmental Concern [ACEC], Civilian Conservation Corps [CCC] Ponds Special Recreation Management Area [SRMA], East Fork River Unit Wild and Scenic River [WSR], and several sensitive cultural sites) would be withdrawn from locatable mineral entry and land disposal.

1.1.2 Other Resources

The integrity of the visual setting of national historic trails would be protected from surface disturbing activities by relocating or redesigning projects within 2 miles of either side of the trail to conform to a Visual Resource Management (VRM) Class II designation. The Preferred Alternative would also provide for prescribed and natural wildland fire management to emulate historic natural fire regimes. The current permitted animal unit months (AUM) for livestock grazing would be maintained unless monitoring indicates a need for adjustment. The Preferred Alternative would limit off-highway vehicle (OHV) use in the Desert General Use area to existing roads and trails. BLM would complete Recreation Area Management Plans (RAMP) to provide an array of outdoor recreation activities, settings, and experiences on public lands for local residents and visitors. The Green and New Fork Rivers and CCC Ponds SRMAs would be established. Transportation planning would be conducted to not only provide access to and across public lands but also control the density and distribution of roads. Vegetation would be managed to

support wildlife habitat and livestock grazing needs, control soil erosion and provide riparian stability, control noxious weeds, and protect Special Status Species. The number of acres in VRM Class IV would be reduced to 249,940, and the number of acres in classes II and III would be increased. Soil erosion and impacts to riparian areas would be limited by working with the State to prohibit the discharge of produced waters to streams or other non-isolated surface features. The use of high-quality produced waters to assist in reclamation could be considered on a case-by-case basis, would be limited in scope, and would be governed by numerous operating standards (Appendix 3). Proposals for alternative energy development would be considered on a case-by-case basis.

1.2 SPECIAL MANAGEMENT AREAS

The Rock Creek and Beaver Creek ACECs would be retained. New ACECs would be designated in the Trapper's Point and New Fork Potholes areas (5,980 acres). The Miller Mountain, Ross Butte, and Wind River Front Management Areas would be established (303,350 acres). Four river units would be managed as suitable for inclusion in the WSR System: East Fork, Scab Creek, Silver Creek, and upper Green River (10,440 acres).

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.1 DESCRIPTION OF THE PLANNING AREA

The Pinedale planning area comprises approximately 922,880 acres of BLM-administered public land surface and 1,199,280 acres of federal mineral estate in portions of Sublette and Lincoln counties in southwestern Wyoming. The towns of Pinedale, Boulder, Cora, and Daniel are located in the northern portion of the planning area; Big Piney and Marbleton in the central area; and La Barge in the southern portion. The planning area is located about 100 miles south of Yellowstone National Park. Teton and Bridger National Forests bound the planning area on the north and west, and Bridger National Forest and Bridger Wilderness Area bound the area on the east. The Gros Ventre Range is north of the planning area, the Wind River Mountains are on the east, and the Wyoming and Hoback Ranges are on the west. The area varies in elevation from about 6,500 feet in the southwestern corner up to 9,500 feet along some of the mountain fronts. Mesas and buttes form the most common topographic expressions across most of the planning area. This BA provides specific management direction to not only prevent or address potential conflicts among energy resources development, recreational activities, livestock grazing, important wildlife habitat, and other important land and resource uses in the planning area but also determine the appropriate levels and timing of these activities. Decisions made as a result of the Record of Decision (ROD) for this Pinedale RMP will result in replacing the existing Pinedale RMP (December 1988).

2.2 LISTING STATUS AND RECOVERY PLANS

Table 1 lists species identified as federally listed within Sublette and Lincoln counties within BLM-administered lands addressed in the RMP.

Table 1. Species List for the Pinedale Resource Management Plan

Common Name	Scientific Name	Status	Recovery Plan or Outline? (Y/N)
Mammals			
Black-footed ferret	<i>Mustela nigripes</i>	Endangered	Y
Grizzly bear***	<i>Ursus arctos horribilis</i>	BLM Sensitive Species	Y
Canada lynx	<i>Lynx canadensis</i>	Threatened	Y
Gray wolf***	<i>Canis lupus</i>	Nonessential experimental population	Y
Avifauna			
Bald eagle***	<i>Haliaeetus leucocephalus</i>	BLM Sensitive Species	Y
Whooping crane*	<i>Grus americana</i>	Endangered	Y
Interior Least tern*	<i>Sterna antillarum</i>	Endangered	Y
Piping plover*	<i>Charadrius melodus</i>	Threatened	Y
Eskimo curlew*	<i>Numenius borealis</i>	Endangered	N
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	N/A
Fish			
Kendall Warm Springs dace	<i>Rhinichthys osculus thermalis</i>	Endangered	Y
Colorado pikeminnow**	<i>Ptychocheilus lucius</i>	Endangered	Y
Humpback chub**	<i>Gila cypha</i>	Endangered	Y
Bonytail chub**	<i>Gila elegans</i>	Endangered	Y
Razorback sucker**	<i>Xyrauchen texanus</i>	Endangered	Y
Pallid sturgeon*	<i>Scaphirhynchus albus</i>	Endangered	Y
Plants			
Ute ladies' tresses	<i>Spiranthes diluvialis</i>	Threatened	Y
Western prairie fringed orchid*	<i>Platanthera praeclara</i>	Threatened	Y

* Platte River system species

** Colorado River system species

*** Recently removed from the Endangered Species List

The following information identifies biological data on listed species, including Special Status Species that are present, or have the potential to be present, within the planning area. Information includes the listing status, species description, life history, population distribution, field office distribution, reproduction and survivorship, and threats from human activity.

2.2.1 Mammals

2.2.1.1 Black-footed Ferret (*Mustela nigripes*)

Listing Status: Federal—Endangered, 1967

Species Description

The black-footed ferret is a member of the weasel family (Mustelidae), which includes the skunk, badger, fisher, marten, otter, mink, wolverine, and weasel. Black-footed ferrets have a long thin body, short legs, and a very flexible spine, enabling them to run through small tunnels and turn in tight spaces. Adults are 18 to 22 inches (.46 to .55m) long, and weigh between 1 and 2½ pounds (.450 to 1.135 kg). Ferrets live alone, except during the breeding season. The kits are born in May or June, usually in litters of three or four.

Larger than weasels, black-footed ferrets are long, slender-bodied animals similar in size to minks. The ferret is characterized by a brownish-black mask across the face, a brownish head, black feet and legs, and a black tip on the tail. The middle of the back has brown-tipped guard hairs that create the appearance of a dark saddle.

Life History

The black-footed ferret is closely associated with prairie dogs, depending almost entirely on the prairie dog for its survival. The black-footed ferret's diet may also contain some other small mammals and birds. Potential areas of ferret habitat can be delineated because of the ferret's association with prairie dogs. The planning area is within the range of white-tailed prairie dogs, and ferrets may occur within colonies of this species.

Their body adaptations allow them to live underground in prairie dog colonies where the temperature is more uniform than on the surface, it is easier to conserve water, and they are protected from surface predators. Potential predators include badgers, coyotes, bobcats, golden eagles, great-horned owls, ferruginous hawks, and domestic dogs. Primarily nocturnal, ferrets spend much of their time below ground and are rarely seen during daylight hours. This behavior is probably one reason for so few sightings recorded in this planning area and elsewhere. Black-footed ferrets are strong and limber, enabling them to catch and kill prey larger than themselves.

The USFWS has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog town or complex of greater than 200 acres (80.9 hectares), or a complex of two or more neighboring prairie dog towns, each less than 4.3 miles (6.9 km) from the other and totaling 200 acres (80.9 hectares) for white-tailed prairie dogs, and whose density meets or exceeds 8 burrows per acre (.4047 hectares) (USFWS 1989). Black-footed ferret habitats are directly associated with the presence of prairie dog colonies. Grassland plains are the predominant habitats associated with the ferret and prairie dog.

Population Distribution

Black-footed ferrets are the only ferrets native to North America. They have lived in North America for at least 30,000 years and have lived everywhere that prairie dogs have lived. At one time, black-footed ferrets and prairie dogs ranged throughout the Great Plains and intermountain basins of the Rockies, from Canada to Mexico. The present range is unknown, but it is certainly much smaller than the historic range. Records (mostly unverified) from Montana, North Dakota, South Dakota, Nebraska, Oklahoma, Kansas,

Colorado, Wyoming, and New Mexico were reported in the 1973 Proceedings of the Black-footed Ferret and Prairie Dog Workshop–September 4-6 (Clark 1973).

Black-footed ferrets were considered extinct until a small population was discovered near Meeteetse, Wyoming, in 1981. Following outbreaks of distemper, surviving black-footed ferrets were brought into captivity, and a captive breeding program was initiated. Black-footed ferrets were reintroduced in the Shirley Basin of central Wyoming in 1991 (see Black-footed Ferret Nonessential Experimental Population in Shirley Basin). This reintroduction effort continues with the aid of supplemental releases, when possible.

Field Office Distribution

Populations of black-footed ferrets are undetermined in the planning area. Two Partially buried black-footed ferret skulls were discovered in 2001 and 2002 at different locations on the Anticline Project Area–Natural Gas Project Environmental Impact Statement area (Mesa area), located west of Pinedale, Wyoming.

Black-footed ferret surveys have been conducted throughout the field office area for a diversity of proposed projects and are on file at the PFO. These surveys include, but are not limited to, projects for 3-D seismic lines, access roads, well pads, reserve pits, water pipelines, ancillary facilities for oil and gas development, and U.S. Bureau of Reclamation (BOR) lands. The Wyoming Game and Fish Department (WGFD) has compiled black-footed ferret sighting reports, which include areas within the planning area. Surveys that have been conducted within the planning area, from 2001–2006, are summarized in Table 2 and have resulted in a range of findings. Generally, no black-footed ferrets or ferret signs have been found; however, occasionally, biologists have found skulls that have been identified as black-footed ferret.

Table 2. Black-footed Ferret Surveys in the Pinedale Field Office Area 2001–2008

Project Location	Date of Survey	Survey Method	Survey Results
Section 9, T31N, R109W	July 2008	Nocturnal Spotlight	No ferret or sign found.
Section 3, T31N, R109W	July 2008	Nocturnal Spotlight	No ferret or sign found.
Sections 13, 14, 23, and 24 T31N, R109W	July 2007	Nocturnal Spotlight	No ferret or sign found. Skull observed.
Section 4, 33 and 32, T31N, R109W	October 2007	Nocturnal Spotlight	No ferret or sign found.
Section 25, T31N, R109W	September 2007	Nocturnal Spotlight	No ferret or sign found.
Section 13, 24, 26, 27 T28N, R109W	July 2006	Nocturnal Spotlight	No ferret or sign found.
Section 5, 7, 17, 18, T28N, R108W	July 2006	Nocturnal Spotlight	No ferret or sign found.
Sections 15, 16, 21, 22, 28, 33 and 34, T29N R108W	July 2006	Nocturnal Spotlight	No ferret or sign found.
Section 11, T31N, R112W	July 2006 and July 2005	Nocturnal Spotlight	No ferret or sign found.
Section 23,24,25 and 26, T31N, R109W	October 2004	Nocturnal Spotlight	No ferret or sign found.
Section 33 and 34, T32N, R109W	October 2003	Nocturnal Spotlight	No ferret or sign found.

Section 14, 23, and 24 T31N, R109W	July 2002	Nocturnal Spotlight	No ferret or sign found. Skull, possible scat, fur, and trenches observed before the survey.
Section 3 and 5 T31N, R109W; Sections 33 and 34 T32N, R109W	September 2002	Nocturnal Spotlight	No ferret or sign found. Skull, possible scat, fur, and trenches observed before the survey.
Sections 21, 20, 28, and 29, T28N, R109W	July 2001	Nocturnal Spotlight	No ferret or sign found.
Section 1, T28N, R110W, and Section 6 and 7, T28N, R109W	July 2001	Nocturnal Spotlight	No ferret or sign found.
Sections 29 and 30, T29N, R 108W	July 2001	Nocturnal Spotlight	No ferret or sign found.
Section 16, T29N, R108W	July 2001	Nocturnal Spotlight	No ferret or sign found.
Section 15, T29N, R109W	July 2001	Nocturnal Spotlight	No ferret or sign found.
Sec. 2, T31N,R109W	July 2001	Nocturnal Spotlight	No ferret or sign found.

Reproduction and Survivorship

Black-footed ferrets have not been observed mating in the wild, but captive black-footed ferrets have been observed breeding in March and early April. Support for believing wild black-footed ferrets breed during this period comes from an adult male black-footed ferret road-killed in early March in northwestern Wyoming. That ferret showed spermatogenesis. Further evidence comes from winter snow tracking information that indicated significant increases in movements by individuals during this period.

The time of parturition is also unknown but is suspected to occur in May and early June. Captive black-footed ferrets have a known gestation period of 42–45 days, and litter size ranged between three and four in Wyoming and between three and five in South Dakota. In Wyoming, black-footed ferret family units remain together until late August. At present juveniles still rely on their dam for food to some extent but are frequently separated from siblings in different burrows. The young spend more and more time on their own and are independent by mid-September (Clark 1973).

Threats From Human Activity

Past animal damage control programs probably have had the greatest impact on ferret mortality. From the 1920s until the mid-1970s, predator control through trapping and poisoning resulted in significant black-footed ferret mortality (67 percent of positive ferret reports). Secondary poisoning of ferrets is also known to have occurred from highly toxic rodenticides (or predicides) used in prairie dog eradication programs. Widespread poisoning of prairie dogs and conversion of their habitat to agricultural cultivation drastically reduced prairie dog abundance and distribution in the last century. This severe decline of prairie dogs resulted in a concomitant and near-fatal decline in ferrets.

Varmint hunters seek out prairie dog colonies for target shooting. Because few people can distinguish among a ferret, a burrowing owl, or a prairie dog peering over a prairie dog mound, it is assumed that target shooters have accidentally killed some black-footed ferrets.

Land use activities such as rights-of-way (ROW), energy developments, use permits, urban expansion, mineral extraction, and grazing projects can reduce or fragment ferret habitat and therefore require inventory and clearances. Habitat losses have been minimized through coordination and management prescriptions requiring surveys and avoidance of potential black-footed ferret habitat.

2.2.1.2 Grizzly Bear (*Ursus arctos horribilis*)

Listing Status: BLM 6840 Sensitive Species

Through the Wyoming Game and Fish Commission, the State of Wyoming adopted a Wyoming Grizzly Bear Management Plan in 2002 as a requirement of the USFWS before delisting (Moody et al. 2002). The planning area is not within the Primary Conservation Area (PCA) for grizzly bear, however it is within the Grizzly Bear Data Analysis Unit (derived by the WGFD) and is considered an ecosystem transitional zone containing the southern most portion of known grizzly bear activity in the Greater Yellowstone Ecosystem (Moody et al. 2005). Information for this section was derived from the Grizzly Bear Recovery Plan (USFWS 1993), draft Conservation Strategy for the Grizzly Bear in the Yellowstone Area (USFWS 2000), Interagency Grizzly Bear Guidelines (USFS 1986), and Wyoming Grizzly Bear Management Plan (Moody et al. 2002).

On March 29, 2007, the USFWS published a Federal Register notice (72 FR 14865) announcing that the Yellowstone Distinct Population Segment (DPS) of grizzly bears is a recovered population that no longer meets the definition of threatened or endangered under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.). The delisting of the Yellowstone DPS does not change the threatened status of the remaining grizzly bears in the lower 48 states. The BLM is committed to implement the 2007 Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area (GYA) and is participating in the Yellowstone Grizzly Bear Coordinating Committee to ensure the continued conservation of the grizzly bear in the GYA.

Species Description

The grizzly bear (hereafter referred to as grizzly) is one of the largest North American land mammals and is the largest North American omnivore. Male grizzlies stand about 8 feet tall, 3.5 to 4.5 feet at the hump when on all fours, and weight from 400 to 600 pounds (and occasionally more than 800). Females are smaller, usually weighing between 250 and 350 pounds. Although a standing grizzly is commonly perceived to be in a threatening pose, grizzlies stand when they are simply curious or surveying their surroundings. Otherwise, they generally remain on all fours. Unlike the black bear (*Ursus americanus*), the grizzly has a rather concave face, high-humped shoulders, and long, curved claws. The grizzly's thick fur, which varies from light brown to nearly black, sometimes appears frosty—hence, the name “grizzly,” or the less common “silvertip.” The grizzly has shorter, rounder ears than the black bear.

Life History

Key habitat characteristics include the following: 1) availability of preferred foods—i.e., whitebark pine (*Pinus albicaulis*) seeds, army cutworm moths (*Euxoa auxiliaries*), large ungulates (newly born young and winter kills), and spawning cutthroat trout (*Oncorhynchus clarki*) (Mattson et al. 1991); 2) sufficient cover for bedding and security (Moody et al. 2002; USFWS 1993); and 3) denning locations (USFWS 1993).

The previously mentioned preferred foods provide some of the highest sources of digestible energy to grizzlies in the Yellowstone area (Mealey 1975; Servhenn et al. 1986). These foods are so specific to the grizzly diet that monitoring programs focus specifically on these items. However, grizzlies are

opportunistic feeders and the search for food has a major influence on a grizzly's movements. Because of an inability to digest cellulose, herbaceous plants are eaten as they emerge when content is highest in starch, sugars, and protein. Other sources of protein include roots, bulbs, tubers, fungi, tree cambium, berries, nuts, and fish (Stebler 1972; Mealey 1975; Hamer et al. 1977).

There is a high preference for forested habitat that provides protection from threats and disturbances. Most suitable grizzly habitat, biologically and socially, is in areas with large tracts of undisturbed habitat and minimal human disturbance (Moody et al. 2002). Less than 10 percent of bedding areas are farther than a couple of yards from desirable cover (Blanchard 1978).

Winter hibernation, which lasts about 5 months, is brought on by the decreasing length of daylight and inclement weather. In preparation for this period, grizzlies excavate dens that are usually found at high elevation, on steep slopes where wind and topography cause an accumulation of deep snow, and well away from areas of human activity (USFWS 1993).

Adult grizzlies are generally solitary except when caring for young or during breeding periods. Strict territoriality is unknown, with intraspecific defense limited to specific food concentrations, defense of young, and surprise encounters. However, each bear appears to have a minimum distance within which another bear or person must not enter; any intrusion of this distance may evoke a threat or an attack (Mundy and Flook 1973; Herrero 1978; USFWS 1993). Mating season is the only time that adult males and females tolerate one another, and then it is only during the estrous period. Other social affiliations are generally restricted to family groups of mother and offspring, siblings that may stay together for several years after being weaned, and an occasional alliance of subadults or several females and their offspring (Murie 1944; Jonkel and Cowan 1971; Craighead 1976; Egbert and Stokes 1976; Glenn et al. 1976; Herrero 1978).

Home ranges of adult males are generally two to four times larger than that of females (Pearson 1975; Craighead 1976; Herrero 1978; Servheen and Lee 1979; Aune and Kasworm 1989). These home ranges vary in relation to food availability, weather conditions, and interactions with other bears. Thus, the home range may vary seasonally or from year to year (Jonkel and Cowan 1971; Greer 1972; Craighead 1976; Rogers 1977; Russell et al. 1978).

Population Distribution

The range of grizzly bears in North America before European settlement extended south from Alaska to northern Mexico and east from the Pacific coast to the Canadian Prairies and U.S. Great Plains west of the Mississippi River (Hall and Kelson 1959, Schwartz et al. 2003). Historically, grizzly bears occurred throughout most of Wyoming (Long 1965). Unfortunately, grizzly bear populations have been eliminated from more than 98% of their historic range in the lower 48 states and their distribution is patchy and fragmented. Only five remnant populations remain below the Canadian border: the Cabinet-Yaak population in extreme northwest Montana and northeast Idaho, the Selkirk population in extreme northwest Idaho and extreme northeast Washington, the northern Cascades population in Washington, the Northern Continental Divide Ecosystem (NCDE) population in north central Montana, and the GYA population in eastern Idaho, southwestern Montana, and northwestern Wyoming (Servheen 1999). In Wyoming and elsewhere the grizzly bear has expanded its range in the past two decades and has reoccupied historic habitats. Current range expansion of the GYA population is particularly evident in the southern portion of the ecosystem in Wyoming (Schwartz et al. 2002).

The general current extent of the grizzly bear's range in Wyoming includes Grand Teton National Park, YNP, and portions of adjacent national forest and private lands to the south and east extending to the eastern edge of the Absaroka Mountains, the western portion of the Owl Creek Mountains, south in the

Gros Ventre Range to the Pinnacle Peak area, and south in the Wind River Range to the Green River Lakes area (Moody et al. 2002, Schwartz et al. 2002).

Field Office Distribution

The planning area is not within the Primary Conservation Area (PCA) for grizzly bear, however it is within the Grizzly Bear Data Analysis Unit (derived by the WGFD) and is considered an ecosystem transitional zone containing the southern most portion of known grizzly bear activity in the Greater Yellowstone Ecosystem (Moody et al. 2005).

Reproduction and Survivorship

Mating appears to occur from late May through mid-July, with a peak in mid-June; and estrus lasts from a few days to more than a month (Craighead et al. 1969; Herrero and Hamer 1977). Age of first reproduction varies from 3.5 to 8.5 years, and litter size varies from one to four cubs; both may be related to nutritional state. Reproductive intervals for females average 3 years, and animals that lose young early in the year may come into estrus and breed again that same year. Males are believed to mature sexually at 4.5 years (Hornocker 1962).

Threats From Human Activity

Federal law permits the legal take of any grizzly that is an immediate threat to human safety. Authorized state and federal agency personnel also may take grizzlies for chronic livestock depredations, property damage, or threat to public safety. On average, 2.6 grizzlies have been taken by the public in self-defense situations per year from 1990 to 2002. Management removals and illegal losses have averaged 1.0 grizzly per year during the same period (Moody et al. 2002). Currently, state regulation prohibits hunting of grizzly bears.

A major cause of grizzly population decline is habitat loss. This results from conversion of native vegetation, depletion of preferred food resources, disturbance, displacement from human developments and activities, and fragmentation of habitat into increasingly small blocks that are inadequate to maintain viable populations. Roads are a major factor in displacing grizzlies, especially the level of traffic associated with a road. Grizzlies living near roads have a higher probability of human-caused mortality as a consequence of illegal shooting, control actions influenced by attraction to unnatural food sources, and vehicle collisions (Moody et al. 2002).

2.2.1.3 Canada lynx (*Lynx canadensis*)

Listing Status: Federal—Threatened, March 2000

The Canada lynx (hereafter referred to as “lynx”) was listed as a federally “threatened” species on April 24, 2000, pursuant to the ESA (the Act). Critical Habitat has not been designated. A civil suit has been filed in Federal District Court against the USFWS for not designating Critical Habitat for lynx. Depending on the court ruling in this matter, the issue of Critical Habitat may be readdressed later.

A Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx (Canada Lynx BA) (Hickenbottom et al. 1999) was prepared and submitted to the USFWS in December 1999. An Interagency Lynx Biology Team was selected to prepare the Canada Lynx Conservation Assessment Strategy (LCAS), which was completed in January 2000. The USFWS then issued a Biological Opinion (BO) in October 2000.

Species Description

The lynx is a medium-sized cat with long legs; large, well-furred paws; long tufts on the ears; and a short, black-tipped tail (McCord and Cardoza 1982). Adult males weigh an average of 22 pounds and are generally 33.5 inches in length (head to tail); females average 19 pounds and are generally 32 inches in length (Quinn and Parker 1987). The long legs and large feet of the lynx make this cat highly adapted for hunting in deep snow.

The bobcat (*Lynx rufus*) is a North American relative of the lynx. Compared with the lynx, the bobcat has smaller paws, shorter ear tufts, and a more spotted pelage (coat), and only the top of the tip of the tail is black. The paws of the lynx have twice the surface area of those of the bobcat (Quinn and Parker 1987). The lynx also differs in its body proportions from the bobcat. Lynx have longer legs, with hind legs that are longer than the front legs, giving the lynx a “stooped” appearance (Quinn and Parker 1987). Bobcats are largely restricted to habitats where deep snows do not accumulate (Koehler and Hornocker 1991).

Life History

In the contiguous United States, the distribution of the lynx is associated with the southern boreal forest, composed of subalpine coniferous forest in the west (Aubry et al. 2000). At its southern margins, the boreal forest becomes naturally fragmented into patches of varying size as it transitions into other vegetation types. These southern boreal forest habitat patches are small relative to the extensive northern boreal forest, which constitutes the majority of the lynx range. Many of these southern boreal forest patches can support resident populations of lynx and their primary prey species, the snowshoe hare (*Lepus americanus*). It is likely that some of the habitat patches act as sources where lynx recruitment is greater than mortality, and lynx are able to disperse and potentially colonize other patches (McKelvey et al. 2000). Other habitat patches act as “sinks,” where lynx mortality is greater than recruitment and lynx are lost from the overall population. The ability of naturally dynamic habitat to support lynx populations may change as the habitat undergoes natural succession following natural or manmade disturbances (e.g., fire and clearcutting).

Lynx use large woody debris, such as downed logs and windfalls, to provide denning sites with security and thermal cover for kittens (McCord and Cardoza 1982; Koehler 1990; Koehler and Brittell 1990; Squires and Laurion 2000). For lynx den sites, the age of the forest stand does not seem as important as the amount of downed, woody debris available (Mowat et al. 2000). A den site in Wyoming was located in a mature subalpine fir/lodgepole pine forest with abundant downed logs and a high amount of horizontal cover (Squires and Laurion 2000).

The size of lynx home ranges varies by the animal’s gender, abundance of prey, season, and the density of lynx populations (Koehler 1990; Poole 1994; Slough and Mowat 1996; Aubry et al. 2000; Mowat et al. 2000). Preliminary research supports the hypothesis that lynx home ranges at the southern extent of the species’ range are generally large compared with those in the northern portion of the range (Koehler and Aubry 1994; Squires and Laurion 2000).

Lynx are highly specialized predators that have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982). Snowshoe hares use forests with dense understories that provide forage, cover to escape from predators, and protection during extreme weather (Wolfe et al. 1982; Monthey 1986; Hodges 2000). Generally, earlier successional forest stages have greater understory structure than do mature forests and therefore support higher hare densities (Hodges 2000). However, mature forests also can provide snowshoe hare habitat as openings develop in the canopy when trees succumb to disease, fire, wind, and the understory grows (Buskirk et al. 2000). Lynx concentrate their hunting activities in areas

where hare activity is relatively high (Koehler et al. 1979; Parker 1981; Ward and Krebs 1985; Major 1989; Murray et al. 1994).

The association between lynx and snowshoe hare is considered a classic predator-prey relationship (Saunders 1963; Van Zyll de Jong 1966; Quinn and Parker 1987). Generally, researchers believe that when hare populations are at their cyclic high, depletion of food resources, exacerbated by predation, cause hare populations to decline drastically (Buehler and Keith 1982; Krebs et al. 1995; O'Donoghue et al. 1997). Snowshoe hare provide the quality prey necessary to support high-density lynx populations (Brand and Keith 1979). Lynx also prey opportunistically on other small mammals and birds, particularly when hare populations decline (Nellis et al. 1972; Brand et al. 1976; McCord and Cardoza, 1982). Red squirrels (*Tamiasciurus hudsonicus*) are an important alternative prey (O'Donoghue 1997; Aubry et al. 2000; Apps 2000). However, a shift to alternative food sources may not compensate for the decrease in hares consumed (Koehler and Aubry 1994). Koehler (1990) suggested that a diet of red squirrels alone might not be adequate to ensure lynx reproduction and survival of kittens.

Relative snowshoe hare densities at southern latitudes are generally lower than those in the north, which has led to differing interpretations of population dynamics of snowshoe hare populations. Snowshoe hares are generally associated with conifer forest cover types (Hodges 2000). In the southern boreal forest, relatively low snowshoe hare densities are likely a result of the naturally patchy, transitional boreal habitat that prevents hare populations from achieving densities similar to those of the expansive northern boreal forest (Wolff 1980; Buehler and Keith 1982). In addition, the presence of more predators and competitors of hares at southern latitudes may inhibit the potential for high-density populations with extreme cyclic fluctuations (Wolff 1980).

Population Distribution

The complexities of lynx life history and population dynamics, combined with a general lack of reliable historic and current lynx data for the contiguous United States, make it difficult to ascertain the past or present population status of lynx. Because of the naturally fragmented habitat and lower density hare populations in the contiguous United States, lynx are expected to occur at naturally lower densities than in the north.

Historic lynx data in the contiguous United States are scarce and exist primarily in the form of trapping records. Many states did not differentiate between bobcats and lynx in trapping records. Therefore, long-term lynx trapping data are unavailable for most states. Surveys designed specifically for lynx were rarely conducted, and many reports (e.g., visual observations, snow tracks) of lynx were collected incidental to other activities. The reliability of many of these records is unknown; trapping records may have errors, track identification is extremely difficult, and observations may be wrong.

Within the contiguous United States, the lynx range extends into different regions that are separated from each other by ecological barriers consisting of unsuitable lynx habitat. Wyoming lies within the Northern Rocky Mountains/Cascades region. Most historical and recent records of lynx in Wyoming are from the northwestern mountain ranges (Reeve et al. 1986; McKelvey et al. 2000). McKelvey et al. 2000 located only 30 verified records statewide since 1856. Until 1957, lynx had bounties placed on them. After 1973, the lynx was listed as a protected non-game species, and harvest was closed.

Field Office Distribution

In 1996, the WGFD began a lynx study in west-central Wyoming. Kittens were documented in 1998 (Squires and Laurion 2000), which may indicate the presence of a resident population in this local area (Ruggiero et al. 2000). However, using available information, the status or trend of lynx throughout

Wyoming was not possible. A radio-collared female, which produced the previously noted kittens, died of starvation in winter 2000. A radio-collared male lynx (who died of starvation in winter 2002) was documented as having traveled the area from the northern Bridger Teton National Forest to the lower extent of the Wyoming Range (Laurion and Oakleaf 1998). Other lynx have been documented in Wyoming, including Yellowstone National Park (YNP) (Reeve et al. 1986).

Reproduction and Survivorship

The availability of prey can influence the time of first breeding; if forage is plentiful, then breeding may begin at 1 year of age. Otherwise, 2 years of age is more common (Ruediger et al. 2000; WI-DNR, undated). Breeding occurs from January or February in the southern region, to March or April in the north. Gestation is 60 to 65 days, and litters range from one to four kittens whose eyes remain closed for 8 to 10 days post-partum. The male does not tend to the kittens (Eisenburg, 1986; Ruediger et al. 2000; WI-DNR, undated). Fecundity and kitten survival also appears to have a relationship to prey status (Ruediger et al. 2000).

In northern study areas during the low phase of the hare cycle, few if any kittens are born, and few yearling females conceive. In the far north, some lynx recruitment occurs when hares are scarce, and this may be important in lynx population maintenance during low hare cycles. During periods of hare abundance in the northern taiga, litter size of adult females averages four to five kittens (Ruediger et al. 2000).

Reported causes of lynx mortality vary among studies. The most commonly reported causes include starvation of kittens and human-caused mortality (fur trapping). Various studies in the northern taiga have shown that, during periods of low snowshoe hare numbers, starvation can account for up to two-thirds of all natural lynx deaths. Trapping mortality may be additive rather than compensatory during the low period of the snowshoe hare cycle. Hunger-related stress, which induces dispersal, may increase the exposure of lynx to other forms of mortality such as trapping and highway collisions. Predation on lynx by mountain lion, coyote, wolverine, gray wolf, and other lynx has been documented and confirmed (Ruediger et al. 2000).

Threats From Human Activity

The Canada lynx BA cites the following risk factors (Ruediger et al. 2000) for the Northern Rockies geographic area:

- Timber Management—harvest and precommercial thinning that reduce denning or foraging habitat or converts habitat to less desirable tree species
- Wildland Fire Management—where exclusion changes the vegetation mosaic maintained by natural disturbance processes
- Livestock Grazing—where forage for lynx prey is reduced
- Recreation—where roads and winter recreation trails facilitate access to historical lynx habitat by competitors
- Incidental trapping and shooting
- Predation
- Highways—vehicle strikes or obstructions to lynx movements
- Development of private lands.

Factors affecting lynx habitat include human alteration of the distribution and abundance, species composition, successional stages, and connectivity of forests, and the resulting changes in the forest's capacity to sustain lynx populations. People change forests through timber harvest, fire suppression, and

conversion of forestlands to agriculture. Forest fragmentation may eventually become severe enough to isolate habitat into small patches, thereby reducing the viability of wildlife that depend on larger areas of forest habitat (Litvaitis and Harrison 1989). In all regions of the lynx range in the contiguous United States, timber harvest and its related activities are a predominant land use affecting lynx habitat. Timber harvest and associated forest management can be benign, beneficial, or detrimental to lynx, depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site.

A primary reason for listing the lynx was the conclusion that the low numbers in the contiguous United States were the residual effect of overtrapping, which was believed to have occurred in the 1970s and 1980s. This trapping occurred in response to unprecedented high pelt prices. Human-induced mortality was often believed to be the most significant source of lynx mortality (Ward and Krebs 1985). Trapping mortality was considered to be entirely additive (i.e., in addition to natural mortality) rather than compensatory (taking the place of natural mortality) (Brand and Keith 1979). However, Canadian researchers determined that natural mortality during the declining phase of the lynx cycle is high; therefore, trapping mortality during some portions of the cyclic decline may compensate for natural mortality (Poole 1994; Slough and Mowat 1996). Thus, trapping of lynx can be additive and compensatory, depending on when it occurs in the cycle.

Lynx movements may be negatively influenced by high traffic volume on roads that bisect suitable lynx habitat. Given the distances and locations where known lynx within the southern boreal forest have moved, lynx successfully cross many types of roads, including unpaved forest roads, secondary paved roads, and interstate highways (Mech 1980; Smith 1984; Brainerd 1985; Squires and Laurion 2000). Highways with high volumes of traffic and associated suburban developments inhibit lynx home range movement and dispersal and may contribute to a loss of habitat connectivity. However, no information exists to determine the level at which traffic volume or roadway design may influence lynx movements or create an impediment to movement. Roads do not appear to be a significant direct cause of lynx mortality (Staples 1995; Ruggiero et al. 2000).

Disease and predation are not known to be factors threatening lynx.

Evidence indicates that lynx tolerate some level of human disturbance (Staples 1995; Aubry et al. 2000; Mowat et al. 2000). For most areas of the contiguous United States, no evidence exists that human-caused factors have significantly reduced the ability of lynx to disperse or have resulted in the loss of genetic interchange. Likewise, no evidence exists that human presence displaces lynx. Lynx have been documented using some types of roads for hunting and travel (Parker 1981; Koehler and Brittell 1990; Koehler and Aubry 1994). No information is available demonstrating that forest roads negatively impact resident lynx populations.

Lynx are taken during legal trapping and hunting for other species, such as wolverine and bobcat (McKay 1991; Staples 1995). Although lynx were likely captured incidentally in the past during regulated and unregulated trapping for other predators, the lynx have persisted throughout much of their historic range.

Coyote, bobcat, and mountain lion are hypothesized to be potential lynx competitors (Brocke 1982; McCord and Cardoza 1982; Parker et al. 1983; Quinn and Parker 1987; Aubry et al. 2000; Buskirk et al. 2000; Ruggiero et al. 2000). In Wyoming, the ranges of these species overlap. Lynx are highly evolved for hunting in deep snow; they have a morphological advantage because they are able to walk on snow rather than sink into it as other species with higher foot loads do (Murray and Boutin 1991; Buskirk, et al. 2000). Traditionally, where these species' ranges overlap with that of lynx, snow conditions exclude them from the winter habitats occupied by lynx (McCord and Cardoza 1982; Parker et al. 1983; Buskirk et al. 2000). However, snow trails packed by humans (i.e., by snowmobiles, cross-country skiing) or snowplowing have facilitated the movement of potential lynx competitors into the deep snow habitats of

the lynx (USFS and BLM 1999). Yet, a lack of evidence exists that competition with coyotes, mountain lions, or bobcats is negatively affecting lynx on a population-level scale. Direct lynx mortality from mountain lions is reported by Squires and Laurion (2000). Other potential predators include the gray wolf (*Canis lupus*) and wolverine (*Gulo gulo*) (Poole 1994; Slough and Mowat 1996; O'Donoghue et al. 1997; Apps 2000; Squires and Laurion 2000).

The USFWS concluded in the *Federal Register* Canada lynx listing document that the single factor threatening the contiguous United States, Distinct Population Segments (DPS) of lynx is the inadequacy of existing regulatory mechanisms—specifically, the lack of guidance for conservation of lynx in National Forest Land and Resource Plans and BLM Land Use Plans. Until plans adequately address risks like those identified in the LCAS (Ruediger et al. 2000), a significant threat to the contiguous DPS of lynx will exist.

2.2.1.4 Gray Wolf (*Canis lupus*)

Listing Status: Federally Listed Nonessential Experimental Population

On November 22, 1994, the USFWS published (*Federal Register* 59, p. 60252) special rules to establish nonessential experimental populations of gray wolves in YNP and central Idaho. The nonessential experimental population areas include all of Wyoming, most of Idaho, and much of central and southern Montana. In June 1998, the USFWS announced that it would review the species' status and consider delisting or reclassifying specific wolf populations where appropriate (USFWS 1998).

On February 27, 2008, the Service published a final rule to delist the northern Rocky Mountain distinct population segment (DPS) of the gray wolf (73 FR 10514). That publication stated that Wyoming's trophy game area in the northwestern portion of the state, outside lands administered by the National Park Service, would be included in the delisted DPS if the Wyoming State wolf management law became fully effective within 20 days of publication of the final rule and the Wyoming wolf management plan became legally authorized by the state statute. Implementation of that law and the trophy game area of northwestern Wyoming was premised on Wyoming's Governor certifying to the Wyoming Secretary of state that (1) the Service published a delisting rule that included the entire State of Wyoming prior to February 28, 2007; (2) the Service modified the 2005 special rule [10(j)] for the experimental population that addressed Wyoming's concerns about wolf management to maintain ungulate herds above state management objectives; and (3) settlement or resolution of the claims relating to the Service not approving Wyoming's 2003 wolf management law and wolf plan. The second criterion was satisfied on January 29, 2008, when the Wyoming Governor certified that the 10(j) rule modification satisfied Wyoming's law. The first and third criteria were satisfied on February 27, 2008, when the Wyoming Governor certified that all the provisions of the Wyoming law had been met and its 2005 wolf management law and plan were in effect. Because the Wyoming wolf management law and plan were fully in effect, the final delisting rule published on February 27, 2008, became effective on March 28, 2008.

The U.S. Federal District Court in Missoula, Montana, issued a preliminary injunction on Friday, July 18, 2008, that immediately reinstated the Endangered Species Act protections for wolves in the northern Rocky Mountains. That area includes all of Montana, Idaho, and Wyoming and the eastern one-third of Washington and Oregon and parts of north-central Utah. This injunction will remain in place until final resolution of this case occurs.

Under cooperative agreements with the Service that have been in place for the past 3-4 years, Montana Fish, Wildlife and Parks will continue to lead all wolf management activities under the Endangered Species Act regulations in Montana. Idaho Department of Fish and Game will continue to lead all wolf

management activities under the Endangered Species Act regulations in Idaho. Until a similar cooperative agreement can be finalized with Wyoming, the Service has resumed the lead for all wolf management activities throughout all of Wyoming. All wolves in all areas of Wyoming are protected by the Endangered Species Act as a nonessential experimental population (Bangs, 2008 Press Release).

Species Description

Gray wolves are the largest wild members of the Canidae, or dog family, with adults ranging from 80 to 110 pounds, depending on gender. Height averages 26 to 32 inches at the shoulder, and length typically measures 4.5 to 6.5 feet from nose to tail tip. The approximate track size is 4 inches wide by 5 inches long. Pelt color can be highly variable, ranging from white to black, with grizzled gray or black being most common in the northern Rocky Mountains (USFWS 1994a).

Life History

Wolf research, as well as the expansion of the wolf range over the last two decades, has indicated that wolves can successfully occupy a wide range of habitats and are not dependent on wilderness areas for their survival. In the past, gray wolf populations occupied nearly every type of habitat north of mid-Mexico that contained large ungulate prey species. An inadequate prey density and a high level of human persecution apparently are the only factors that limit wolf distribution (USFWS 2000).

The Greater Yellowstone Area (GYA) and central Idaho areas are primarily composed of public lands. These areas of potential wolf habitat are secure, and there are no foreseeable habitat-related threats that would prevent them from supporting a wolf population that exceeds recovery levels (USFWS 2000). The ungulate populations in these areas are the principal prey, although prey preference appears related to prey size and availability. Order of preference and prey availability in the GYA has been elk (*Cervus elphus*) at >85 percent, followed by bison (*Bison bison*), moose (*Alces shirasi*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*) (Jaffe 2001; Mech et al. 2001; Smith et al. 2002; USFWS et al. 2002).

Wolves form family groups referred to as packs. A pack consists of at least two individuals of the opposite sex that breed and produce pups. Wolves are sexually mature at 22 months of age (Mech 1970). The dominant male and female in the pack produce most of the young, although packs may contain two or more adult females that produce (Mech 1991). Breeding occurs during February or March, and pups are born after a 63-day gestation in April or May. Litter sizes in Wyoming have averaged roughly five pups from 1997–2001 (USFWS et al. 2002). Pups remain at a den site for about 6 weeks until they are weaned. The pack then moves to rendezvous sites (home sites) until the pups are old enough to hunt with the pack (e.g., September or October). Once pups begin hunting, these rendezvous sites are no longer used, and the pack ranges throughout its territory.

Yearlings tend to leave the pack during fall to find a mate and develop a new territory and pack (Fritts and Mech 1981); however, some individuals stay with the pack longer. Pack territories are defended against other wolves. Territory location is advertised to other wolves through scent marking and howling. Territory size appears related to prey density (Ballard et al. 1987; Fuller 1989); GYA territory sizes are averaging 200 mi². Pack sizes typically range from 2 to 16 wolves, but it appears pack size may be related to size of prey species. The average size of the 8 wolf packs in Wyoming outside of YNP in 2001 was 8.7 (range 2–12) (USFWS et al. 2002).

Population Distribution

As recently as the mid-nineteenth century gray wolves existed throughout most of North America exclusive of the Gulf Coast region where the red wolf (*Canis rufus*) was found (Nowak 1983, Young and Goldman 1944). Wolves were present throughout the northern Rocky Mountain region prior to colonization by Europeans which resulted in reduction of native ungulate populations, introduction of livestock, and persecution of wolves (Lopez 1978, Young 1944). By the 1940s, wolves persisted only in isolated locations in the United States. In the late 1970s wolves were dispersing into the mountainous areas near Glacier-Waterton Lakes National Parks in Alberta, Canada, just across the border (Ream and Mattson 1982). And then in 1985 a pack of 12 wolves crossed the border from Alberta to Glacier National Park (Robbins 1986). Breeding was documented in 1986, for the first time in 50 years in the U.S. (Ream et al. 1989), and by 1992 at least 50 individuals were known to reside in at least four packs along the continental divide of Montana (Fritts et al. 1995, Pletscher et al. 1997, Ream et al. 1991). Wolves were documented from Idaho since the early 1980s. Prior to reintroduction, lone wolves have ventured into the GYA on a number of occasions (USFWS 1994), and a single wolf was documented in northwestern Wyoming in 1992 (Fritts et al. 1995).

After many years of effort and planning, wolves were reintroduced into the GYA in 1995-1996 (USFWS 1994). This effort targeted large tracts of federal public lands (Yellowstone National Park (YNP) and the surrounding U.S. Forest Service wilderness areas) that supported large populations of wild ungulates and had a relatively low likelihood for wolf-human conflicts. Today wolves are found in the northwestern portion of Wyoming, largely in the GYA. There are 14 packs in YNP and 7 that spend most of their time in Wyoming (WGFD 2003). Numerous sightings of wolves suggest that they roam over much of western Wyoming. The known distributional extent of these wandering wolves is the Bighorn Mountains and Ten Sleep to the east, Morgan, Utah (outside Ogden) to the south, and into Idaho to the west (Jimenez 2004). Wolves have been sighted southwest of Meeteetse and around Worland and Thermopolis. Wolves are also routinely seen around Kemmerer and Cokeville, and Lander, and have shown up east of Rock Springs.

Field Office Distribution

Gray wolves have been documented in the planning area on the National Elk Refuge (NER). Two monitored wolf packs are located east of the planning area on the Gros Ventre River and the northeastern corner of Grand Tetons National Park (GTNP). Based on the occurrence of wolves following and killing elk on winter feedgrounds (USFWS et al. 2002), it is possible that wolves could travel through some of the management parcels while following the elk migration or to reach either the NER or the WGFD South Park elk feedground. The potential for interactions with humans would be highest along the route to South Park but the level of these encounters is not possible to predict. In accordance with 50 CFR 17.84, actions to control, or take, wolves in this population are specifically limited (USFWS 1998). The planning area, exclusive of the NER, will be included under state jurisdiction for wolf management upon delisting according to the existing Wyoming Gray Wolf Management Plan. In April 2004, BLM Range Specialists observed four gray wolves on the Square Top. Local residents in the Boulder area have also given anecdotal accounts of the presence of gray wolves.

After the wolf has been delisted, the Gray Wolf Management Plan, as signed by the governor, will classify wolves as trophy animals in YNP and GTNP, the John D. Rockefeller Jr. Memorial Parkway, and the wilderness areas of the Shoshone National Forest and Bridger-Teton National Forest (BTNF), and as predatory animals elsewhere in Wyoming. Only packs outside YNP, GTNP, and the National Elk Refuge (NER) and within the defined wilderness areas will fall under the jurisdiction of the WGFD. If the number of packs in Wyoming are reduced to 10 or fewer, management strategies would revert to the same provisions used to recover the wolf population before delisting (WGFD 2002a).

Reproduction and Survivorship

Wolves have a high reproductive potential, and populations can sustain moderate levels of mortality. Unexploited wolf populations may increase 28 to 35 percent annually. From 1998 to 2002, the wolf population in the GYA increased an average of 22 percent/year. Mortality rates in unexploited wolf populations average 45 percent for yearlings and 10 percent for adults (USFWS 1994b). Annual mortality rates of 30 to 40 percent may suppress wolf population growth (Ballard et al. 1987; Fuller 1989; Keith 1993).

Wolves form family groups referred to as packs. A pack consists of at least two individuals of the opposite sex that breed and produce pups. Wolves are sexually mature at 22 months of age (Mech 1970). The dominant male and female in the pack produce most of the young, although packs may contain two or more adult females that produce (Mech 1991). Breeding occurs during February or March, and pups are born after a 63-day gestation in April or May. Litter sizes in Wyoming have averaged roughly five pups from 1997–2001 (USFWS et al. 2002). Pups remain at a den site for about 6 weeks until they are weaned. The pack then moves to rendezvous sites (home sites) until the pups are old enough to hunt with the pack (e.g., September or October). Once pups begin hunting, these rendezvous sites are no longer used, and the pack ranges throughout its territory.

Threats From Human Activity

Human exploitation is often the greatest cause of mortality. Since 1995, 53 percent of documented wolf mortalities in the GYA have been human caused (Smith and Guernsey, 2002). In areas in which human exploitation is low, disease, starvation, and killing by other wolves are the primary causes of wolf mortality.

2.2.2 Avifauna

2.2.2.1 Bald Eagle (*Haliaeetus leucocephalus*)

Listing Status: Federal de-listed June 28, 2007; currently managed as a BLM Sensitive Species

Species Description

The bald eagle has a conspicuous white head and tail, a blackish-brown back and breast, and yellow feet and bill. The distinctive white plumage on the head and tail, for which the species is named, is not attained until 5 or more years of age. The female bald eagle is about 35 to 37 inches (.89 to .94 m) long with a wingspan from 79 to 90 inches (2.1 to 2.28 m). The male bald eagle is slightly smaller than the female, with a body length of 30 to 34 inches (.76 to .86 m) and a wingspan of 72 to 85 inches (1.8 to 2.2 m). Wild bald eagles may live as long as 30 years, but the average lifespan is probably about 15 to 20 years.

Life History

Bald eagles are found usually near large rivers, streams, and lakes. Habitat consists of nesting habitat, communal winter roosting habitat, and foraging habitat that is located in some areas within the PFO area.

Bald eagles are found primarily along surface water sources (e.g., rivers, lakes, and coasts) where their nests are usually located in large trees. They often use and rebuild the same nest each year, which is

typically about 5 feet in diameter. Nest trees are usually close to water, afford a clear view of the surrounding area, and often provide sparse cover above the nest.

During winter, bald eagles congregate near rivers and reservoirs with open water and often near large concentrations of waterfowl. Wintering eagles usually occupy river habitats between mid-November and late-April and use large cottonwoods, poplars, and other riparian trees as daytime perches and night roosts. They usually perch within a riparian corridor or along lakeshores and prefer areas with limited human activity.

The BLM has conducted bald eagle winter concentration surveys each January from 2004 to present. These efforts were conducted using roadside observations along river corridors and riparian habitats to identify if winter concentrations of bald eagles occur in the planning area. Through these efforts approximately 38 bald eagles have been observed each year. This effort will continue to monitor bald eagle activity in the planning area.

Feeding areas, diurnal perches, and night roosts are fundamental elements of bald eagle winter range. Wintering bald eagles primarily occur where all three elements are in proximity, although they will fly up to 15 miles where these elements are sparsely distributed across the landscape (Swisher 1964).

Food availability is probably the single most important factor affecting winter bald eagle distribution and abundance (Steenhof 1976). Fish and waterfowl are the primary sources of food for bald eagles, but they will also feed on rabbits, carrion, and small rodents. The hunting area or home range patrolled by a bald eagle varies from 1,700 to 10,000 acres (688 to 4047 hectares). Home ranges are smaller where food is present in great quantity.

Population Distribution

Bald eagles occur over most of North America at some time during the year, and breed across at least half of the continent. The largest populations occur in the Pacific Northwest, western Canada, and southern Alaska.

Field Office Distribution

Ten bald eagle nests are known to occur within the Pinedale planning area. Six of these nests are located on privately owned surface lands, three are located within BLM land, and one is on state managed land. These nests occur within riparian habitats associated with several creeks and rivers, including the Green River and the New Fork River.

Reproduction and Survivorship

Breeding for bald eagles typically begins in February or March, and the female eagle lays a clutch ranging from one to three eggs in March or April. Both the male and female incubate the eggs for about 35 to 40 days, resulting in usually one or two eaglets produced by the pair (Stalmaster 1987). Young eagles remain in the nest for about 75 days. After the breeding season, bald eagles congregate where food is plentiful, and they may continue to roost near the nest tree.

Threats From Human Activity

The accelerated decline in numbers of the species since World War II has been attributed to several factors, including unauthorized poison baits on public lands, shooting, electrocution, and chemicals in the environment.

2.2.2.2 Western Yellow-billed Cuckoo (*Coccyzus americanus*)

Listing Status: Federal—Candidate, July 2001

Species Description

The western population of the yellow-billed cuckoo (cuckoo) is a slender, long-tailed, robin-sized bird, about 12 inches long, with a moderately long, down-curved bill. It is brownish gray with white underparts and a striking yellow base of the lower mandible for which the species is named. The outer tail feathers have distinctive broad white tips, giving an appearance of six large white spots on the underside.

Life History

Cuckoos are primarily found in open, streamside deciduous woodland with low, scrub vegetation. They generally prefer large tracts of deciduous riparian woodlands; cottonwood stands for foraging and willow thickets for nesting. They also require relatively large riparian tracks below 7,000 feet (2,134 m) for breeding, which is severely limited in Wyoming (WYNDD 2002). Canopy cover of at least 50 percent in the understory and overstory is preferred according to habitat models established for the western population. Cuckoos generally are absent from heavily forested and urban areas.

Although more than 75 percent of the cuckoo's diet comprises grasshoppers and caterpillars, they have been known to eat beetles, cicadas, wasps, flies, lacewings, mosquito hawks, and other insects. They have also been known to take eggs and the young of other birds. Sometimes they will eat small fruits and nuts.

Population Distribution

The cuckoo formerly ranged across southern Canada, the United States, and northern Mexico. It has been nearly extirpated in the West and is restricted to small isolated populations. It is considered extremely rare in the Northern Rockies and Great Plains. An estimated 90 percent of the bird's riparian habitat in the West has been destroyed or degraded as a result of human activity (e.g., conversion to agriculture, dams and river flow management, bank protection, overgrazing, and competition from exotic plants such as tamarisk) (Laymon and Halterman 1987, Laymon 2000; Hughes 1999). The species is no longer found in British Columbia, Washington, Oregon, or Nevada.

Little is known about the historic distribution of cuckoos in Wyoming; relatively few reported observations have occurred. Breeding pairs may be found in the Green River and Powder River basins, along the North Platte River to Casper, and along the Henry's and Black's Fork Rivers. One observation of the cuckoo in 1994 was made at Seedskafee National Wildlife Refuge, which is west of the planning area.

Field Office Distribution

Population status and trends of the cuckoo in Wyoming are unknown. Suitable cottonwood/willow riparian habitat is very limited and not adequately surveyed. Breeding is considered unconfirmed, although observations and other anecdotal evidence suggests that breeding may occur in the Green River Basin and along the Snake River (in Wyoming). Element occurrence records within the Wyoming Natural Diversity Database (WYNDD) support five occurrences of this subspecies in southwestern Wyoming. All of these occurrences were made during Breeding Bird Surveys from 1977 to 1981. Existence was documented with three sightings on the Seedskafee National Wildlife Refuge; two of the observations reported pairs exhibiting courtship behavior. On June 26, 1980, one adult was observed in the vicinity of Beaver Creek (a tributary of the Henry's Fork of the Green River) in Uinta County; this individual was

demonstrating courtship behavior. The fifth record occurred in the vicinity of Abert Creek, Uinta County, approximately 1 to 1.5 miles southeast of Interstate 80 and 3 miles east of Duncomb Hollow on July 5, 1979; this is the only verified report of the cuckoo on BLM land in Wyoming.

Reproduction and Survivorship

Cuckoos arrive on their western breeding grounds in mid-June and leave for South America by late August. Breeding often coincides with the appearance of large numbers of spring insects. Cuckoos have the shortest combined incubation and nesting period of any bird species. Clutch size usually ranges between three and five, and males and females share egg incubation. Though unable to fly, the newly fledged young are adept crawlers, traveling up to 150 feet (45.7 m) on their first day out of the nest. After 3 to 4 weeks, they are able to begin their migration to South America (Center for Biological Diversity 2001).

Mating of cuckoos begins with the female raising and lowering her tail several times when a male is nearby. The male then snaps off a twig and brings it to her, landing directly on her back. The male places the twig crosswise in the female's bill at which point copulation begins, and ends seconds later.

Threats From Human Activity

Loss of habitat is probably the greatest threat facing the cuckoo. Dams and river flow management, overgrazing, land conversions associated with agriculture, and infestations of exotic plants have severely impacted riparian habitat throughout the West, including Wyoming (Laymon and Halterman 1987; Hughes 1999; UDSI USFWS 2000, 2001).

2.2.3 Fish

2.2.3.1 Kendall Warm Springs Dace (*Rhinichthys osculus thermalis*)

Listing Status: Federal—Endangered, October 1970

The Kendall Warm Springs dace is a subspecies of the speckled dace. The Kendall Warm Springs dace does not occur on BLM-administered lands within the planning area. Only one population is known to exist within the USFS Bridger Teton National Forest Pinedale Field Office. Management actions, analysis and conservation measures are being implemented in the forest plan written and implemented by that office. The BLM assists with the subsurface mineral management and any mineral related actions would be consulted on with the USFWS; therefore, the Kendall Warm Springs dace will not be considered further in this document.

2.2.4 Plants

2.2.4.1 Ute Ladies' Tresses Orchid (*Spiranthes diluvialis*)

Listing Status: Federal—Threatened, February 1992

Species Description

The Ute ladies' tresses orchid is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches (12 to 50 cm) tall arising from tuberous-thickened roots. Its narrow leaves are about 11 inches (28 cm) long at the base of the stem and become reduced in size going up the stem. This species flowers from late July to September. Plants probably do not flower every year and may remain dormant below

ground during drought years. The flowers consist of 3 to 15 small white to ivory colored flowers clustered into a spike arrangement at the top of the stem. Whitish, stout, ringent flowers characterize the species. The sepals and petals, except for the lip, are rather straight, although the lateral sepals are variably oriented, with these often spreading abruptly from the base of the flower. Sepals are sometimes free to the base. The lip lacks a dense cushion of trichomes on the upper surface near the apex. The rachis is sparsely to densely pubescent with the longest trichomes 0.008 inches (0.2mm) or longer.

Life History

The Ute ladies' tresses orchid typically blooms from late July through August, occasionally through September. Blooms were recorded as early as early July and as late as early October. Reproduction is strictly sexual. Reproductively mature plants do not flower every year. These plants may need 5 to 10 years to reach reproductive maturity.

The Ute ladies' tresses orchid is endemic to moist soils in mesic or wet meadows, subirrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, rivers, or perennial streams between 1,780 and 6,800 feet in elevation (542 to 2,074 m) (Fertig and Beauvais, 1999). The species occurs primarily in areas in which the vegetation is relatively open and not overly dense, overgrown, or overgrazed. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine-Douglas fir woodlands, sagebrush steppe, and streamside floodplains.

Known sites of this species often have low vegetative cover and may be subject to periodic disturbances (e.g., flooding or grazing). Populations are often dynamic and shift within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais, 1999). The Ute ladies' tresses orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as light grazing, that are common to grassland riparian habitats and that reduce competition between the orchid and other plants (USFWS, 1995). It is known to establish in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails (USFWS, 1995).

Population Distribution

The Ute ladies' tresses orchid occurs from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and north-central Washington (Moseley, 1998). The total population is roughly 20,500 individuals.

In Wyoming, Ute ladies' tresses orchid populations are presently known from four locations. BLM-authorized searches (1994–2001) for the species have been performed at several locations in Wyoming with no additional populations being located. In 1998–1999, Fertig revisited all four populations and documented 800 to 1,200 individuals in a total area smaller than 10 acres. Most of the populations in Wyoming occur in moist meadow communities dominated by *Agrostis stolonifera*, *Elymus repens*, *Juncus balticus*, *Panicum virgatum*, and *Hordeum jubatum* within a narrow band between emergent aquatic vegetation and adjacent dry upland prairie. Vegetative cover is typically 75 to 90 percent, but is usually short (under 45 cm tall) (Fertig, 2000). The only exception is the Converse County population, which is associated with a cattail marsh, among tall, dense grasses.

Field Office Distribution

To date, no populations of Ute ladies' tresses orchids are known to occur on public lands within the PFO.

Reproduction and Survivorship

The species is threatened primarily by habitat loss and modification, although its small populations and low reproductive rate make it vulnerable to other threats. The riparian and wetland habitats required by this species have been heavily impacted by urban development, heavy grazing, stream channelization, water diversions, and other watershed and stream alterations that reduce the natural dynamics of the stream system, recreation, and invasion of habitat by exotic plant species (USFWS, 1995).

Wyoming's populations of Ute ladies' tresses orchids are largely unthreatened under current management, but they could become threatened by changes in land uses (Fertig, 2000). The following potential threats have been identified in the literature that may affect survivorship: (1) urbanization, (2) grazing, (3) mowing, (4) flood control, (5) pesticide use, (6) competition from introduced weeds, (7) natural herbivory, (8) loss of pollinators, (9) recreation, and (10) over-collection.

Threats from Human Activity

This species is threatened primarily by habitat loss and modification, although its small populations and low reproductive rate make it vulnerable to other threats.

The riparian and wetland habitats required by this species have been heavily impacted by urban development, heavy grazing, stream channelization, water diversions, and other watershed and stream alterations that reduce the natural dynamics of the stream system, recreation, and invasion of habitat by exotic plant species (USFWS, 1995).

The effects of grazing are largely unknown. The largest populations of the species, in Utah and Colorado, are grazed during the winter, when the plant is dormant, with no noticeable effect on the species. It is plausible that moderate winter grazing may be beneficial to the species.

Because of its low reproductive rate, any loss of individual plants attributed to collection could have a major effect on the species' survival. Collection of individual plants or flowers could cause significant harm to the reproductive potential of the affected population.

2.2.5 Colorado River Species

Several fish species occurring as residents or migrants in the Colorado River basins (inclusive of major tributaries), have experienced material declines in abundance, distribution, and the availability of suitable habitats since the turn of the 20th century. The reasons for these declines in abundance, distribution, and availability of suitable habitats are multifarious, but the two most pervasive and encompassing reasons are (1) the effects of water developments, including dam construction, diversion and consumptive use of water, and concomitant changes in river flow and channel characteristics; and (2) introductions of non-native aquatic species.

Water developments such as dams, reservoirs, and irrigation diversions have altered natural surface-water hydrographs (i.e., timing, magnitude, and duration). Altered hydrographs can indicate negative effects on the ecosystems of river-dependent species (e.g., interior least tern and pallid sturgeon). Changes in the relative magnitudes of regulated flows, before nesting versus during nesting, have resulted in more frequent inundation of the nests of federally listed avian species (e.g., piping plover and interior least tern). Too little water at certain times of the year can subject federally listed birds to excessive predation during periods of nesting and roosting (Gordon et al. 1992); this condition can also limit the availability of forage fish to the pallid sturgeon (found within the Platte River System on the northern boundary of the Rock Springs and southern boundary of the PFO). In addition, reductions in the magnitude and frequency

of high flows can adversely impact the characteristics of flood-prone areas and wetlands and the ecological benefits they provide to federally listed species; these conditions can allow vegetation to encroach on less vegetated areas, resulting in a narrowing of relatively open channels (Gordon et al. 1992).

Habitat alterations and habitat fragmentation resulting from dams, reservoirs, and regulated flows have resulted in changes in habitat availability, habitat distribution, and habitat quality. In addition, introductions of non-native fishes, such as rainbow trout and brown trout, have resulted in competitive exclusion and diminished abundance of native fishes in much of their historic ranges. Similar impacts have reduced populations of federally listed fishes in the upper Colorado River basin, such as the Colorado pikeminnow. Finally, the inundation or diminution of wetland habitats resulting from flow regulation and reduced water availability can negatively impact wetland plants. In the planning area, water depletions—even if they occur hundreds of miles upstream—can affect population abundance and the availability of suitable habitats for federally listed fishes in the Colorado River basin.

BLM has historically authorized several types of activities and associated infrastructure within the planning area that constitute water depletions in the Colorado River basins; a depletion to river flows occurs when tributary surface water or groundwater is removed from its source—to the extent that some of the water is not returned to its source—to be used elsewhere for a beneficial use. These activities include the development of livestock watering facilities, irrigation projects, wetlands, reservoirs for recreational fisheries, habitat restoration projects, as well as fire suppression and oil and gas development.

Four endangered fish found in the Colorado River in Colorado may be affected by BLM authorized actions within the planning area: endangered Colorado pikeminnow (*Ptychocheilus lucius*), endangered razorback sucker (*Xyrauchen texanus*), endangered bonytail chub (*Gila elegans*), and endangered humpback chub (*Gila cypha*).

Water depletions to the Colorado River watershed may jeopardize the existence of one or more federally listed threatened or endangered species and adversely modify designated critical habitats. In 1988, the USFWS developed an agreement that federal agency actions resulting in water depletions to the upper Colorado River basin greater than 100 acre-feet annually require section 7 consultation and can be offset by a one-time contribution made by the water project, which goes to Recovery Program efforts (USFWS 2001). There is no charge for historic depletions or for new depletions of less than 100 acre-feet of water. Under this agreement, as long as sufficient progress is being made toward endangered fish recovery, the USFWS will issue favorable BOs on water depletions of less than 3,000 acre-feet of water (USFWS 2001). When reviewing projects that deplete more than 3,000 acre-feet of water per year, the USFWS determines on a case-by-case basis the recovery actions that are needed to warrant a favorable BO.

2.2.5.1 Consultation History and Historic Depletions

BLM has previously been issued a BO on Colorado River Depletions Resulting from Reauthorization of Livestock Watering Facilities, Wyoming on September 21, 2000. In addition, BLM has been issued a BO for Colorado River Depletions for the Pinedale Anticline on September 26, 2000. Table 3 summarizes the Historic and Post-Formal Consultation Water Depletions and Table 4 summarizes Future Water Depletions.

**Table 3. Historic and Post-Formal Consultation Water Depletions
1983–1999 and 2002–Present**

Action	Number	Water Use Per Action (acre-feet)	Total Water Use (acre-feet)	Years
Water developments	95	3.7	399.83	1988–1993
	8	3.7	29.6	2000–2003
	1	5.3	15.9	2004–2006
Well construction activities	1,273	3.2	4,073.6	1953–2003
Total	1,376	6.9	4,503.03	59

Water Use Per Action was taken from the BO for Colorado River Depletions for the Pinedale Anticline and the BO on Colorado River Depletions Resulting from Reauthorization of Livestock Watering Facilities, Wyoming, issued by the USFWS.

Table 4. Future Water Depletions

Action	Number	Water Use Per Action (acre-feet)	Total Water Use (acre-feet)	Projected Average Annual Depletion (acre feet)	Years
Water developments	30	5.3	159	-	unknown
Well construction activities	8,383	4.64	38,897.12	1,944.85	2001–2020
Wildland fire suppression	Unknown	Unknown	0.31	-	unknown
Total	8,413	9.94	39,056.12	1952.80	2001–2020

2.2.5.2 Colorado Pikeminnow (*Ptychocheilus lucius*)

Listing Status: Federal—Endangered

Species Description

The Colorado pikeminnow (formerly, Colorado squawfish) is listed as endangered under the Endangered Species Act of 1973. In addition, the Colorado pikeminnow is listed as threatened by the State of Colorado and is legally protected by the State of Utah. The Colorado pikeminnow was historically abundant in the Colorado River and most of its major tributaries such as the Yampa River and the Green River.

Life History

The Colorado pikeminnow prefers eddies and pools in large, deep rivers such as the Colorado River and the Green River. The USFWS has designated Critical Habitat for the Colorado pikeminnow as follows: the Yampa River (Moffat County, Colorado) and its 100-year floodplain from State Highway 394 bridge, T.6 N., R.91 W., sec. 1, to its confluence with the Green River, T.7 N., R. 103 W., sec. 28 (6th Principal Meridian); Green River and its 100-year floodplain from its confluence with the Yampa River (Uintah,

Carbon, Grand, Emery, Wayne, San Juan, counties and Moffat County, Colorado), to the confluence with the Colorado River, T.30 S., R.19 E., sec.7 (Salt Lake Meridian); White River (Rio Blanco County, Colorado) and its 100-year floodplain from Rio Blanco Lake Dam, T.1 N., R.96 W., sec. 6 (6th Principal Meridian) to the confluence with the Green River (Uintah County, Utah) in T.9, R.20 E., sec. 4 (Salt Lake Meridian); Gunnison River (Delta and Mesa counties, Colorado) and its 100-year floodplain from its confluence with the Uncomphagre River in T.15 S., R.96 W., sec. 11 (6th Principal Meridian) to the confluence with the Colorado River in T.1 S., R.1 W., sec. 22 (Ute Meridian); Colorado River (Mesa and Garfield counties, Colorado, and Grand, San Juan, Wayne, Garfield counties, Utah) and its 100-year floodplain from the Colorado River bridge at Exit 90, north off Interstate 70 (river mile 238) in T.6 N., R.93 W., sec. 16 (6th Principal Meridian) to North Wash, including the Dirty Devil arm of Lake Powell, up to the full-pool elevation in T.33 S., R.14 E., sec.29 (Salt Lake Meridian); and the San Juan River (San Juan County, New Mexico and Utah) and its 100-year floodplain from the State Route 371 bridge in T.29N., R.13 W., sec. 17 (New Mexico Meridian) to Neskahai Canyon in the San Juan arm of Lake Powell in T.41 S., R.11 E., sec. 26, up to the full-pool elevation.

Population Distribution

Colorado pikeminnow populations have been dramatically reduced throughout their historic range as a result of past and present human activities. Pervasive threats to this species are attributed to habitat alterations resulting from water development and diversions. However, non-native fish introductions are the most pressing impediment to the recovery of this species; predatory, non-native fishes profoundly affect recruitment by consuming juveniles (Minckley et al. 2003). Recovery efforts, however, are expanding the abundance and distribution of this species where the effects of habitat fragmentation and habitat alteration can be directly addressed.

Field Office Distribution

Although a single individual was collected in 1990 from the Little Snake River, Colorado pikeminnow are now thought to be extirpated from Wyoming.

Reproduction and Survivorship

Both historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, although assessing the effects on species viability may be difficult.

The cumulative effects on the Colorado pikeminnow are attributed to activities that occur on public and private lands in the upper Colorado River basin (Wyoming only) are real and may be measurable. The cumulative effects to this species are primarily the result of water developments and water uses in the basin. Introduced species, such as rainbow trout, also are an important component of the cumulative effects that impact the Colorado pikeminnow; exotic trout tend to prey on young age classes of the pikeminnow.

Threats From Human Activity

Colorado pikeminnow populations have been dramatically reduced throughout their historic range as a result of past and present human activities. Pervasive threats to this species are habitat alterations resulting from water development and diversions. However, non-native fish introductions are the most pressing impediment to the recovery of this species; predatory, non-native fishes profoundly affect recruitment by consuming juveniles (Minckley et al. 2003). Recovery efforts, however, are expanding the abundance and distribution of this species where the effects of habitat fragmentation and habitat alteration can be directly addressed.

2.2.5.3 Razorback sucker (*Xyrauchen texanus*)

Listing Status: Federal—Endangered

Species Description

The razorback sucker was historically well distributed in the Colorado River and in many of its major tributaries. At present, the razorback sucker is listed as endangered under the Endangered Species Act of 1973. In addition, the razorback sucker is listed as endangered in the State of Colorado and is legally protected by the State of Utah.

Life History

The Razorback sucker prefers fast, turbid waters in large rivers, such as the Colorado River and Green River. The USFWS has designated the following Critical Habitats for the razorback sucker: Yampa River (Moffat County, Colorado) and its 100-years floodplain from the mouth of Cross Mountain Canyon in T.6 N., R.98 W., sec. 23 (6th Principal Meridian) to its confluence with the Green River in T.7 N., R. 103 W., sec. 28 (6th Principal Meridian); Green River (Uintah County, Utah, and Moffat County, Colorado) and its 100-years floodplain and its confluence with the Yampa River in T.7 N., R.103 W., sec. 28 (6th Principal Meridian) to Sand Wash at river mile 96 in T.11 S., R.18 E., sec. 20 (6th Principal Meridian); Green River and its 100-years floodplain from Sand Wash at river mile 96 in T.11 S., R.18 E., sec. 20 (6th Principal Meridian) to the confluence to the Colorado River in T.30 S., R.19 E., sec.7 (6th Principal Meridian); White River (Uintah County, Utah) and its 100-years floodplain from the boundary of the Uintah and Ouray Indian Reservations at river mile 18 in T.9 S., R.22 E., sec. 21 (Salt Lake Meridian) to its confluence with the Green River in T.9 S., R.20 E., sec.4 (Salt Lake Meridian); Duchesne River (Uintah County, Utah) and its 100-years floodplain from river mile 2.5 in T.4 S., R.3 E., sec.30 (Salt Lake Meridian) to its confluence with the Green River in T.5 S., R.3 E., sec. 5 (Uintah Meridian); Gunnison River (Delta and Mesa counties, Colorado) and its 100-years floodplain from its confluence with the Uncompahgre River in T.15 N., R.96 W., sec.11 (6th Principal Meridian) to Redlands Diversion Dam in T.1 S., R.1 W., sec. 27 (Ute Meridian); Colorado River (Mesa and Garfield counties, Colorado) and its 100-years floodplain from Colorado River bridge at Exit 90, north of Interstate 70 in T.6 S., R.93 W., sec.16 (6th Principal Meridian) to Westwater Canyon in T.20 S., R.25 E., sec.12 (Salt Lake Meridian), including the Gunnison River and its 100-years floodplain from the Redlands Diversion Dam in T.1 S., R.1 W., sec.27 (Ute Meridian) to its confluence with the Colorado River in T.1 S., R.1 W., sec. 22 (Ute Meridian); Colorado River (Grand, San Juan, Wayne, and Garfield counties, Utah) and its 100-years floodplain from Westwater Canyon in T.20 S., R.25 E., sec.12 (Salt Lake Meridian) to full-pool elevation upstream of North Wash, including the Dirty Devil arm of Lake Powell in T.33 S., R.14 E., sec.29 (Salt Lake Meridian); and, the San Juan River (San Juan County, New Mexico, and San Juan County, Utah) and its 100-years floodplain from the Hogback Diversion in T.29 N., R.16 W., sec.9 (New Mexico Meridian) to the full-pool elevation at the mouth of Neskahai Canyon on the San Juan arm of Lake Powell in T.41 S., R.11 E., sec.26 (Salt Lake Meridian).

Population Distribution

The abundance and distribution of the razorback sucker have been dramatically reduced because of water developments such as dams and water diversions. In addition, the introduction of non-native trout into the historical habitats of the razorback sucker has almost eliminated their recruitment and survival (Minckley et al. 2003). Incidental catch by recreational anglers may pose a threat as a result of stress-caused direct and delayed mortality.

Field Office Distribution

The razorback sucker does not occur within the planning area.

Reproduction and Survivorship

Water-development projects and activities, such as dam construction/operation and water diversions, have materially altered the preferred habitat conditions of the razorback sucker. Dams have altered the timing, magnitude, and duration of flows that characterize the variation in annual runoff in unaltered, large rivers; altered flows resulting from dam operation can also affect the abundance and distribution of spawning and rearing habitats preferred by the razorback sucker. Historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, although assessing the effects on species viability may be difficult.

The cumulative effects on the razorback sucker attributed to activities occurring on public and private lands in the upper Colorado River basin (Wyoming only) are real and may be measurable. Cumulative effects that may negatively impact this species are primarily the result of water developments and water uses in the basin.

Threats From Human Activity

The abundance and distribution of the razorback sucker have been dramatically reduced because of water developments such as dams and water diversions. In addition, the introduction of non-native trout to the historical habitats of the razorback sucker has almost eliminated their recruitment and survival (Minckley et al. 2003). Incidental catch by recreational anglers may pose a threat resulting from stress-caused direct and delayed mortality.

2.2.5.4 Bonytail (*Gila elegans*)

Listing Status: Federal—Endangered

Species Description

The bonytail is listed as endangered under the Endangered Species Act of 1973. In addition, the bonytail is listed as endangered in the State of Colorado, and it is legally protected by the State of Utah. Historically, the bonytail was abundant in the Colorado River and in its major tributaries such as the Green River and the Yampa River. At present, the bonytail is precariously extant in the Colorado River downstream of Lake Powell; the bonytail is nearly extinct upstream of Lake Powell.

Life History

The bonytail prefers fast-flowing, turbid waters in large, deep rivers in the upper Colorado River basin such as the Green River and Colorado River. The USFWS has designated the following Critical Habitats for the bonytail: Yampa River (Moffat County, Colorado) from the boundary of the Dinosaur National Monument in T.6 N., R.99 W., sec. 27 (6th Principal Meridian) to its confluence with the Green River in T.7 N., R.103 W., sec. 28 (6th Principal Meridian); Green River (Uintah County, Utah, and Moffat County, Colorado) from its confluence with the Yampa River in T.7 N., R.103 W., sec. 28 (6th Principal Meridian) to the boundary of Dinosaur National Monument in T.6 N., R. 24 E., sec. 30 (Salt Lake Meridian); Green River (Uintah and Grand counties, Utah) (Desolation and Gray Canyons) from Sumner's Amphitheater in T.12 S., R.18 E., sec. 5 (Salt Lake Meridian) to Swasey's Rapid (river mile 12) in T.20 S., R.16 E., sec. 3 (Salt Lake Meridian); Colorado River (Grand County, Utah, and Mesa County, Colorado) in T.10 S., R.104 W., sec. 25 (6th Principal Meridian) to Fish Ford in T.21 S., R.24 E., sec. 35

(Salt Lake Meridian); and, Colorado River (Garfield and San Juan counties, Utah) from Brown Betty Rapid in T.30 S., R.18 E., sec. 34 (Salt Lake Meridian) to Imperial Canyon in T.31 S., R.17 E., sec. 28 (Salt Lake Meridian).

Population Distribution

The bonytail is the most imperiled fish among the federally listed fish species native to the Colorado River drainage. Water development projects and activities, such as dams and water diversions, have caused a nearly catastrophic decline in bonytail populations and in preferred habitats. In addition, the introductions of non-native trout in the Colorado River drainage have contributed to the decline in bonytail abundance and distribution attributed to predation.

Field Office Distribution

The bonytail does not occur in the planning area.

Reproduction and Survivorship

Both historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, although assessing the effects on species viability may be difficult.

The cumulative effects on the bonytail resulting from activities that occur on public and private lands in the upper Colorado River basin (Wyoming only) are real and may be measurable. Cumulative effects that may negatively impact this species are the primarily the result of water developments and water uses in the basin. Introduced species, such as rainbow trout, are a component of the cumulative effects; also, exotic trout tend to prey on young age classes of bonytail.

Threats From Human Activity

The bonytail is the most imperiled fish among the federally listed fish species native to the Colorado River drainage. Water development projects and activities, such as dams and water diversions, have caused a nearly catastrophic decline in bonytail populations and in preferred habitats. Further, the introduction of non-native trout in the Colorado River drainage has contributed to the decline in bonytail abundance and distribution as a result of predation.

2.2.5.5 Humpback chub (*Gila cypha*)

Listing Status: Federal—Endangered

Species Description

The humpback chub is listed as endangered under the Endangered Species Act of 1973. In addition, the humpback chub is listed as endangered by the State of Colorado, and it is legally protected by the State of Utah. Historically, the humpback chub was abundant in the canyons of the Colorado River and in the canyons of four tributaries: Green River, Yampa River, White River, and Little Colorado River. In present, two stable populations of humpback chubs exist, both near the Colorado/Utah border: Westwater Canyon (Utah) and Black Rocks (Colorado). The largest known population of humpback chubs exists in the Little Colorado River in the Grand Canyon. Smaller populations of humpback chubs can be found in the main stem of the Colorado River (Arizona) and in sections of its tributaries such as the Green River (Utah and Colorado) and the Yampa River near Dinosaur National Monument.

Life History

The humpback chub prefers fast waters in habitats such as the riffles and rapids of river canyons and their tributaries (canyon sections) in the Colorado River basin. The USFWS has designated the following Critical Habitats for the humpback chub: Yampa River (Moffat County, Colorado) from the boundary of Dinosaur National Monument in T.6 N., R.103 W., sec. 27 (6th Principal Meridian) to its confluence with the Green River in T.7 N., R. 103 W., sec. 28 (6th Principal Meridian); Green River (Uintah County, Utah, and Moffat County, Colorado) from its confluence with the Yampa River in T.7 N., R.103 W., sec.28 (6th Principal Meridian) to the southern boundary of Dinosaur National Monument in T.6 N., R. 24 E., sec.30 (Salt Lake Meridian); Green River (Uintah and Grand counties, Utah) (Desolation and Gray Canyons) from Summers Amphitheater in T.12 S., R.18 E., sec.5 (Salt Lake Meridian) to Swasey's Rapid in T.20 S., R.18 E., sec.3 (Salt Lake Meridian); Colorado River (Grand County, Utah, and Mesa County, Colorado) from Black Rocks in T.10 S., R.104 W., sec.25 (6th Principal Meridian) to Fish Ford in T.21 S., R.24 E., sec.35 (Salt Lake Meridian); and, Colorado River (Garfield and San Juan counties, Utah) from the Brown Betty Rapid in T.30 S., 18 E., sec.34 (Salt Lake Meridian) to Imperial Canyon in T.30 S., R.17 E., sec.28 (Salt Lake Meridian).

Population Distribution

The humpback chub is not as abundant as it was historically. Water development and introduced trout have affected the abundance and distribution of the humpback chub. Dams have altered the timing, duration, and magnitude of annual flows that provided suitable and preferable habitats for the humpback chub. In addition, non-native trout have affected humpback chub abundance as a result of predation.

Field Office Distribution

The humpback chub does not occur in the planning area.

Reproduction and Survivorship

Water developments and introduced fishes are the primary threats to the viability of humpback chub populations. Providing adequate spring-runoff conditions, establishing additional populations, and the reducing the stocking of non-native trout are all conducive to maintaining viable populations of humpback chub. Historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, although assessing the effects on species viability may be difficult.

The cumulative effects on the humpback chub resulting from activities that occur on public and private lands in the upper Colorado River basin (Wyoming only) are real and may be measurable. Cumulative effects that may negatively impact this species are primarily the result of water developments and water uses in the basin. Introduced species such as rainbow trout also are an important component of the cumulative effects; exotic trout tend to prey on young age classes of humpback chubs.

Threats From Human Activity

The humpback chub is not as abundant as it was historically as a result of water development and introduced trout that have also affected the distribution of the humpback chub. Dams have altered the timing, duration, and magnitude of annual flows that provided suitable and preferable habitats for the humpback chub. Further, non-native trout have affected humpback chub abundance as a result of predation.

2.2.6 Platte River System Species

Seven species in the Platte River system are federally listed as threatened or endangered. They are the endangered whooping crane (*Grus americana*), endangered interior population of least tern (*Sterna antillarum*), threatened piping plover (*Charadrius melodus*), endangered pallid sturgeon (*Scaphirhynchus albus*), endangered Eskimo curlew (*Numenius borealis*), and the threatened western prairie fringed orchid (*Platanthera praeclara*). In addition, depletions may contribute to the destruction or adverse modification of designated critical habitat for the whooping crane, and proposed critical habitat for the northern Great Plains breeding population of the piping plover.

The Platte River system is located east of the Wind River mountain range outside of the Pinedale Field Office boundary and within the BTNF and Pinedale Office boundary. The Pinedale Field assists in the management of the federal mineral estate, however the BLM does not have jurisdiction on Forest Management plans, mineral leasing, or any other NEPA documents that would pertain to this area. The BTNF solely contains these rights and authorities; therefore, the Platte River system species will not be considered further in this document.

3.0 METHODS AND CONTEXT OF THE ANALYSIS

3.1 ACTIVITY DESCRIPTIONS

The following discussion is a qualitative overview and summarization of the Pinedale RMP activity programs and potentially authorized activities of BLM that may affect endangered, threatened, proposed, recently de-listed, and candidate species now or in the foreseeable future. Manpower and budgetary restrictions, and changes in biological and technological information, may affect the extent to which the PFO may engage in the following program activities. Therefore, the likelihood of these potentially authorized activities occurring is largely undeterminable at this scale over the life of the plan. Site-specific analysis and determinations would be conducted on a case-by-case basis throughout the life of the plan.

3.1.1 Air Quality

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 PM₁₀, NO₂, ozone, SO₂, and 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 (NO_x), sulfur dioxide (SO₂), PM₁₀, and PM_{2.5} 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.

3.1.2 Cultural Resources

BLM 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, BLM 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 impact minimizing 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. BLM'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. BLM 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.

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

3.1.3 Forestry

BLM'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, BLM allows the cutting and removal of diseased trees and disease treatment by spraying. BLM allows precommercial thinning, chaining, and shearing. During actual harvesting activities, BLM 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. BLM permits the construction of roads and landings for use in timber harvesting operations. Slash is to be lopped and scattered, roller chopped, or burned. BLM 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, BLM ensures site regeneration (natural), artificial regeneration (planting harvested areas, including new seedlings), and stand replacements; fences regenerated areas; and conducts rehabilitation surveys.

3.1.4 Lands and Realty

The Lands and Realty program seeks to support multiple-use management goals of BLM 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 BLM (about 922,880 surface acres and 1,199,280 acres of federal mineral estate).

ROWs granted by BLM 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, BLM 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 nonfederal 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 BLM 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.

3.1.5 Livestock Grazing

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 BLM'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. These treatments are discussed in the Vegetation Management Section of this BA. 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.

3.1.6 Minerals

BLM'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 (Minerals Report, 2003). 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.

3.1.6.1 Leasable Minerals

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

3.1.6.2 Leasable Minerals (Solid)

There are no known economic coal reserves in the PFO. 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 impact minimizing measures would be developed. The extent of wildlife and fish impacts is unknown and would be determined when the lease application is considered.

3.1.6.3 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 BLM 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 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 BLM field office. BLM conducts an in-office environmental analysis to determine whether any T&E 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 T&E 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 nonfederal surface, and T&E species are protected with wildlife restrictions. Wildlife stipulations for other species not associated with the T&E program would not apply when a split estate situation occurs (federal minerals/nonfederal surface) and a proposed project is analyzed.

BLM 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.

3.1.6.4 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. . BLM 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 Wyoming BLM. Other locatable metallic minerals include silver, gold, platinum, cobalt, and other precious minerals. At present, no active metallic mineral mining occurs on BLM-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 EA or an EIS. All lands must be reclaimed after expiration of mining.

3.1.6.5 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. BLM 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, BLM conducts appropriate environmental assessments. These assessments include special studies or inventories of cultural values, T&E 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 BLM.

3.1.7 Paleontology and Natural History

BLM performs various activities to preserve, protect, and restore paleontological resources. During inventory activities, BLM 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 impact minimizing 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 EA. BLM'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. BLM also seeks listing of eligible sites on the National Register of Historic Places. BLM pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets paleontological sites.

3.1.8 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 BLM lands include hiking, hunting, mountain biking, floating, fishing, OHV use (including snowmobiles), horseback riding, backpacking, rock hounding, and camping. Large recreational events may be issued Special Recreation Permits. BLM 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. BLM 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.

3.1.8.1 Special Recreation Management Areas

The objectives of SRMA are 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, CCC Ponds, Boulder Lake, Upper Green River, Green River, and New Fork River.

3.1.9 Soil

BLM 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.

3.1.10 Transportation, Access, and Travel Management

BLM rehabilitates access roads that are no longer needed, proposes access easement acquisitions, and pursues legal access across private and state lands.

BLM implements management in areas designated as closed, limited, or open to OHV use. BLM 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. BLM 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. BLM 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. BLM permits OHV events.

BLM recognizes the use of bicycles and other human-powered, mechanized conveyances as appropriate recreational activities. Federal regulations do not specifically address management of nonmotorized vehicle use. The Wyoming State BLM has adapted the national OHV strategy to meet local needs. Bicycles would be allowed on the Encampment River Trail within the WSA until the Congress designates that area as wilderness. Wheelchairs would be allowed despite designation of use.

3.1.11 Vegetation

Vegetation objectives for BLM 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 T&E plants or animals would be postponed or modified to protect the presence of these species, and consultation with the USFWS will be initiated.

As part of the vegetation management program, BLM 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 PFO. Noxious weeds are listed by the state, whereas invasive weed species are listed by BLM (see the glossary of RMP/EIS). Three types of noxious or invasive weed control measures are used by BLM 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.

3.1.12 Visual Resources

Through VRM, BLM 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 resource 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 impact minimizing measures 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 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.

3.1.13 Watershed and Water Quality (Surface and Groundwater)

BLM 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.

BLM 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, BLM 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 impact minimizing measures.

During watershed management activities, BLM 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. BLM 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.

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

3.1.14 Wildland Fire and Fuels

The two major categories of activities involved with BLM'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, BLM 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 impact minimizing measures: areas of mixed land ownership, urban and industrial interfaces, important wildlife habitats, cultural sites, ACECs, Wilderness Study Area (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, BLM 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. BLM 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, BLM seeks to effectively protect life, property, and resource values from wildfire. BLM 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 BLM are similar to trends throughout the west, with larger, catastrophic fires in recent years attributed to drought conditions and past fire suppression policies.

3.1.15 Wildlife and Fish Habitat

Through wildlife and fisheries habitat management, BLM 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, BLM Manual 6840, and approved recovery plans. BLM wildlife habitat management program supports population objective levels in the WGFD 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 impact minimizing measures. In addition, inventory and monitoring are used to identify and describe habitat requirements and life history characteristics of T&E 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.

3.1.16 Special Management Areas

Under the Special Management Areas program, BLM 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.

3.1.16.1 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 (T&C) specifically designed to protect the values within the ACEC.

3.1.16.2 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.

3.1.16.3 Wild and Scenic Rivers

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

3.2 EFFECTS ANALYSIS

This BA analyzes the impacts of a proposed, discretionary federal action. A federal action is defined as anything authorized, funded, or carried out by a federal agency. Direct impacts are those effects on the species or its habitat that are caused by an action and that occur at the same time and place as the action. Indirect impacts are those effects on the species or its habitat caused by an action, occurring later in time or further removed in distance than direct impacts, but that are still reasonably foreseeable. The analysis of all impacts includes the effects of interrelated and interdependent actions.

For the purposes of effects analysis under the ESA, cumulative effects are defined as effects on a species caused by other projects and activities unrelated to the action under consideration and effects of future state or private activities not involving federal activities that are reasonably certain to occur within the action area of the federal action subject to consultation. Future federal actions would be subject to the consultation requirements established in Section 7 of the ESA and therefore are not considered cumulative to the proposed action.

Factors considered when analyzing impacts include proximity of the action to the species or habitat of concern, geographic distribution of the action disturbance, timing of the action, nature of the action effect, action disturbance frequency, duration of the affecting action, action disturbance intensity, and action disturbance severity.

The BA process is focused primarily on adverse impacts to the species of concern. Even though impacts may have beneficial and detrimental effects on the subject species in the long or short term, the effects determination of the assessment will be based on and controlled by the likelihood of adversely affecting the species. In other words, for a BA, the impacts analysis is *not* an averaging process.

Manpower and budgetary restrictions, and changes in biological and technological information may affect the extent to which PFO may engage in the following program activities. Therefore, the likelihood of these potentially authorized activities occurring is largely undeterminable at this scale over the life of the plan. Site-specific analysis and determinations would be conducted on a case-by-case basis throughout the life of the plan.

BLM programs within the planning area occur in a diversity of habitat types that occur throughout the planning area, and site-specific projects are analyzed at the project level to determine whether habitat exists for all T&E species identified within the PFO. If habitat is not present for a particular T&E species, a No Effect determination is made at that level. In addition, analysis completed at the site-specific project level includes determinations of insignificant, discountable, and beneficial effects for each T&E species that may occur or have the potential to occur, or have habitat present within the project area.

A T&E analysis worksheet (Determination of Need for T&E Conference/Consultation and Biological Evaluation on Other Wildlife Species) is completed for every surface disturbing or disruptive activity that may occur on BLM-administered public lands; these forms are modified periodically to comply with changes in the ESA. These forms are kept on file at BLM Field Office in Pinedale, Wyoming, and forms associated with projects that require conferencing and/or consultation are forwarded to the USFWS in Cheyenne, Wyoming.

The potential for these activities to occur would depend on availability of habitats, presence of the species affected, and proposed project parameters. The threshold of these activities would be determined on a case-by-case basis, based on the project's parameters. The determinations of may affect, likely to adversely affect (LAA) are based on the best scientific judgment available at the time of the decision that implementation of some of those activities could result in adverse effects to the species or their Critical Habitat.

3.3 EFFECTS DETERMINATIONS

BLM staff has reviewed potential actions associated with each program and the impacts to the individual species or their Critical Habitats to determine the impact to the species or their Critical Habitats, if those actions were to occur within suitable habitat for those species. Table 5 below lists potential activities and associated effect determinations of each BLM action on the individual species or habitat.

This BA describes in detail those potential actions *that may affect and are likely to adversely affect* a listed species or its Critical Habitat. Other potential actions that have been determined to be not likely to adversely affect or have no affect on a species or its Critical Habitat will not be further discussed in detail.

Programs that do not have actions located within the habitat of a listed species, or have no impact on that species, have been denoted as having “No Effect” on that species or its Critical Habitats.

Determination categories considered as part of this BA include the following:

3.3.1 Threatened and Endangered Species (includes recently de-listed species)

No effect (NE)—the appropriate conclusion when BLM determines its proposed action would not affect listed species. The principal factor in this determination is that “suitable habitat” does not exist for the species in the analysis area. In this situation, no further contact with the USFWS is required.

May affect, not likely to adversely affect (NLAA-b, -i, -d)—the appropriate conclusion when effects on listed species are expected to be discountable (-d), or insignificant (-i), or completely beneficial (-b). This type of effect requires informal Section 7 consultation with the USFWS and concurrence with the determination.

May affect, likely to adversely affect (LAA)—the appropriate conclusion if any adverse effect to the listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species, but also is likely to cause some adverse effects, the proper effect determination for the proposed action is “likely to adversely affect” the listed species. A “likely to adversely affect” determination requires formal Section 7 consultation with the USFWS.

3.3.2 Candidate and Proposed Species (includes Nonessential Experimental Populations)

Not likely to jeopardize the continued existence of the proposed species (NJ)—the appropriate conclusion when the action agency identifies situations in which the proposed action is not likely to jeopardize the continued existence of the proposed or candidate species. If this determination is reached, conference with the USFWS is not required.

Likely to jeopardize the continued existence of the proposed species (LJ)—the appropriate conclusion when the action agency identifies situations in which the proposed action is likely to jeopardize the continued existence of the proposed or candidate species. If this determination is reached, formal conference with the USFWS is required.

3.4 COORDINATION/CONSERVATION MEASURES

As part of the affected environment for the PFO RMP/EIS, Section 7(a)(1) of ESA requires the federal agency (i.e., BLM) to use all of its authorities in furthering the purposes of the Act by implementing programs for the conservation of listed threatened and endangered species. To meet the requirements of Section 7(a)(1), BLM needs to consider conservation programs for the management of listed threatened and endangered species separate from any consultation requirements for actions affecting other Special Status Species (candidate and proposed species). Those conservation programs that are adopted need to be incorporated into the approved RMP. These actions would be implemented at a large-scale and/or at a project-specific level. Although the BA does not address BLM Sensitive Species (addressed in the final EIS), these conservation measures and actions are applicable to these species.

Conservation recommendations serve the following purpose: (1) they can present ways BLM can assist species conservation in furtherance of statutory responsibilities; (2) they can minimize or avoid the adverse impacts of a proposed action on a Special Status Species; and (3) they can identify and recommend studies aimed at improving the understanding of a species’ biology or ecology.

Listed T&E and Special Status Species management can be addressed in three primary ways:

- (1) Through Conservation Actions identified as part of a species listing package, as Reasonable and Prudent measures recommended in the BO from the USFWS in response to a BA, and through species protection measures determined through collaborative interagency and multidiscipline efforts.

- (2) The 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. As stated, the “Standards apply to all resource uses on public lands,” whereas the Guidelines “apply specifically to livestock grazing management practices on BLM-administered public lands.” The development and application of these standards and guidelines are intended to achieve the following four fundamentals of rangeland health: (1) proper functioning of air and watersheds; (2) proper cycling of air, water, soil nutrients, and energy; (3) attainment of state water quality standards; and (4) sustained maintenance and management of the native fauna and flora of the area, including Special Status Species. These fundamental goals are achieved through inventory of the natural resources, appropriate management actions aimed at these resources, monitoring and evaluation of the effectiveness of these management actions, and land management adjustments, as necessary.
- (3) *Special Status Species Management, BLM Manual 6840* directs field office managers to implement Special Status Species programs (Appendix 9 of final EIS RMP) within their area of jurisdiction by (1) conducting and maintaining current inventories for Special Status Species on public lands; (2) providing for the conservation of Special Status Species in preparing and implementing recovery plans with which BLM has concurred, interagency plans, and conservation agreements; 3) ensuring that all actions comply with the ESA, its implementing regulations, and other directives associated with conserving Special Status Species; (4) coordinating field office activities with federal, state, and local groups to ensure the most effective program for Special Status Species conservation; (5) ensuring actions are evaluated to determine whether Special Status Species objectives are being met; (6) ensuring all actions authorized, funded, or carried out by BLM follow the interagency consultation procedures as outlined in 50 CFR, Part 402; and (7) ensuring results of formal Section 7 consultations, including T&C in incidental take statements, are implemented.

BLM is required to implement measures that would be used to avoid, minimize, or mitigate potential impacts to T&E and Special Status Species associated with implementation of the proposed PFO. Additional environmental protection measures specifically designed for other resources, such as soils, vegetation, wetlands, and visual resources, also avoid, minimize, or mitigate potential impacts to T&E and Special Status Species. PFO biologists will identify site-specific impact minimizing measures at the project level (e.g., during APD and ROW application review processes) to protect T&E and Special Status Species. Projects will be assessed for potential impacts prior to the signing of the ROD by the Bureau and Section 7 requirements will be fulfilled for all activities that the Bureau has determined "may affect" a listed species or its designated critical habitat. If a "may affect" determination is made formal consultation will be initiated and the BLM will seek written concurrence from the Service that the action is "not likely to adversely affect" a listed species. Significant changes to a project description that change the effects determination or changes conservation measure implementation will require re-initiating consultation with USFWS.

BLM will implement or require further protection measures for T&E species, pursuant to Instruction Memorandum No. WY-99-24, by conducting inventories, implementing protection measures, and monitoring affects of authorized actions on T&E and BLM Sensitive Species and their associated habitats (Table 5). These measures apply to all BLM actions, including range management, recreation, mineral development, realty actions, and forestry practices. In addition, BLM may recommend that the Wyoming Oil and Gas Conservation Commission and the State Land Board adopt policies to ensure ESA compliance during well permitting on state and private lands.

Table 5. BLM Requirements for Inventory, Protection, and Monitoring of T&E/Special Status Species

Land Status	BLM Requirement ¹
BLM surface/BLM subsurface	Conduct data gathering, avoid or mitigate impacts as appropriate, and monitor. Early coordination and consultation with the USFWS to benefit the species will be conducted on a case-by-case basis.
BLM surface/non-BLM subsurface	Conduct data gathering, avoid or mitigate impacts as appropriate, and monitor. Early coordination and consultation with the USFWS to benefit the species will be conducted on a case-by-case basis.
Non-BLM surface/BLM subsurface²	Request landowner permission to access lands for inventory and, if granted, conduct data gathering on affected areas, require avoidance or impact minimizing measures, and monitor as appropriate. If permission is not granted, BLM will require project proponents to obtain access through appropriate legal action and, if obtained, conduct data gathering on affected areas, avoid or mitigate impacts, and monitor as appropriate. If legal access is not obtained, no onsite data gathering will be conducted, and all analyses will be performed using alternate methods and so stated in appropriate analysis document. If it is suspected that T&E species or their habitats may be affected, early coordination and consultation with the USFWS to benefit the species will be conducted on a case-by-case basis.
Non-BLM surface/non-BLM subsurface³	If it is suspected that T&E species or their habitats may be affected, early coordination and consultation with the USFWS to benefit the species will be conducted on a case-by-case basis.

1 BLM may also require project proponents to obtain appropriate T&E species resource data.

2 For actions that are a direct result of the subsurface estate value (e.g., oil and gas exploration and development).

3 For actions that are not a direct result of the subsurface estate (e.g., ROWs).

All the proposed applicant-committed impact minimizing measures/environmental protection measures identified in this BA will be implemented on all federal lands under the Preferred Alternative. Implementation of these measures on state and private lands where split estate exists and a federal nexus occurs will also comply with this BA. Development activities on all lands will be conducted in accordance with all appropriate federal, state, and county laws, rules, and regulations.

These measures will be implemented under the Programmatic Agreements developed by the Bureau and the Service for each of the federally listed species that occur in the planning area. Although the protective measures identified for individual species in these BAs will be the most appropriate measures, a final decision that includes the approval of the State Director, BLM-WY and concurrence by the USFWS with each statewide programmatic BO is required before implementation in this planning area.

The following general impact minimizing measures for T&E species include actions listed below:

- (1) Proposed projects would be designed and locations selected to minimize disturbances to habitat essential to T&E species. Early coordination with the USFWS to benefit the species would be implemented on a case-by-case basis.
- (2) Areas with high erosion potential and/or rugged topography (i.e., steep slopes [>25 percent], stabilized sand dunes, floodplains, and erosive and sandy soils) would be avoided, where

possible, or specialized impact minimizing measures would be applied on a case-by-case basis to benefit T&E species.

- (3) All previously constructed roads not required for routine operations and maintenance of developed and abandoned projects would be reclaimed as directed by BLM. As necessary, these roads will be permanently blocked, recontoured, reclaimed, and revegetated to benefit habitat for T&E species.
- (4) Removal or disturbance of vegetation will be minimized through construction site management (e.g., by using previously disturbed areas, using existing ROWs, and designating limited equipment and materials storage yards and staging areas, and scalping) to benefit habitat for T&E species.
- (5) To ensure protection of migratory birds and wildlife, BLM would adequately reduce potential hazards on reserve, workover, and evaporation and production pits using netting and fencing.
- (6) To avoid collisions and electrocution of raptors and other avifauna, any power line construction would follow recommendations by the Avian Power Line Interaction Committee (APLIC) (1996). Power lines would be placed underground and/or in locations necessary for avoiding impacts to T&E species on a case-by-case basis.
- (7) USFWS consultation and coordination would be conducted as necessary for all impact minimizing activities related to raptors and T&E species (and their habitats), and all permits required for movement, removal, and/or establishment of raptor nests would be obtained.
- (8) Proposed projects within identified T&E habitats would not be authorized during critical time periods to reduce impacts to these species. Additional impact minimizing measures for species would be designed on a site-specific and case-by-case basis, in consultation with BLM and USFWS.
- (9) All production facilities (e.g., compressors) would be muffled and maintained to minimize noise levels that would impact T&E species.
- (10) The PFO policy for OHV restrictions to existing and designated roads and trails would protect plant populations and wildlife habitat.
- (11) To reduce impacts to T&E species, construction within 500 feet of open water and 100 feet of intermittent or ephemeral channels would be avoided. Stream crossings for roads and pipelines would be constructed during the period of lowest flow (i.e., late summer or fall). All required stream crossings would be constructed perpendicular to flow. No surface water or shallow groundwaters in connection with surface waters would be used for proposed projects. Proper erosion control techniques (e.g., water bars, netting, riprap, and mulch) would be implemented.
- (12) The PFO biologists, or BLM-approved contractor, would conduct site-specific surveys for T&E species and associated habitats before any surface disturbance in areas determined by BLM to contain potential habitat for such species (BLM Manual 6840). Data from these surveys would be analyzed by BLM, and recommendations for avoidance or impact minimizing measures would be implemented. Relocations of project facilities would be made to avoid T&E species and/or their habitats on a case-by-case basis. Informal or formal consultation with the USFWS will be initiated for site-specific projects which may affect listed species.

- (13) Herbicide applications would be kept at least 500 feet from known T&E populations.
- (14) To the extent possible, resource data, including inventories of Special Status Species, should be accumulated and assimilated in a geographic information system (GIS) format for ease of future use.
- (15) Clearances are required for authorized BLM activities in areas known or suspected to be essential habitat for animals and plants classified as Status Species, or other species of concern. These clearances would be performed in accordance with BLM and USFWS guidelines, as appropriate, to verify the presence or absence of these species. All clearances shall be performed before activity implementation. If a subject species is identified, the project or management action may be relocated or modified, as necessary, to include protection requirements for the species and its habitat.
- (16) Timing stipulations should be developed and implemented to avoid or minimize disturbance of T&E species.
- (17) Riparian habitats would be maintained, improved, or restored to provide wildlife habitat, improve water quality, and enhance forage conditions.
- (18) BLM has statutory authority under the Mineral Leasing Act of 1920, Mineral Leasing Act for Acquired Lands, and Federal Land Policy and Management Act of 1976 to take reasonable measures to avoid or minimize adverse environmental impacts that may result from federally authorized mineral lease activities. This authority exists regardless of whether the surface is federally owned.

The Statewide Programmatic Biological Assessments and Statewide Programmatic Biological Opinions authorized for each species, including all the reasonable and prudent measures and T&C, would be implemented for the planning area. Informal conferencing and consultation with the USFWS would occur for authorized activities that would potentially affect the habitat for all T&E candidate and proposed species within the planning area.

4.0 EFFECTS DETERMINATIONS BY SPECIES

4.1 BLACK-FOOTED FERRET

Black-footed ferrets are not known to exist within the planning area. Because black-footed ferrets are known to be very closely associated with prairie dogs, their long-term welfare is dependent on healthy prairie dog populations and colony complexes. The restrictions applied to prairie dog colonies would indirectly provide a significant measure of protection to black-footed ferrets. These protections include stipulations on surface occupancy within and near prairie dog colonies, seasonal restrictions, range improvement restrictions, and others.

4.1.1 Effects Determination for BLM-Administered Programs

4.1.1.1 Air Quality

The Air Quality program *may affect, is not likely to adversely affect (NLAA-d)* the black-footed ferret for all activities due to surface disturbances associated with construction and maintenance of air quality research stations within or in the vicinity of black-footed ferrets and associated habitat.

4.1.1.2 Cultural Resources

Cultural inventories and authorized excavation of cultural sites *may affect, is not likely to adversely affect (NLAA-d)* the black-footed ferret due to the low probability of a significant cultural resource being located within a prairie dog town. Cultural resource management activity plans would be prepared that include site-specific management prescriptions and if excavation would occur in black-footed ferret habitat, the project would be reevaluated, subject to site-specific adjustments, and potentially redesigned.

4.1.1.3 Forestry

The Forestry program *may affect, is not likely to adversely affect (NLAA-d)* the black-footed ferret due to the possibility of an access road for timber sales being constructed within lower elevation short-grass prairie or desert shrub habitats containing prairie dog towns.-

4.1.1.4 Lands and Realty

The Lands and Realty program *may affect, is not likely to adversely affect (NLAA-i)* the black-footed ferret because BLM would not dispose of properties with high resource value such as those with known threatened, endangered or sensitive species. In addition, land exchanges and/or protective withdrawals may enhance habitat for the black-footed ferret by acquiring lands containing prairie dog towns that could contribute to reintroduction sites. Issuing ROWs and leases may increase potential damage to habitat for black-footed ferrets; however, new ROW actions through prairie dog towns would be avoided if possible. If avoidance is not possible black-footed ferret surveys would be conducted; and if these surveys indicate that ferrets are present the project would be redesigned to prevent an adverse affect.

4.1.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *may affect, is not likely to adversely affect (NLAA-i)*, the black-footed ferret; these actions would have an insignificant effect on this species. BLM Standards and Guidelines would reduce the impacts of grazing on riparian areas. In addition, the likelihood that an undiscovered ferret would be killed or infected with canine distemper by a dog, preyed upon by perching raptors, or killed by livestock operator's vehicle is extremely low.

4.1.1.6 Minerals

The Minerals program *may affect, is not likely to adversely affect (NLAA-i)*, the black-footed ferret; actions would have an insignificant effect on this species by implementation of conservation measures to reduce or eliminate effects and reducing effects of motorized vehicle disturbance by limiting them to designated roads and trails.

4.1.1.7 Paleontology and Natural History

The Paleontology and Natural History program *may affect, is not likely to adversely affect (NLAA-d)* the black-footed ferret. Prairie dog towns containing potential black-footed ferrets would be avoided if surface disturbing activities are required pertaining paleontological resources. In addition the probability that a paleontological interpretive site would be located within a prairie dog complex is extremely low.

4.1.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, and maintaining developed and undeveloped recreation sites (campgrounds) *may affect, are not likely to adversely affect (NLAA-i)*, the black-footed ferret; these actions would have an insignificant effect on these species. The public's camping and casual use generally does not occur within prairie dog towns and conservation measures would be implemented to avoid surface disturbing activities that would affect prairie dog complexes.

4.1.1.9 Soil

The Soil program *may affect, is not likely to adversely affect (NLAA-b)*, the black-footed ferret for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions with special emphasis in highly erodible areas (Ross Butte, Blue Rim, Milleson Draw, Long Island Watershed, and Red Canyon). Reclamation activities and impact minimizing measures to limit soil erosion would result in decreased erosion of sensitive black-footed ferret habitat. These activities are of short duration and are subject to surface disturbing conservation measures providing an overall benefit to the habitat in which the prairie dog complex occurs.

4.1.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use *may affect, is not likely to adversely affect (NLAA-i)*, the black-footed ferret. These activities would not be permitted within potential or known black-footed ferret habitat, and participants would be required to remain on existing roads and trails; however, there is the possibility that people may leave the roads and trails and temporarily disturb ferrets if present. Recreational prairie dog hunters may access these areas and remove individuals from the population or potentially bring in disease. Although unlikely, if black-footed ferrets occur in these locations direct vehicle mortality could occur.

Designating, implementing, and monitoring closed areas for OHV use; and designating, implementing, and monitoring limited areas for OHV use *may affect, are not likely to adversely affect (NLAA-b)*, the black-footed ferret; these actions would have a beneficial effect on the species. These activities would reduce impacts to black-footed ferrets because roads containing prairie dog complexes would be avoided when designating roads for recreational purposes. Those roads currently designated may be closed, reducing impacts to the black-footed ferret and associated habitat.

4.1.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, wildland fire use (WFU), chemical, biological, and mechanical methods *may affect, are not likely to adversely affect (NLAA-i)*, the black-footed ferret. These actions would not be necessary directly within black-footed ferret habitat because prairie dog towns are devoid of vegetation. However,

there may be incidental effects by hauling equipment to the treatment site and reactions to chemical spraying.

4.1.1.12 Visual Resources

The Visual Resources program *may affect, is not likely to adversely affect (NLAA-b)*, the black-footed ferret. Maintaining visual resources indirectly protects prairie dog complexes containing black-footed ferret by limiting or eliminating visual obstructions and/or surface disturbing activities.

4.1.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program is determined to have *no effect (NE)* on the black-footed ferret for the following activities: avoiding surface discharges of produced water in stream channels and uplands and prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas, which do not contain black-footed ferret habitat.

The Watershed and Water Quality program *may affect, is not likely to adversely affect (NLAA-d)*, by maintaining or improving function in riparian/wetland areas. Conservation measures would be in place to avoid adverse affects in prairie dog complexes containing black-footed ferret and associated habitat. Watershed and riparian management actions may maintain or improve the condition of some uplands habitats resulting in enhancement of prairie dog and black-footed ferret habitat.

4.1.1.14 Wildland Fire and Fuels

Prescribed burning, WFU, and fire suppression activities *may affect, are not likely to adversely affect (NLAA-i)*, the black-footed ferret; these actions would have an insignificant effect on these species. These actions would not be necessary directly within black-footed ferret habitat because prairie dog towns are devoid of vegetation. Fire suppression activities would be required to remain on existing roads and trails. The resource advisor would be briefed on areas containing sensitive black-footed ferret habitats, these areas would be avoided during fire suppression activities. If human health and safety issues arise and cannot be avoided, USFWS would be contacted immediately for emergency consultation.

4.1.1.15 Wildlife and Fish Habitat

The Wildlife and Fish Habitat program *may affect, is not likely to adversely affect (NLAA-i)*, the black-footed ferret; prairie dog complexes containing potential habitat for black-footed ferret would have limited access for recreational activities whether on OHV/snowmobile or on foot in accordance with the conservation measures for this species, reducing recreational shooting or habitat destruction. Should Wildlife Services or Animal Damage Control request any actions, BLM would enter into consultation with the USFWS.

4.1.1.16 Special Management Areas

The Special Management Areas program *may affect, is not likely to adversely affect (NLAA-b)*, the black-footed ferret for the following activities: Rock Creek ACEC, Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and WSR management. Although there are no known populations of black-footed ferret within the planning area, designating special management areas would benefit them by protecting potential or unknown habitats from surface disturbing activities or development.

4.1.2 Management Status Recovery and Conservation Planning

Project and development activities will be avoided in white-tailed prairie dog towns/complexes greater than 200 acres. These areas will be assessed and mapped at the proposed project level and associated burrow densities on potentially affected towns will be determined, when necessary, pursuant to USFWS- and BLM-approved techniques. Assessments shall be repeated every 3 to 5 years thereafter to determine whether the criteria established in the USFWS (1989) guidelines for black-footed ferrets are met.

If any black-footed ferrets or their sign are found within a prairie dog town or complex previously determined to be unsuitable for or free of ferrets, then all previously authorized project-related activities (or actions on any future application that may directly, indirectly, or cumulatively affect the colony/complex) ongoing in such towns or complexes will be suspended immediately and Section 7 consultation will be re-initiated with USFWS.

If suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets will be conducted in accordance with USFWS guidelines and requirements. This information will be provided to BLM and USFWS in accordance with Section 7 of the Endangered Species Act (Act) and the Interagency Cooperation Regulations.

BLM will conduct educational outreach to employees and project proponents regarding the nature, hosts, and symptoms of canine distemper and its effects on black-footed ferrets. Attention will be focused on the reasons why employees will not have pets on work sites during or after hours.

In 2005, the Wyoming BLM submitted a Statewide Programmatic Biological Assessment for assessing the potential effects to the black-footed ferret from management actions included in ten RMPs of the Wyoming BLM. The measures discussed above were detailed in the BA. The USFWS issued a BO in response to BLM's request for consultation on the black-footed ferret in 2006 citing the following conservation and recovery/reintroduction measures.

4.1.2.1 Conservation Measures

The Conservation Measures listed below are separated into Species Conservation Measures, which affect the species directly; Habitat and Mapping Measures, which protect habitat and address prairie dog colonies and mapping activities, and Recovery/Reintroduction Measures, which address BLM's role in and commitment to recovery of the species

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 USFWS block clearance letter of February 2, 2004 (USFWS 2004)] and meet potential habitat criteria as defined by the USFWS guidelines (USFWS 1989), the BLM shall initiate coordination with the USFWS at the earliest possible date so that the USFWS 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 USFWS.
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 BLM and the USFWS 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 USFWS 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 the USFWS or BLM employees, and deposited with the USFWS Wyoming Field Office or the USFWS 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 USFWS 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 USFWS Field Office Supervisor, the Wyoming Game and Fish Department (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 USFWS. 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 USFWS, 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 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 USFWS 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 USFWS and BLM approved techniques to determine whether the criteria established for ferret occupancy in the USFWS (1989) guidelines for black-footed ferrets are met.

4.1.2.2 Best Management Practices

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. Avoid vegetation stand conversions that have been shown to be detrimental to prairie dogs, and reduce or eliminate any other suspected ecosystem-degrading practices.
6. 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.
7. 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).

4.1.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the black-footed ferret:

- Air Quality—NLAA-d
- Cultural—NLAA-d
- Forestry—NLAA-d
- Lands and Realty—NLAA-i
- Livestock Grazing—NLAA-d
- Minerals—NLAA-i
- Paleontology and Natural History—NLAA-d
- Recreation and Visitor Services—NLAA-i
- Soil—NLAA-b
- Transportation, Access, and Travel Management—NLAA-i
- Vegetation—NLAA-i
- Visual Resources—NLAA-b
- Watershed and Water Quality (Surface and Groundwater)—NLAA-d
- Wildland Fire and Fuels—NLAA-i
- Wildlife and Fish Habitat—NLAA-i
- Special Management Areas—NLAA-b.

4.2 GRIZZLY BEAR

On March 29, 2007, the USFWS published a Federal Register notice (72 FR 14865) announcing that the Yellowstone Distinct Population Segment (DPS) of grizzly bears is a recovered population that no longer meets the definition of threatened or endangered under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.). The delisting of the Yellowstone DPS does not change the threatened status of the remaining grizzly bears in the lower 48 States. The BLM is committed to implement the 2007 Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area and is participating in the Yellowstone Grizzly Bear Coordinating Committee to ensure the continued conservation of the grizzly bear in the GYA. As population sizes of the grizzly bear continue to increase in the Greater Yellowstone Ecosystem, the rehabilitation of native vegetation and food sources will increase in importance. Maintaining habitat conductivity will assist the success of population expansion and adverse human/grizzly interactions.

4.2.1 Effects Determination for BLM-Administered Programs

4.2.1.1 Air Quality

The Air Quality program is determined to have *no effect (NE)* on the grizzly bear for all activities. This determination was reached because this program and its associated activities would not be located in grizzly bear habitat.

4.2.1.2 Cultural

Cultural inventories and authorized excavation of cultural sites *may affect, are not likely to adversely affect (NLAA-i)*, the grizzly bear. Temporary campgrounds associated with cultural resource excavations are also *not likely to adversely affect (NLAA-i)* the grizzly bear. These activities have the potential to occur within grizzly bear habitat; however, cultural resource management activity plans would be prepared that include site-specific management prescriptions. If excavation were to occur in grizzly bear habitat, the project would be reevaluated, subject to site-specific adjustments, and potentially redesigned. Human activity at these sites may temporarily displace migrating grizzly bears; however, the likelihood is insignificant.

4.2.1.3 Forestry

Forest commodity production and stand improvement activities *may affect, are not likely to adversely affect (NLAA-i)*, the grizzly bear; these actions would have an insignificant effect on this species. These activities may occur within grizzly travel corridors; however, the likelihood of disturbing a grizzly bear is very low. Human activities associated with these actions may lead to short-term avoidance or behavioral avoidance of these areas by grizzly bears.

Managing conifer and lodgepole pine stands for old growth composition and restoration of aspen stands *may affect, are not likely to adversely affect (NLAA-b)*, the grizzly bear; these actions would improve forest health and have a beneficial effect on the species. Human activities associated with these actions may lead to short-term avoidance or behavioral avoidance of these areas by grizzly bears; however, in general, these actions may create habitat and hiding areas for the prey species for the grizzly bear, which would be a benefit. No known stands of white bark pines exist within the planning area; however, if stands are found they would not be included in any future timber management plans according to the conservation measures for the grizzly bear.

4.2.1.4 Lands and Realty

The Lands and Realty program *may affect, is not likely to adversely affect (NLAA)*, the grizzly bear for potential land tenure adjustments and issuance of ROWs and leases (utility transportation corridors). Disposal of lands with grizzly bear habitat may affect the bear's ability to use travel corridors linking more desirable habitats found on the Bridger Teton National Forest. The planning area's overall goal is to maintain lands that contain habitat for the grizzly bear; however, large transfers of acreage resulting from land tenure actions may occur. ROWs and leases may affect bears ability to use suitable habitats and travel corridors between habitats as well as increase direct mortality due to interactions with humans.

4.2.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *may affect, are likely to adversely affect*

(LAA, the grizzly bear. The northern most boundary of the planning area is within known grizzly bear use areas which overlap with livestock grazing allotments. Grizzly bears and livestock interactions may result in livestock depredations and subsequent elimination of problem bears.

4.2.1.6 Minerals

Oil and gas development, mineral material sales (sand and gravel, decorative stone, aggregate); locatable mineral exploration and development (e.g., gold, silver, cobalt); and geophysical exploration *may affect, are not likely to adversely affect (NLAA)*, the grizzly bear. There is a potential for increases in mineral related activities which would increase grizzly bear and human interactions, including vehicle collisions. Any future minerals development activities would adhere to the conservation measures adapted for the grizzly bear to prevent adverse affects to the species and associated habitat.

4.2.1.7 Paleontology and Natural History

The Paleontology and Natural History program *may affect, is not likely to adversely affect (NLAA-d)* the grizzly bear. These activities are unlikely to occur in grizzly bear habitats. In addition, conservation measures would be implemented to prevent adverse impacts from occurring to the grizzly bear or its habitat including minimizing human-bear interactions.

4.2.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, maintaining developed and undeveloped recreation sites (campgrounds), and focusing recreation opportunities and use in SRMAs *may affect, are not likely to adversely affect (NLAA-i)* the grizzly bear. The range of the grizzly bear is expanding within the planning area, potentially increasing the human-bear interactions during recreational activities such as hunting, hiking, and antler collecting. Implementing conservation measures such as installing bear proof refuse containers, providing educational information about grizzly bears, and applying food storage techniques to special use permits would decrease potential conflicts.

4.2.1.9 Soil

The Soil program *may affect, is not likely to adversely affect (NLAA-b)*, the grizzly bear for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions with special emphasis in highly erodible areas (Ross Butte, Blue Rim, Milleson Draw, the Long Island Watershed, and Red Canyon). Reclamation activities and impact minimizing measures to limit soil erosion would result in decreased erosion of habitat. Using native vegetation in soil resource management actions may improve bear foraging habitat.

4.2.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use *may affect, is not likely to adversely affect (NLAA-i)*, the grizzly bear. The planning area contains limited areas with the habitat components required by grizzly bears (mainly travel between corridors). Although the frequency of grizzly bears in the planning area is increasing, the probability of grizzly bear-human interactions is low based on the limited potential of OHV use in these remote locations. Management actions based on the conservation measures would be implemented to prevent habitat fragmentation, collisions, or human-bear interactions due to OHV use.

4.2.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, chemical, biological, and mechanical methods, *may affect, are not likely to adversely affect (NLAA-i)*, the grizzly bear. Noise and human activity associated with these activities may displace them temporarily. Habitat rehabilitation from treatments would have a beneficial effect on these species. The habitat would provide more foraging, denning, cover, and allow for more foraging resources.

4.2.1.12 Visual Resources

The Visual Resources program *may affect, is not likely to adversely affect (NLAA-b)*, the grizzly bear. Actions involving visual resource management involve no ground disturbing activities, rather protecting scenic vistas, which potentially include grizzly bear habitat, from disturbing activities.

4.2.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program *may affect, is not likely to adversely affect (NLAA-d)*, the grizzly bear. Any watershed, water, or riparian habitat management actions would incorporate grizzly bear conservation measures; thereby potentially improving the functionality of the grizzly bears foraging and denning capabilities.

4.2.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *may affect, is not likely to adversely affect (NLAA-d)*, the grizzly bear. Prescribed fires would be designed to improve the understory forest structure; many of the forested areas in the planning area do not support a strong berry shrub component to aide in the grizzly bears diet. In addition, prescribed fires could reduce the fuel load preventing devastating wildland fires from removing large tracts of grizzly bear foraging and denning habitats. Many of these areas contain heavily used two-track roads reducing the need to create new roads during suppression events. The USFWS would be contacted if any wildland fires occur in grizzly bear habitats to initiate emergency consultation.

4.2.1.15 Wildlife and Fish Habitat

Wildlife and Fish Habitat program actions, including those associated with Special Status Species, *may affect, are not likely to adversely affect (NLAA-i)*, the grizzly bear. Surveys for Special Status Species would be conducted on BLM-administered public lands and mineral estate before any federal project or federal activity would be approved. Chemical use to enhance native fish populations or remove unwanted fish species may be detrimental to the grizzly as fish are important to their diet. Any projects to remove undesirable species of fishes from a stream with potential or known grizzly bear use would be designed with grizzly bear conservation measures that protect or enhance grizzly bears and their habitats.

4.2.1.16 Special Management Areas

The Special Management Areas program *may affect, is not likely to adversely affect (NLAA-b)*, the grizzly bear for the following activities: Rock Creek ACEC, Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and WSR management. Management of areas as ACECs protects environmentally sensitive areas from potential surface disturbing and human related activities. Therefore, grizzly bear habitats would be protected indirectly in these areas. Any actions conducted in Special Management Areas in relation to the management of a particular wildlife species would be subject to the conservation measures developed for the grizzly bear.

4.2.2 Management Status, Recovery, and Conservation Planning

The following BLM-committed conservation measures are to be implemented in grizzly bear habitat, and are intended to minimize or eliminate adverse impacts likely to result from implementation of the management actions provided in the RMPs. The BLM is committed to the implementation of Conservation Measures at every opportunity to further protect the grizzly bear. In the future, it is expected that grizzly bears will reoccupy historic ranges, and move into new areas. BLM will ensure the implementation of these conservation strategies for the protection and management of newly-established populations.

The most important factors affecting grizzly bears on the landscape are the levels of human activities including food storage, livestock allotments, motorized access, and site development (ICST 2003). One of the key habitat factors in the maintenance of grizzly bear populations is the protection of secure habitat, defined as all areas more than 500 m from an open or gated motorized access route or high use non-motorized trail, and larger than 10 acres, and providing all the key elements needed for the survival and life functions of these animals (such as food sources, cover, denning areas, and security from human disturbance and disruptive activities). Human behavior and habitat are both addressed in the following Conservation Measures and Best Management Practices.

4.2.2.1 Conservation Measures (from the Grizzly Bear Programmatic BA)

1. The BLM 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 BLM 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 BLM 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, BLM shall inform the public of proper storage techniques for food and refuse.
4. The BLM 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 BLM 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 BLM 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 BLM shall continue to attend, and be a member of, the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee (IGBC). Since delisting, BLM shall continue to attend the appropriate coordination group(s).
7. The BLM shall not approve commercial cutting or other removal of whitebark pine in occupied or potential grizzly bear habitat.
8. The BLM 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. The NW Wyoming Level One Streamlining Team continues to discuss these issues. 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 0.5 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 BLM 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 BLM range/wildlife specialist or ranger. In cases of uncertainty on carcass disposition the permit holder (or lessee) shall contact the appropriate BLM FO.
9. The BLM 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 BLM administered Public Lands. If these areas are polluted and/or damaged from activities, lessee/permittee/grantee or BLM will be required to assume full responsibility for rehabilitation and restoration of such areas (from IGBC 1986).
10. The BLM 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.
11. Wild horse roundups and other intensive wild horse management activities will avoid areas in or immediately adjacent to occupied grizzly bear habitat.

4.2.2.2 Best Management Practices

1. BLM will (1) phase out sheep allotments in occupied grizzly bear habitat as the opportunity arises, (2) monitor and evaluate for conflicts between grizzly bears and sheep in existing sheep allotments in occupied grizzly bear habitat, and (3) offer no new permitted sheep animal unit months (AUM) in grizzly bear habitat.
2. BLM will 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. BLM will include a clause on all use authorizations that allows for temporary cessation of activities, temporary cancellation, or as a last resort permanent cancellation if needed to resolve a grizzly-human conflict situation.

4. BLM will (1) initiate a habitat mapping and monitoring effort for the grizzly bear using geographic information system (GIS) technology and (2) secure grizzly bear habitat with the appropriate route densities.
5. Wherever possible, the BLM 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).
6. Wherever possible, the BLM will implement appropriate closures or seasonal restriction areas to cross-country motorized travel to provide more security in occupied grizzly bear habitat.
7. 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.
8. The BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM 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 ICST (2003) and conducted in the PCA.
9. 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 which 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).

4.2.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the grizzly bear:

- Air Quality—NE
- Cultural—NLAA-i
- Forestry—NLAA-i
- Lands and Realty—NLAA
- Livestock Grazing—LAA
- Minerals—NLAA
- Paleontology and Natural History—NLAA-d
- Recreation and Visitor Services—NLAA-i
- Soil—NLAA-b
- Transportation, Access, and Travel Management—NLAA-i
- Vegetation—NLAA-i
- Visual Resources—NLAA-b
- Watershed and Water Quality (Surface and Groundwater)—NLAA-d

- Wildland Fire and Fuels—NLAA-d
- Wildlife and Fish Habitat—NLAA-i
- Special Management Areas—NLAA-b

4.3 CANADA LYNX

Although Canada lynx have not been present within the planning area since 2000, additional denning and foraging habitat loss could be detrimental to the rehabilitation of lynx. Habitat protection and rehabilitation for the lynx and for the prey species would greatly increase the survival of this species as new individuals come to inhabit this area.

4.3.1 Effects Determination for BLM-Administered Programs

4.3.1.1 Air Quality

The Air Quality program is determined to have *no effect (NE)* on the Canada lynx for all activities. This determination was reached because this program and its associated activities are not located in Canada lynx habitat.

4.3.1.2 Cultural

Cultural inventories and authorized excavation of cultural sites *may affect, are not likely to adversely affect (NLAA-d)*, the Canada lynx. Temporary campgrounds associated with cultural resource excavations have the potential to occur within Canada lynx habitat; however, cultural resource management activity plans would be prepared, which include site-specific management prescriptions, and if excavation would occur in Canada lynx habitat, the project would be reevaluated, subject to site-specific adjustments, and potentially redesigned.

4.3.1.3 Forestry

Forest commodity production and stand improvement activities *may affect, but are not likely to adversely affect (NLAA-i)*, the Canada lynx. Timber management activities could have impacts on Canada lynx by removing forest cover for foraging and denning habitat for lynx and prey. Snowshoe hares may reach their highest densities in young, dense coniferous or coniferous-deciduous forests, or mature forests with a dense understory of shrubs, aspen, and/or conifers. Lynx natal dens generally occur in areas with large quantities of coarse woody debris, such as blowdown, root wads, which typically occur in mature forests or in regenerating stands. Timber harvest would result in an increase in roads, facilitating snowmobile and other human uses in the winter and thereby increasing access into lynx habitat (LCAS 2000). Forest management actions would incorporate the conservation measures for Canada lynx to ensure that there would be no adverse affects to the species or its habitat.

Managing conifer and lodgepole pine stands for old growth composition and restoration of aspen stands would improve forest health in the long-term and have a beneficial effect on the species. Human activities associated with these actions may lead to short-term avoidance or behavioral avoidance of these areas by Canada lynx; however, in general, these actions may create habitat and hiding areas for the prey species for the Canada lynx, which would be a benefit.

4.3.1.4 Lands and Realty

The Lands and Realty program *may affect, is not likely to adversely affect (NLAA-i)*, the Canada lynx. Lands containing important lynx foraging, denning, or transitional zones would not be available or disposed of for land sales, land exchanges, or special use permits according to the conservation recommendations for Canada lynx. In addition, other permitted actions would have habitat conversion limitations (% of lynx habitat to lynx habitat in an unsuitable condition) based on the recommendations in the LCAS and are also subject to the other conservation recommendations for the Canada lynx to preclude adverse effects to the lynx or its habitat.

4.3.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *may affect, are not likely to adversely affect (NLAA-i)*, the Canada lynx. Conservation measures designed to improve or maintain Canada lynx foraging and denning habitats, such as restricting livestock grazing in areas opened by fire or timber harvest actions and evaluating and managing livestock grazing in aspen stands, shrub steppe communities and riparian areas, would be implemented.

4.3.1.6 Minerals

The Minerals program *may affect, is not likely to adversely affect (NLAA-i)*, the Canada lynx. These actions could be located within potential Canada lynx suitable foraging, denning, and travel corridor habitat. These activities remove suitable foraging and denning habitat and migratory corridors within the Lynx Analysis Unit; and they displace individuals while well pads are active. Reclamation activities are beneficial to the species, but would require several years to fully recover. Conservation Measures would be put in place including the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on activities during lynx denning periods restricting surface use and occupancy that are developed at the leasing and notice of staking/application for permit to drill (NOS/APD) stages, as well as the minimization of snow compaction when authorizing and monitoring developments.

4.3.1.7 Paleontology and Natural History

The Paleontology and Natural History program *may affect, is not likely to adversely affect (NLAA-d)*, the Canada lynx. There is a low probability these resource management activities would occur in Canada lynx habitat. However, paleontological excavation activities would be designed to prevent harassment, displacement, injury, and mortality of lynx and would incorporate any conservation measures necessary to protect their habitat.

4.3.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, maintaining developed and undeveloped recreation sites (campgrounds), and focusing recreation opportunities and use in SRMAs *may affect, is not likely to adversely affect (NLAA-i)*, the Canada lynx. Construction of recreation sites and campgrounds within lynx denning and foraging habitat could modify the habitat to an unsuitable condition, displace lynx as a result of increased human disturbance (specifically in backcountry areas), and increase lynx-human interactions. Conservation measures designed for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on

percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000); the no net increase in over-the-snow routes and play areas in Lynx Analysis Units (LAUs); restrictions on actions that degrade or compromise landscape connectivity or linkage areas; requirement that trails and roads are designed to direct use away from diurnal security habitat; and the evaluation of special use permits that promote snow compacting activities.

4.3.1.9 Soil

The Soil program *may affect, is not likely to adversely affect (NLAA-b)*, the Canada lynx for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions with special emphasis in highly erodible areas. Implementing soil erosion management actions potentially associated with forestry, fire, or minerals management actions would be beneficial to the protection or maintenance of lynx habitats.

4.3.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use *may affect, is not likely to adversely affect (NLAA-i)*, the Canada lynx. These activities would not be permitted within potential or known Canada lynx habitat, participants would be required to remain on either designated or existing roads and trails; however, the possibility exists that people may leave the roads and trails and temporarily disturb lynx if present. Conservation measures which limit percentage of disturbance allowable to Canada lynx habitat and limit the areas allowing snow compacting activities would be implemented to ensure that Canada lynx and their habitat would not be adversely affected by OHV activities.

4.3.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, chemical, biological, and mechanical methods, *may affect, are not likely to adversely affect (NLAA-i)*, the Canada lynx. Noise and human activity associated with these activities may displace them temporarily. Habitat rehabilitation from treatments would have a beneficial effect on these species. The habitat would provide more foraging, denning, cover, and allow for more foraging resources.

4.3.1.12 Visual Resources

The Visual Resources program *may affect, are not likely to adversely affect (NLAA-b)* the Canada lynx. Management actions protecting visual resources may limit disturbances or visual obstructions within areas that also contain Canada lynx habitats.

4.3.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program *may affect, is not likely to adversely affect (NLAA-b)*, the Canada lynx by maintaining or improving function in riparian/wetland areas, avoiding surface discharges of produced water in stream channels and uplands, and prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas. Watershed and riparian management that requires habitat manipulations would have temporary impacts Canada lynx by displacement or remove prey resources. However, the habitat functionality and health may be improved over time.

4.3.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *may affect, is not likely to adversely affect (NLAA-i)*, the Canada lynx. Prescribed burning and WFU would reduce foraging and denning habitat and would possibly remove migration corridors. Human activities associated with fire and fuels management may lead to short-term avoidance of these areas by Canada lynx. Fire suppression activities would be required to stay on existing roads and trails and avoid Canada lynx habitat. Management plans for prescribed burns would include Conservation Measures assessing the Canada lynx habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments would be required prior to salvage to evaluate potential for lynx denning and foraging habitat, and would minimize the amount of roads and fire lines as well as require new roads/firelines to be revegetated after fire suppression activities. These measures would provide protection for lynx and their habitat. USFWS would be notified of wildland fires and emergency consultation would be initiated if necessary.

4.3.1.15 Wildlife and Fish Habitat

Wildlife and Fish Habitat program actions associated with Special Status Species *may affect, are not likely to adversely affect (NLAA-i)*, the Canada lynx. Implementation of wildlife habitat management actions would be designed to improve or maintain the functionality of lynx foraging and denning habitats. Some of these measures may temporarily displace Canada lynx; however these actions would be subject to timing restrictions in potential denning areas. Overall impacts should be designed to improve the habitat functionality for Canada lynx and their prey species.

4.3.1.16 Special Management Areas

The Special Management Areas program *may affect, is not likely to adversely affect (NLAA-b)*, the Canada lynx for the following activities: Rock Creek ACEC, Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management and WSR management. The designation of an ACEC in Canada lynx habitat would be beneficial by preventing undue and unnecessary surface disturbances or disruptive activities from occurring in an area of environmental concern.

4.3.2 Management Status Recovery and Conservation Planning

These Conservation Measures are intended to conserve the lynx, and to reduce or eliminate adverse effects from the spectrum of management activities on BLM land. These measures are provided to outline opportunities to benefit the lynx, and to help avoid negative impacts through the thoughtful planning of activities. Plans that incorporate them, and projects that implement them, are generally not expected to have adverse effects on lynx, and implementation of these measures across the range of the lynx is expected to lead to conservation of the species (Ruediger et al. 2000).

These Conservation Measures are binding measures that BLM shall implement in order to facilitate conservation of lynx. LAUs typically encompass both lynx habitat (may or may not be currently in suitable condition for denning or foraging habitat) and other areas (such as lakes, low elevation ponderosa pine forest, and alpine tundra). The Conservation Measures listed below generally apply only to lynx habitat within the LAUs. However, their use in areas of lynx habitat or potential lynx habitat not fitting the criteria of an LAU is encouraged.

However, because it is impossible to provide measures that will address all possible actions, in all locations across the broad range of the lynx, it is imperative that project-specific analysis and design be

completed, for all actions that have the potential to affect lynx. Circumstances unique to individual projects or actions and their locations may still result in adverse effects on lynx. In these cases, additional or modified Conservation Measures may be necessary to avoid or minimize adverse effects. The order in which the Conservation Measures appear below does not imply their relative priority.

4.3.2.1 Conservation Measures

1. Within an LAU, BLM shall ensure lynx habitat and non-habitat, including denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. BLM 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. BLM 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. BLM 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. BLM management actions shall not change more than 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. BLM shall maintain denning habitat in patches generally larger than 5 acres and comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present within an LAU, BLM will defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.
5. BLM 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. BLM shall ensure that habitat connectivity within and between LAUs is maintained.
7. BLM 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 FO.
8. Following a disturbance (blowdown, fire, and insects) that could contribute to lynx denning habitat, BLM 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. BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.
10. In aspen stands, BLM shall ensure that harvest prescriptions favoring the regeneration of aspen apply.

11. BLM 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, BLM 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. BLM 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. BLM 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, BLM 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. BLM 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, BLM 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. BLM 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. BLM 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, BLM 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, BLM 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 USFWS recommendations established through a formal Section 7 consultation process.
23. BLM 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, BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.
25. Within lynx habitat, BLM shall ensure that key linkage areas and potential highway crossing areas are identified using best available science.
26. BLM 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. BLM 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, BLM 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. BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. BLM shall encourage remote monitoring of sites that are located in lynx habitat so they do not have to be visited daily.

4.3.2.2 Best Management Practices

BLM considers the following BMPs to be non-binding conservation practices that will, if implemented, aid in the conservation of the Canada lynx. BMPs for the Canada lynx may be applied to areas both within and outside LAUs. These BMPs for the Canada lynx may be implemented on a case-by-case basis as appropriate.

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-country 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 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.

4.3.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for Canada lynx:

- Air Quality—NE
- Cultural—NLAA-d
- Forestry—NLAA-i
- Lands and Realty—NLAA-i
- Livestock Grazing—NLAA-i
- Minerals—NLAA-i
- Paleontology and Natural History—NLAA-d
- Recreation and Visitor Services—NLAA-i
- Soil—NLAA-b
- Transportation, Access, and Travel Management—NLAA-i
- Vegetation—NLAA-i
- Visual Resources—NLAA-b
- Watershed and Water Quality (Surface and Groundwater)—NLAA-b
- Wildland Fire and Fuels—NLAA-i
- Wildlife and Fish Habitat—NLAA-i
- Special Management Areas—NLAA-b

4.4 GRAY WOLF

4.4.1 Effects Determination for BLM-Administered Programs

4.4.1.1 Air Quality

The Air Quality program is *not likely to jeopardize the continued existence of the gray wolf (NJ)* for all activities. This determination was reached because air quality monitoring stations have not been proposed in areas containing gray wolf habitat. Implementation management actions may result in improving the condition of air quality which could potentially improve the condition of the habitat and watershed.

4.4.1.2 Cultural

Cultural inventories and authorized excavation of cultural sites are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. There are no known denning or rendezvous sites within the planning area, however if they become known, cultural resource management activities would be designed around these sensitive areas and observe timing restrictions during denning periods. Human activity may temporarily displace wolf from normal foraging activities, however these effects are insignificant due to the large home ranges a pack may occupy.

4.4.1.3 Forestry

Forest commodity production and stand improvement activities are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. Forest management activities would be designed to enhance forested habitats for gray wolves and their prey species, such that travel corridors would remain intact and foraging habitats would not be fragmented. Activities would not be implemented during sensitive gray wolf denning periods or in rendezvous sites. Timber harvest would result in an increase in roads, facilitating snowmobile and other human uses that could lead to increase poaching of wolves.

Managing conifer and lodgepole pine stands for old growth composition and restoration of aspen stands would improve forest health in the long term and have a beneficial effect on the species. Human activities associated with these actions may lead to short-term avoidance or behavioral avoidance of these areas by gray wolf; however, these actions may create habitat and hiding areas for the prey species for the gray wolf, which would be a benefit.

4.4.1.4 Lands and Realty

The Lands and Realty program is *not likely to jeopardize the continued existence of the gray wolf (NJ)* for potential land tenure adjustments and issuance of ROWs and leases (utility transportation corridors). Areas containing known denning or rendezvous locations would not be included in land tenure actions or disposals. Issuance of ROWs and leases (utility transportation corridors) may cause short-term behavioral avoidance of these areas by the gray wolves during construction/maintenance operations; however, gray wolf habitat is located within ROW avoidance areas and areas unavailable to oil and as leasing or NSO.

4.4.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization are *not likely to jeopardize the continued existence of the gray wolf (NJ)*; these actions would have an insignificant effect on this species.

4.4.1.6 Minerals

Oil and gas development, mineral material sales (sand and gravel, decorative stone, aggregate); locatable mineral exploration and development (e.g., gold, silver, cobalt); and geophysical exploration are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. Wolves may be temporarily displaced from geophysical exploration activities; however, it is unlikely activity would occur in potential habitat. There is a potential for development in gray wolf foraging and denning habitats; however, any discovered rendezvous or denning locations would be avoided and timing restrictions would be implemented in those areas. Development would be designed to maintain foraging habitats and migration corridors.

4.4.1.7 Paleontology and Natural History

The Paleontology and Natural History program is *not likely to jeopardize the continued existence of the gray wolf (NJ)*. The extent of paleontological resources occurring in gray wolf denning and foraging habitats is unknown. Paleontological investigations would avoid excavating in areas of known denning or rendezvous areas and investigators would be provided with educational information to prevent human-wolf interactions.

4.4.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, maintaining developed and undeveloped recreation sites (campgrounds), and focusing recreation opportunities and use in SRMAs are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. New recreational facilities would avoid known denning and rendezvous areas to prevent potential human-wolf conflicts. Existing facilities would post educational materials in areas containing wolf habitat.

4.4.1.9 Soil

The Soil program is *not likely to jeopardize the continued existence of the gray wolf (NJ)*. Soil and watershed management actions may temporarily displace gray wolves; however, there would be long term benefits by improving foraging habitat for gray wolf prey species.

4.4.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. These activities would not occur within denning or rendezvous habitats but would occur in overall wolf habitat. Participants would be required to remain on existing roads and trails; however, there is the possibility that people may leave the roads and trails and temporarily disturb wolves, if present. Designating, implementing, and monitoring closed areas for OHV use and designating, implementing, and monitoring limited areas for OHV use would reduce impacts on gray wolves because vehicular use is limited to designated roads and trails, which would reduce impacts on wolves and associated habitat. Closing roads would be beneficial to gray wolves by decreasing human-wolf interactions.

4.4.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, and chemical, biological, and mechanical methods are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. Noise and human activity associated with these activities may displace them temporarily. Habitat rehabilitation from treatments would have a beneficial effect on these species. The habitat would provide more foraging, denning, and cover and allow for more foraging resources.

4.4.1.12 Visual Resources

The Visual Resources program is determined *not likely to jeopardize the continued existence of the gray wolf (NJ)* because the majority of potential habitat is contained within VRM Class I and II areas, which preserve or retain the existing character of the landscape.

4.4.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program is determined *not likely to jeopardize the continued existence of the gray wolf (NJ)* for the following activities: avoiding surface discharges of produced water in stream channels and uplands and prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas, and maintaining or improving function in riparian/wetland areas. Activities to improve or maintain riparian/wetland function may cause temporary displacement of wolves from these areas, but overall resulting vegetation modification would enhance riparian travel corridors for gray wolves.

4.4.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program is *not likely to jeopardize the continued existence of the gray wolf (NJ)* for the following activities: prescribed burning, WFU, and fire suppression. Prescribed burns are typically conducted to promote elk and other big game foraging areas by opening up forests and enhancing development of mixed shrubs. This would be beneficial to wolves by improving habitat for these prey species. Fire suppression activities would be required to take place on existing roads and trails and avoid the gray wolf habitat.

4.4.1.15 Wildlife and Fish Habitat

Wildlife and Fish Habitat program actions associated with Special Status Species are *not likely to jeopardize the continued existence of the gray wolf (NJ)*. Fish and wildlife management actions would be designed to improve habitat functionality, which would be beneficial to gray wolves by maintaining or increasing their prey resources.

4.4.1.16 Special Management Areas

The Special Management Areas program is determined *not likely to jeopardize the continued existence of the gray wolf (NJ)* for the following activities: the Rock Creek ACEC, the Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and Wild and Scenic River management. ACEC designations are meant to limit or excluded some activities and to preserve the specialized uniqueness of that area. By limiting or excluding surface disturbing activities in an ACEC, gray wolf habitat and their prey species would also be protected.

4.4.2 Management Status, Recovery, and Conservation Planning

The only wolf pack known within the planning area is the Daniel pack. There is known wolf activity along the Wyoming and Wind River mountain ranges.

Wolves are very adaptable and have done very well in Wyoming since their release in 1995-1996. Two main factors affecting the continued existence of wolves in an area are the maintenance of a good ungulate prey base and the containment of roads and human activity. Habitat improvement projects for elk and other big game foraging areas are already part of the RMPs and one of the main activities carried out by the individual FOs. The other significant factor is to reduce human-caused mortality. Road density (highly correlated with human causes of death), public outreach and education, and cattle-ranching practices as they relate to wolf depredations, are overarching elements in the maintenance of successful wolf populations.

The maintenance of a good data base on the location of wolf packs is the first step in protection of the animals. It is important to develop and maintain contact with appropriate staff with the USFWS and WGFD in order to stay informed of wolf packs in the FO and/or on BLM land. Following delisting and as wolf populations expand, it may be necessary to develop monitoring protocols for wolves on BLM lands. These would be most effective if coordinated with other agencies.

These conservation measures are meant to be a tool to clarify what activities have impacted the species in the past, what conservation measures have been or could be used to minimize impacts, and to assist the agencies in the development of BAs and BOs. Implementation of the following conservation strategies is intended to minimize adverse impacts that are likely to result from implementation of the management actions provided in the RMPs. The BLM has committed to implement conservation measures 1 through 5. The BLM will also consider implementing best management practices (BMPs), items 1 through 6, at every opportunity to further protect the gray wolf. All conservation measures and BMPs apply to the known populations of the gray wolf. In the event that wolf packs are formed in new areas, these measures would apply to these areas as well.

4.4.2.1 Conservation Measures

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. BLM 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. BLM 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. BLM will designate a state representative to attend the annual interagency coordination meeting.
5. BLM will continue to attend the annual coordination meetings with the Wyoming Game and Fish Department.

4.4.2.2 Best Management Practices

1. BLM will avoid an increase in miles of road in crucial elk winter range.
2. BLM will avoid situations that allow for wolves to habituate to humans or become exposed to and use human refuse as a food source.
3. BLM 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. BLM 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. BLM will continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.
6. BLM will encourage reporting of wolf observations by BLM staff and the public to the Wyoming Game and Fish Department.

4.4.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the gray wolf:

- Air Quality—NJ
- Cultural—NJ
- Forestry—NJ

- Lands and Realty—NJ
- Livestock Grazing—NJ
- Minerals—NJ
- Paleontology and Natural History—NJ
- Recreation and Visitor Services—NJ
- Soil—NJ
- Transportation, Access, and Travel Management—NJ
- Vegetation—NJ
- Visual Resources—NJ
- Watershed and Water Quality (Surface and Groundwater)—NJ
- Wildland Fire and Fuels—NJ
- Wildlife and Fish Habitat—NJ
- Special Management Areas—NJ

4.5 BALD EAGLE

Implementation of the PFO RMP would not change any potential effects on the bald eagle that may result from current nonfederal actions. The bald eagle has recently been removed from the Endangered Species List; however, it is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act and is considered a BLM sensitive species.

The planning area includes descriptions of each management prescription applied within the FO. The following text briefly summarizes the activities and any specific impact minimizing measures associated with each management prescription. The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities would be applied to all surface disturbing or disruptive activities. As described previously, these guidelines include timing limitations and restrictions on surface occupancy that would minimize potential effects to bald eagles and their habitats.

4.5.1 Effects Determination for BLM-Administered Programs

4.5.1.1 Air Quality

The Air Quality program *may affect, is not likely to adversely affect (NLAA-i)* the bald eagle. Air quality monitoring stations would not be installed in sensitive nesting, roosting, or foraging habitats. The information gained by these actions would be beneficial to the overall health and viability of bald eagles.

4.5.1.2 Cultural

Cultural inventories and authorized excavation of cultural sites *may affect, are not likely to adversely affect (NLAA-i)* the bald eagle. Temporary campgrounds associated with cultural resource excavations have the potential to occur within bald eagle habitat; however, cultural resource management activity plans would be prepared, which would include site-specific management prescriptions. Bald eagle conservation measures would be applied to the cultural resource activity plan to prevent adverse effects from occurring. If excavation were to occur in bald eagle habitat, the project would be reevaluated, subject to site-specific adjustments, and potentially redesigned. Human activity at these sites may temporarily displace bald eagles; however, the likelihood is insignificant.

4.5.1.3 Forestry

Forest commodity production, stand-improvement activities, conifer and lodgepole pine stands management for old growth composition, and aspen stand restoration *may affect, are not likely to adversely affect (NLAA-i)* the bald eagle; these actions would have an insignificant effect on this species, since nesting and roosting habitat is within cottonwood stands along riparian corridors associated with major river systems where activities would not be allowed. Forest management actions would occur in upland coniferous forests, typically the cottonwood stands along the river corridors are on private lands. Human activities associated with these actions may lead to short-term avoidance or behavioral avoidance of these areas by bald eagles; however, implementation of seasonal timing limitation and management prescriptions of any cottonwood or other riparian habitat manipulation would reduce or eliminate impacts.

4.5.1.4 Lands and Realty

The Lands and Realty program *may affect, is likely to adversely affect (LAA)* the bald eagle. Conservation measures (such as nesting and winter roosting timing restrictions) would be implemented; however, ROW actions permitting power lines, communication towers, pipelines, and roads cannot avoid all habitats within 1.0 miles of bald eagle nests or within 2.5 miles of foraging habitats. These actions would contribute to surface disturbances and increase human presence, potentially causing bald eagles to avoid or abandon otherwise occupied habitats.

Lands identified as suitable or occupied bald eagle habitats would not be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied bald eagle habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to bald eagle habitats that may not be afforded under non-federal ownership.

4.5.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *may affect, are not likely to adversely affect (NLAA-i)* the bald eagle. Livestock grazing in riparian areas may lead to adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable cottonwood tree sapling recruitment, and reduction in populations of suitable prey species (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Projects occurring on federal lands would be adhering to the conservation measures for bald eagles. If riparian degradation is occurring on federal lands in bald eagle habitats, actions would be taken to correct the situation.

4.5.1.6 Minerals

Oil and gas development, locatable mineral exploration and development (gold, silver, cobalt, etc.), mineral material sales (sand and gravel, decorative stone, aggregate), and geophysical exploration *may affect, are likely to adversely affect (LAA)* the bald eagle. These actions would likely be located within or adjacent to bald eagle habitat because of the proximity of mineral potential areas to riparian corridors. Human activity associated with oil and gas and mineral development in proximity to nests or foraging/communal habitat could cause eagles to avoid or abandon areas of human activity. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with wildlife and livestock that can subsequently result in vehicle collisions with bald eagles that forage on roadside carrion. Even with proper implementation of management actions and measures outlined in the Bald Eagle Programmatic Biological Opinion (USFWS 2004), areas

designated as “intensively developed fields and minimally developed areas” would experience these effects because of the amount of human activity in these areas.

4.5.1.7 Paleontology and Natural History

The Paleontology and Natural History program is determined to have *no effect (NE)* on the bald eagle because the known or newly discovered resources are being managed to maintain current condition. Bald eagle conservation measures would be applied to the paleontological resource plan to prevent adverse effects from occurring.

4.5.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, maintaining developed and undeveloped recreation sites (campgrounds), allowing commercial river use, and focusing recreation opportunities and use in SRMAs *may affect and are likely to adversely affect (LAA)* the bald eagle. Dispersed recreation, particularly fish and commercial river use, would cause bald eagle harassment and displacement, and disturb or destroy suitable nesting and communal winter roosting habitats.

4.5.1.9 Soil

The Soil program *may affect, is not likely to adversely affect (NLAA-b)* the bald eagle for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions with special emphasis in highly erodible areas. These actions would create greater habitat stability and functionality and any soil moving activities would be conducted with the bald eagle conservation measures enforced.

4.5.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use *may affect, are not likely to adversely affect (NLAA-i)* the bald eagle. These activities would be seasonally limited within bald eagle habitat and participants would be required to remain on existing roads and trails; however, there is the possibility that people may leave the roads and trails and temporarily disturb eagles, if present.

Designating, implementing, and monitoring closed areas for OHV use; and designating, implementing, and monitoring limited areas for OHV use *may affect, are not likely to adversely affect (NLAA-b)* the bald eagle; these actions would have a discountable effect on the species. These activities would reduce impacts on bald eagles because vehicular use for the process of designation and monitoring is limited to designated roads and trails, which would reduce impacts on the bald eagle and associated habitat. Closing roads would also reduce disturbance to potential bald eagle habitat.

4.5.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, and chemical, biological, and mechanical methods, *may affect, are not likely to adversely affect (NLAA-i)* the bald eagle. These actions would not occur during nesting or winter roosting time periods and actions removing roosting habitats would be prohibited. Noise and human activity associated with these activities may displace them temporarily; however, implementation of management actions and measures outlined in the Bald Eagle Programmatic Biological Opinion (USFWS 2004) would reduce these effects to an insignificant level. Habitat rehabilitation from treatments would have a

beneficial effect on these species. The habitat would provide more cover for prey and allow for more foraging resources.

4.5.1.12 Visual Resources

The Visual Resources program is determined to have *no effect (NE)* on the bald eagle because the majority of potential habitat is contained within VRM Class II areas, which retain the existing character of the landscape.

4.5.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program *may affect, is not likely to adversely affect (NLAA-b)* the bald eagle by maintaining or improving function in riparian/wetland areas. Activities to improve or maintain riparian/wetland function and associated human presence may cause temporary displacement of bald eagles from these areas, but overall resulting vegetation modification would enhance riparian habitat for the bald eagle.

4.5.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *may affect and is likely to adversely affect (LAA)* the bald eagle. Fire suppression activities may require use of heavy equipment and personnel for days or even weeks potentially in bald eagle foraging, wintering, and nesting habitats. This may cause bald eagle harassment or abandonment of these habitats. Prescribed fires have the potential of removing important habitats if the fire escapes or the smoke may cause eagles to abandon their roosts or nests.

4.5.1.15 Wildlife and Fish Habitat

The Wildlife and Fish Habitat program *may affect, is not likely to adversely affect (NLAA-b)* the bald eagle. Wildlife management projects would be designed to maintain or improve habitats at the ecosystem or watershed level and would not be conducted during nesting or winter roosting periods.

4.5.1.16 Special Management Areas

The Special Management Areas program *may affect, is not likely to adversely affect (NLAA-b)* the bald eagle for the following activities: the Rock Creek ACEC, the Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and Wild and Scenic River management. Management actions associated with ACECs would not result in detrimental impacts to bald eagle behavior or their habitats. These actions would result in positive effect to bald eagles by limiting harassment and disturbance to potentially suitable nesting, communal winter roosting, and concentrated foraging areas.

4.5.2 Management Status Recovery and Conservation Planning

Bald Eagle Conservation Measures

1. When project proposals are received, BLM should initiate coordination with the USFWS at the earliest possible date so that USFWS 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 USFWS.

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 BLM 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 BLM should verify the status of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by BLM. As a matter of maintaining inventory information, BLM should coordinate annually with USFWS, 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 (within 0.5 mile February 1 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 (within 0.5 - 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) 0.5 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 may be made after consultation with USFWS.
6. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 to April 1. No ground disturbing activities will be permitted within 1 mile of active roost sites year round.
7. BLM-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).
9. Proponents of BLM 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. BLM should coordinate with APHIS - Wildlife Services 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. USFWS 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. BLM 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 water bodies); 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 USFWS Wyoming Field Office (307-772-2374) and the USFWS Law Enforcement Office (307-261-6365) should be notified within 24 hours of the discovery.
14. BLM 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. BLM 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. BLM should periodically review existing water quality records (e.g., WDEQ, WGFD, 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 BLM 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.

4.5.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the bald eagle:

- Air Quality—NLAA-i
- Cultural—NLAA-i
- Forestry—NLAA-i
- Lands and Realty—LAA
- Livestock Grazing—NLAA-i
- Minerals—LAA
- Paleontology and Natural History—NE
- Recreation and Visitor Services—LAA
- Soil—NLAA-b
- Transportation, Access, and Travel Management—NLAA-i
- Vegetation—NLAA-i
- Visual Resources—NE
- Watershed and Water Quality (Surface and Groundwater)—NLAA-b

- Wildland Fire and Fuels—LAA
- Wildlife and Fish Habitat—NLAA-b
- Special Management Areas—NLAA-b

4.6 WESTERN YELLOW-BILLED CUCKOO

Possible adverse effects to the western population of the yellow-billed cuckoo (cuckoo) could occur from activities such as grazing, water depletions and/or diversions associated with oil and gas or livestock water development, and noxious and invasive weed invasion from grazing and surface disturbing activity. Grazing and surface disturbing activities could result in soil compaction and loss of vegetative cover and therefore reduced infiltration and increased runoff and sedimentation of surface waters. Promotion of invasive plant species would also occur with grazing and surface disturbing activities. Other potentially adverse impacts from livestock grazing activities could include channel destabilization and nutrient loading of surface waters. Water depletions and diversions would also occur in potential habitat; however, because potential habitat for the cuckoo in the planning area is within the drainage for the Snake, Green, and New Fork Rivers, depletions and diversions would be minimal and therefore would not significantly adversely affect the cuckoo (see the following section for an in-depth discussion of depletions).

4.6.1 Effects Determination for BLM-Administered Programs

4.6.1.1 Air Quality

The Air Quality program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for all activities. This determination was reached because this program and its associated activities would not be located in cuckoo habitat.

4.6.1.2 Cultural

Cultural inventories and authorized excavation of cultural sites *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Temporary campgrounds associated with cultural resource excavations have the potential to occur within Western yellow-billed cuckoo habitat; however, cultural resource management activity plans would be prepared, which would include site-specific management prescriptions. If excavation were to occur in cuckoo habitat, the project would be reevaluated, subject to site-specific adjustments, and potentially redesigned. Human activity at these sites may temporarily displace cuckoos; however, the likelihood is insignificant. The conservation measures developed for this species would be adhered to prevent listing.

4.6.1.3 Forestry

The Forestry program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for all activities. These activities would not occur within Western yellow-billed cuckoo habitat.

4.6.1.4 Lands and Realty

The Lands and Realty program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for all activities. Riparian, wetland, and aquatic resources would not be available for disposal, eliminating the concern of disposing more desirable habitats for the Western yellow-billed cuckoo. Issuance of ROWs and leases (utility transportation corridors) would be severely limited in cuckoo habitat through protection of riparian habitats and functions from surface disturbing activities by 500-ft. buffers; however, buffers may not be adequate from ROW activities (i.e. pipelines, powerlines) in

all cases. Conservation measures would be implemented to maintain these habitats and ensure that this species would not be adversely affected by project implementation.

4.6.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* with implementation of PFC standards for riparian areas and protection of riparian habitats and functions from surface disturbing activities by 500-ft. buffers. If riparian habitats are affected by grazing management, conservation measures would be implemented so that the standards and guidelines of that allotment would be met.

4.6.1.6 Minerals

The Minerals program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Human activity associated with mineral development may temporarily displace individuals; however, surface disturbing activities are restricted within 500 feet of riparian corridors. Conservation measures would be implemented to maintain these habitats and ensure that this species would not be adversely affected by project implementation.

4.6.1.7 Paleontology and Natural History

The Paleontology and Natural History program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Paleontological activities would be managed to ensure that riparian habitats and yellow-billed cuckoos would not be adversely affected by project implementation.

4.6.1.8 Recreation and Visitor Services

Allowing camping (including dispersed recreation), constructing recreation sites, maintaining developed and undeveloped recreation sites (campgrounds), allowing commercial river use, and focusing recreation opportunities and use in SRMAs *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Dispersed recreation, particularly fish and commercial river use, would cause behavioral avoidance of roosting and nesting sites because of increased human activity, depending on the intensity of use. These activities are temporary in nature and in general would not affect nesting Western yellow-billed cuckoos.

4.6.1.9 Soil

The Soil program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions with special emphasis in highly erodible areas. These activities would be conducted outside of the nesting periods and would be designed to enhance yellow-billed cuckoo habitat.

4.6.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open areas for OHV use *would not likely jeopardize the continued existence of the Western*

yellow-billed cuckoo (NJ). These activities would be seasonally limited within cuckoo habitat and participants would be required to remain on existing roads and trails; however, there is the possibility that people may leave the roads and trails and temporarily disturb cuckoos if present.

Designating, implementing, and monitoring closed areas for OHV use; and designating, implementing, and monitoring limited areas for OHV use would reduce impacts to the cuckoo because vehicular use for the process of designation and monitoring is limited to designated roads and trails, which would reduce impacts to associated habitat. Closing roads also reduces disturbance to potential cuckoo habitat.

4.6.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, and chemical, biological, and mechanical methods, *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Vegetation management and the eradication of noxious weeds would be beneficial to the species by improving habitat conditions in riparian corridors.

4.6.1.12 Visual Resources

The Visual Resources program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* because the majority of potential habitat is contained within VRM Class II areas, which retain the existing character of the landscape.

4.6.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for the following activities: avoiding surface discharges of produced water in stream channels and uplands and prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas. The Watershed and Water Quality program would also maintain or improve function in riparian/wetland areas. Activities to improve or maintain riparian/wetland function and associated human presence may cause temporary displacement of the cuckoo from these areas, but overall resulting vegetation modification would enhance riparian habitat for the cuckoo. Such actions would be implemented outside of the breeding periods.

4.6.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for the following activities: prescribed burning. Prescribed burning would temporarily reduce cover and overall foraging habitat. Human activities associated with fire and fuels management may lead to short-term avoidance of these areas by cuckoos. Prescribed burns would not be conducted during the nesting season. Areas containing known cuckoo nesting habitat would be excluded from a burning project, unless it is determined that the project would improve nesting habitat. Fires in these habitats would be beneficial and typically promote regrowth. Fire suppression activities would have an insignificant effect on these species. Individuals involved in fire suppression activities would be required to stay on existing roads and trails and avoid the cuckoo habitat. Wildland fires would be managed to the greatest extent practicable.

4.6.1.15 Wildlife and Fish Habitat

Wildlife and Fish Habitat program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)*. Wildlife and fish management projects would be implemented to enhance

riparian habitats and would be designed so the conservation measures prevent adverse impacts to the cuckoo.

4.6.1.16 Special Management Areas

The Special Management Areas program *would not likely jeopardize the continued existence of the Western yellow-billed cuckoo (NJ)* for the following activities: the Rock Creek ACEC, the Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and Wild and Scenic River management. Designations would be beneficial to this species as certain surface disturbing activities would be prohibited in these areas.

4.6.2 Management Status Recovery and Conservation Planning

The following habitat conservation measures and species conservation measures will be implemented within the PFO in areas where there is the potential for the western yellow-billed cuckoo to occur in nesting and/or foraging habitat.

Conservation Recommendations

1. Surface disturbing activities would be avoided within 500 feet of perennial waters and wetland/riparian areas for protection of Western yellow-billed cuckoo and identified habitat.
2. Boat and raft landing areas will not be developed, and outfitting camps will not be permitted, in western yellow-billed cuckoo habitat.
3. Surface-disturbing or disruptive activities will be prohibited within ½-mile of identified habitat during the period of April 15 to August 15 for the protection of nesting western yellow-billed cuckoos.

Best Management Practices

Best Management Practices (BMP) would be applied to surface-disturbing and disruptive activities to maintain or enhance the western yellow-billed cuckoo and their habitats.

1. Incorporate yellow-billed cuckoo habitat guidelines into livestock Standards and Guidelines assessments.
2. Where possible, biological control of pests would be used rather than chemical control. Where needed, pesticide use would be applied by hand within ¼ mile of cuckoo habitat and only in cases where insect or weed outbreaks have the potential to degrade area ecological health. Outside the ¼ mile buffer, aerial application of pesticides would be carefully planned to prevent drift. The BLM shall work with APHIS and the USFWS to select a pesticide and method of application that will most effectively manage the infestation and least affect the western yellow-billed cuckoo.
3. Ensure adequate livestock practices in order to protect yellow-billed cuckoo habitat. These include, but are not limited to placement of salt and mineral blocks, livestock water locations, fencing, livestock handling facilities, and season of use.

4. All high quality riparian areas of 20 hectares or more shall be managed to preserve, protect, and, if necessary, restore natural functions to minimize degradation of stream banks and the loss of riparian habitat.
5. When necessary or required, fence known occupied cuckoo habitat to exclude or shorten the duration of livestock use where livestock grazing is determined to impede regeneration of the habitat. This will stabilize and protect eroding stream banks in cuckoo habitat.
6. Avoid building roads or new trails parallel to streams in riparian zones or through wet meadows that have the potential, or are identified as containing, habitat for the western yellow-billed cuckoo. If stream crossings are required, then they shall be constructed at right angles to minimize impacts to riparian vegetation, stream-banks, soils, and water quality. Roads and trails shall be placed near current habitat edge areas to reduce fragmentation of larger blocks of pristine habitat. Combine multiple roads and rights-of-ways to one stream crossing site.
7. Avoid depleting ground water and diverting streams outside their natural stream channels in riparian areas that contain potential western yellow-billed cuckoo habitat.
8. Maintain beaver populations where they occur in cuckoo habitat and encourage re-introduction into areas that were historically occupied by beavers in western yellow-billed cuckoo habitat.
9. In identified western yellow-billed cuckoo habitat, implement riparian monitoring programs to establish baseline data and identify changes that have occurred in order to evaluate both long-term and short-term impacts and/or benefits to the birds.
10. Manage for stable or increasing population of cottonwood-willow vegetation in areas identified as western yellow-billed cuckoo habitat. Ensure that all age classes are present (seedling, young, mature, and decadent), with more seedlings present than decadent plants, and more young plants present than mature plants.
11. Prescribed fire would only be used to maintain or enhance yellow-billed cuckoo habitat. Restrictions such as smoke dispersal, heat intensity, buffer zones or timing stipulations would be incorporated into the fire plan.

4.6.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the Western yellow-billed cuckoo:

- Air Quality—NJ
- Cultural—NJ
- Forestry—NJ
- Lands and Realty—NJ
- Livestock Grazing—NJ
- Minerals—NJ
- Paleontology and Natural History—NJ
- Recreation and Visitor Services—NJ
- Soil—NJ
- Transportation, Access, and Travel Management—NJ
- Vegetation—NJ
- Visual Resources—NJ
- Watershed and Water Quality (Surface and Groundwater)—NJ

- Wildland Fire and Fuels—NJ
- Wildlife and Fish Habitat—NJ
- Special Management Areas—NJ

4.7 UTE LADIES' TRESSES ORCHID

No known populations occur on lands managed by the PFO. However, if populations were found within the PFO and on lands managed by BLM, additional measures would need to be taken to protect this plant.

4.7.1 Effects Determination for BLM-Administered Programs

4.7.1.1 Air Quality

Air quality management actions are typically associated with limitation, reduction, and monitoring of pollutants and dust during other BLM management actions. It is possible that activities associated with dust abatement (water trucks, etc.) could occur near the orchid's habitat and result in a decrease in dust settling on leaves and flowers, benefiting the plants through improved photosynthesis and improved pollination success. These effects would be only in localized areas typically associated with energy development activity or county road maintenance, and the actual effects to the orchid would be minimal. Most air quality management actions would result in secondary beneficial effects due to decreased particulates in the air. No known direct or indirect negative effects to the orchid are anticipated through air quality management actions. Implementation of air quality management actions *may affect, but is not likely to adversely affect (NLAA-b)* the Ute ladies'-tresses orchid, due to beneficial effects. This determination is based on the potential for management actions to maintain or improve the condition of air quality through decreased airborne particulates in riparian habitats associated with the orchid.

4.7.1.2 Cultural

The Cultural program *may affect, is not likely to adversely affect (NLAA-i)* the Ute ladies' tresses. Pre-cultural excavation activity surveys will be conducted if they occur within potential Ute ladies' tresses habitat. These actions or potential interpretive sites would be implemented outside of Ute ladies' tresses habitats to prevent habitat degradation and adverse affects from occurring.

4.7.1.3 Forestry

The Forestry program is determined to have *no effect (NE)* on the Ute ladies' tresses plant species for all activities. These activities would not be permitted to occur within Ute ladies' tresses habitat and the lack of changes in water flow from forest management activities in the orchid's habitat.

4.7.1.4 Lands and Realty

The Lands and Realty program *may affect, is not likely to adversely affect (NLAA-i)* the Ute ladies' tresses for all activities. Riparian, wetland, and aquatic resources would not be available for disposal, eliminating the concern of disposing habitats of the Ute ladies' tresses. Issuance of ROWs and leases (utility transportation corridors) would be severely limited in Ute ladies' tresses habitat through protection of riparian habitats and functions from surface disturbing activities by 500-ft. buffers. Conservation measures would be implemented to prevent adverse impacts from occurring during ROW actions.

4.7.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); supplemental feeding authorization, and use of riparian areas and wetlands by livestock *may affect, is likely to adversely affect (LAA)* the Ute ladies' tresses. If Ute ladies' tresses is found in the planning area, trampling, foraging and wetland degradation may occur unless grazing is properly managed in these habitats. Conservation measures would be implemented to minimize these impacts. Livestock grazing in some riparian areas may produce beneficial effects on orchid habitat, however, by reducing competing vegetation.

4.7.1.6 Minerals

The Minerals program *may affect, would not likely adversely affect (NLAA)* the Ute ladies' tresses because of limitations on surface disturbing activities that are restricted within 500 feet of riparian habitats and functions. Special Status Species stipulations, and specific conservation measures outlined below, will serve to protect yet undiscovered populations of the orchid and avoid adverse impacts to existing orchid individuals or habitat.

4.7.1.7 Paleontology and Natural History

Implementation of paleontological resources management *may affect but is not likely to adversely affect (NLAA-d)* the Ute ladies'-tresses orchid due to discountable effects. This determination is based on the unlikely occurrence of paleontological resources management actions would occur within orchid habitat and the rare and unlikely potential for surface disturbance associated with fossil collection. Implementation of the orchid conservation measures would preclude any impacts to the orchid.

4.7.1.8 Recreation and Visitor Services

The Recreation and Visitor Services program would have *no effect (NE)* on the Ute ladies' tresses. There are no Ute ladies' tresses populations that occur within existing recreation facilities. Future facilities would not be permitted within these habitats and would implement the conservation measures to prevent adverse affects from occurring.

4.7.1.9 Soil

The Soil program *may affect but is not likely to adversely affect (NLAA-b)* the Ute ladies' tresses for the following activities: reclaiming areas to achieve natural erosion rates to the extent practicable and applying impact minimizing measures to limit soil erosion and related undesirable conditions. Reclamation activities and impact minimizing measures to limit soil erosion would result in decreased erosion of habitat and therefore provide overall beneficial effects to Ute ladies' tresses.

4.7.1.10 Transportation, Access, and Travel Management

Activities allowing use of motorized over-the-snow vehicles and designating, implementing, and monitoring open and designated areas for OHV use *may affect are not likely to adversely affect (NLAA-d)* the Ute ladies' tresses. Over-the snow vehicles would not affect the species because of dormancy in the winter, and open OHV areas would not be designated within Ute ladies' tresses habitat. All other areas would be limited to existing roads and trails; however, there is the possibility that people may leave the roads and trails and trample individual species, if present. This occurrence would be extremely rare.

Designating, implementing, and monitoring closed areas for OHV use would eliminate potential impacts to individuals through closure of areas.

4.7.1.11 Vegetation

Eradicating and/or controlling the spread of noxious/invasive weeds and vegetation treatments, including prescribed fire, WFU, and chemical, biological, and mechanical methods, may affect, are not likely to adversely affect (NLAA) the Ute ladies' tresses. Treatments would not occur within known habitats to prevent direct take of these plants. Using light mechanical control, including cutting and thinning with hand tools (includes noxious weed control) within riparian habitats may lead to the potential for noxious and invasive weeds to become established. If noxious weeds take hold within the area of disturbance, they may compete with these threatened plant species for nutrients and other habitat requirements.

4.7.1.12 Visual Resources

The Visual Resources program is determined to have *no effect (NE)* on Ute ladies' tresses because the habitat is contained within VRM Class II areas, which retain the existing character of the landscape and protect from surface disturbing activities or visual obstructions.

4.7.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program *may affect, is not likely to adversely affect (NLAA-b)* the Ute ladies' tresses by maintaining or improving function in riparian/wetland areas, avoiding surface discharges of produced water in stream channels and uplands, and prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas. Watershed management would be beneficial by improving the health of the system and activities would be designed so they would not adversely affect populations, but would enhance these systems.

4.7.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *may affect, is not likely to adversely affect (NLAA-i)* the Ute ladies' tresses; these actions would have an insignificant effect on these species. Individuals involved in fire suppression activities would be required to stay on existing roads and trails and avoid Ute ladies' tresses habitat. Although there might be a temporary reduction in population through burn activities, overall habitat would be enhanced, resulting in long term increases in population. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if any known habitat for the orchid is affected or impacted.

4.7.1.15 Wildlife and Fish Habitat

Wildlife and Fish Habitat program *may affect, is not likely to adversely affect (NLAA-b)* the Ute ladies' tresses. Fish and wildlife projects would be designed to either enhance habitats or avoid known habitats so as not to adversely affect the populations.

4.7.1.16 Special Management Areas

The Special Management Areas program *may affect, is not likely to adversely affect (NLAA-b)* the Ute ladies' tresses for the following activities: the Rock Creek ACEC, the Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and Wild and Scenic River management. Designations would further protect populations from surface disturbing activities and related impacts.

4.7.2 Management Status Recovery and Conservation Planning

These conservation measures are intended to directly conserve the orchid, and to reduce or eliminate adverse effects from the spectrum of management activities on BLM land. These measures are provided to outline opportunities to benefit the orchid, and to help avoid negative impacts through the thoughtful planning of activities. Plans that incorporate them and projects that implement them are expected to lead to conservation of the species.

These conservation measures are binding measures that BLM shall implement in order to facilitate conservation of the orchid. However, because it is impossible to provide measures that will address all possible actions, in all locations across the range of the orchid, it is imperative that project-specific analysis and design be completed for all actions that have the potential to affect the orchid. Circumstances unique to individual projects or actions and their locations may still result in adverse effects to this plant. In these cases, additional or modified conservation measures may be necessary to avoid or minimize adverse effects or further consultation with the USFWS will be required. The order in which the conservation measures appear below does not imply their relative priority.

4.7.2.1 Conservation Measures

1. The Wyoming BLM Standard Mitigation Guidelines for Surface Disturbing Activities requires any lessee or permittee to conduct inventories or studies in accordance with BLM and USFWS 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 1990).
 - Surface disturbance will be prohibited within 500 feet of surface water and/or riparian areas (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
 - No Surface Occupancy will be allowed within special management areas (e.g., known threatened or endangered species habitat) (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
 - 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 BLM and U.S. Fish and Wildlife Service 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) (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
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 (BLM Wyoming Guidelines for Livestock Grazing Management).
- 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 (BLM Wyoming Guidelines for Livestock Grazing Management).
3. The BLM 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 BLM 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 BLM with concurrence by USFWS and implemented on a case-by-case basis only.
6. The BLM will not increase permitted livestock stocking levels in any allotment with pastures containing known orchid populations without consulting with the USFWS. 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. BLM 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 BLM's authorized officer and with concurrence by the USFWS, 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 specific 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 BLM will work with the Animal and Plant Health Inspection Service (APHIS), the USFWS 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 BLM.
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 BLM 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 BLM 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 BLM "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 BLM will survey to assess the habitat boundary and retain that area in Federal ownership. BLM-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 BLM will re-initiate consultation with the USFWS. Projects will not be authorized closer than 0.25 miles from any known populations of the orchid without concurrence of the USFWS and the BLM 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. BLM 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.

4.7.2.2 Best Management Practices

The following BMPs are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect the orchid.

1. When project proposals are received, BLM will initiate coordination with the USFWS 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 USFWS.
2. The BLM 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 USFWS and other agencies as appropriate. Orchid habitat on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.

3. The BLM will coordinate with the USFWS, 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 USFWS 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 BLM 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 BLM "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 BLM 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 BLM 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.

Research/Monitoring/Inventories

12. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS 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.

Collection

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.

Education

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.

Introduction/Reintroduction

21. The BLM should work towards developing reintroduction sites in coordination with the USFWS 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.

4.7.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for the Ute ladies' tresses orchid:

- Air Quality—NLAA-b
- Cultural—NLAA-i
- Forestry—NE
- Lands and Realty—NLAA-i
- Livestock Grazing—LAA
- Minerals—NLAA

- Paleontology and Natural History—NLAA-d
- Recreation and Visitor Services—NE
- Soil—NLAA-b
- Transportation, Access, and Travel Management—NLAA-d
- Vegetation—NLAA
- Visual Resources—NE
- Watershed and Water Quality (Surface and Groundwater)—NLAA-b
- Wildland Fire and Fuels—NLAA-i
- Wildlife and Fish Habitat—NLAA-b
- Special Management Areas—NLAA-b

4.8 COLORADO RIVER FISH SPECIES

Water depletions and water quality within the Colorado River drainage system would have the greatest and most devastating impacts on the endangered Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub.

4.8.1 Effects Determination for BLM-Administered Programs

4.8.1.1 Air Quality

The Air Quality program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub for all activities. This determination was reached because this program and its associated activities are not located in Colorado River fish species habitat.

4.8.1.2 Cultural

The Cultural program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because the program does not require water resources and temporary campgrounds would not be located within riparian habitats.

4.8.1.3 Forestry

The Forestry program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because the program does not require water resources.

4.8.1.4 Lands and Realty

The Lands and Realty program *may affect is likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because some activities, such as pipelines, require hydrostatic testing which requires water resources and may result in depletions.

4.8.1.5 Livestock Grazing

Livestock conversion or livestock grazing authorization (i.e., to adjust season of use, distribution, kind, class, and numbers of livestock); design, implementation, and monitoring of grazing systems (AMPs and grazing agreements); and supplemental feeding authorization *may affect, are likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Direct impacts may occur from water depletion associated with construction, development, and operation of catchments

and reservoirs. The increased water surface area would lead to increased evaporative loss of water, thereby causing additional depletions to the system.

4.8.1.6 Minerals

Oil and gas development *may affect, is likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Direct impacts may occur from water depletion associated with construction, development, and operation of activities and facilities (drilling, condensate waters, watering roads for dust control).

4.8.1.7 Paleontology and Natural History

The Paleontology and Natural History program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because the program does not require water resources.

4.8.1.8 Recreation and Visitor Services

The Recreation and Visitor Services program would have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because the program does not require water resources.

4.8.1.9 Soil

The Soil program would have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Reclamation activities and impact minimizing measures to limit soil erosion would result in decreased siltation of habitat.

4.8.1.10 Transportation, Access, and Travel Management

The Transportation, Access, and Travel Management program *may affect, is likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Transportation plans may include watering roads for dust control which would use water resources and may result in depletions. These actions would be consulted on at the project level and would only be recommended in areas with high use.

4.8.1.11 Vegetation

The Vegetation program is determined to have *no effect (NE)* on Colorado pikeminnow because water depletion activities are not associated with the Vegetation Management program.

4.8.1.12 Visual Resources

The Visual Resources program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub because habitat is contained within VRM Class II areas, which retain the existing character of the landscape.

4.8.1.13 Watershed and Water Quality (Surface and Groundwater)

The Watershed and Water Quality program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub for the following activities: avoiding

surface discharges of produced water in stream channels and uplands; prohibiting surface disturbance in 100-year floodplains, wetlands, and riparian areas; and maintaining or improving function in riparian/wetland areas. Avoiding discharges, surface disturbing activities, and activities to improve or maintain riparian/wetland function would enhance Colorado River fish species habitat.

4.8.1.14 Wildland Fire and Fuels

The Wildland Fire and Fuels program *may affect, is likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub for the following activities: fire suppression, use of chemical fire suppression agents (ground-based), fire retardant drops containing dry chemical (aircraft dispersal), and prescribed burning. Fire and fuels management actions that require the drawing of water from the Colorado River systems would result in water depletion, and chemical agents could affect water quality.

4.8.1.15 Wildlife and Fish Habitat

The Wildlife and Fish Habitat program *may affect, is likely to adversely affect (LAA)* the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Water development projects may be proposed to enhance wildlife management which would result in water depletion.

4.8.1.16 Special Management Areas

The Special Management Areas program is determined to have *no effect (NE)* on the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub for the following activities: the Rock Creek ACEC, the Beaver Creek ACEC, Trapper's Point ACEC, New Fork Pot Holes ACEC, Miller Mountain Management Area, Ross Butte Management Area, Wind River Front Management Area, WSA management, and Wild and Scenic River management.

4.8.2 Management Status Recovery and Conservation Planning

For projects that cause depletions to the Colorado River system, the BLM will initiate formal consultation with the Service.

4.8.2.1 Conservation Measures

When developing or improving water source in the Colorado system, BLM will consider development designs such as water wells and guzzlers rather than surface impoundments to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

The BLM will consult with USFWS on any action resulting in water depletions to the Colorado River system. Projects resulting in depletions of 100 acre/feet or more will be subject to the Recovery Program depletion fee which will be determined by the USFWS on a project by project basis.

4.8.3 Determinations Summary

Under the PFO RMP, the following impacts have been determined for Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub:

- Air Quality—NE
- Cultural—NE
- Forestry—NE

- Lands and Realty—LAA
- Livestock Grazing—LAA
- Minerals—LAA
- Paleontology and Natural History—NE
- Recreation and Visitor Services—NE
- Soil—NE
- Transportation, Access, and Travel Management—LAA
- Vegetation—NE
- Visual Resource—NE
- Watershed and Water Quality (Surface and Groundwater)—NE
- Wildland Fire and Fuels—LAA
- Wildlife and Fish Habitat—LAA
- Special Management Areas—NE

5.0 SUMMARY OF 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 BA. Future federal actions that are unrelated to the proposed actions are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Cumulative effects, as stated in NEPA guidance, are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Assessments of proposed actions on public lands require an analysis of past and present impacts on T&E species and associated habitats for compliance with the ESA.

The exact cumulative effect on T&E species is not known because of the lack of specific information on future state, local, or private actions in the planning area. Because most impacts to Special Status Species are human related (e.g., recreational use), or the result of human activities (e.g., livestock grazing, mineral development, housing development), and the human pressures in the planning area may be expected to change over the foreseeable future, the scope and scale of the impacts are not known.

The cumulative effects of actions under these BLM programs and their activities may have local impacts to populations. If this occurs, a determination of “may affect” as the cumulative effect is obligatory. This would result in a request for a special consultation with the USFWS to ensure that appropriate impact minimizing measures are conducted to prevent taking of the species.

Impact minimizing measures for T&E species would include no loss of critical habitats or their function. “Habitat function” means the arrangement of habitat features and the capability of those features to sustain species, populations, and diversity of wildlife over time (a quantitative measure of habitat). Sites warranting this level of protection cannot be replaced or mitigated. Other extremely significant sites or habitats may also be designated as irreplaceable. Recommendations to include additional sites within this category would be evaluated on a case-by-case basis and must be approved by the USFWS.

Where noncritical, but crucial, habitats are present and restoration or replacement may not be possible, impact minimizing measures must be within the same location, have the same essential features, and support the same species. Habitat in this category directly limits a community, population, or

subpopulation; and restoration or replacement may not be possible. Some modification of habitat characteristics may occur, provided habitat function is maintained (i.e., the location, essential features, and species supported are unchanged). These modifications would be evaluated as part of the consultation with the USFWS.

6.0 SUMMARY OF EFFECTS DETERMINATIONS

Table 6 summarizes the effects determinations for candidate, nonessential experimental populations, recently de-listed BLM sensitive species, threatened, and endangered species in the planning area.

Table 6. Summary of Effects Determinations

Species Program	Black-footed ferret	Grizzly Bear	Canada Lynx	Gray Wolf	Bald Eagle	Western Yellow-billed Cuckoo	Ute Ladies' Tresses	COLORADO RIVER FISH SPECIES Colorado Pikeminnow Humpback Chub Gila Chub Razorback Sucker
Air Quality	NLAA-d	NE	NE	NJ	NLAA-i	NJ	NLAA-b	NE
Cultural	NLAA-d	NLAA-i	NLAA-d	NJ	NLAA-i	NJ	NLAA-i	NE
Forestry	NLAA-d	NLAA-i	NLAA-i	NJ	NLAA-i	NJ	NE	NE
Lands and Realty	NLAA-i	NLAA	NLAA-i	NJ	LAA	NJ	NLAA-i	LAA
Livestock Grazing	NLAA-d	LAA	NLAA-i	NJ	NLAA-i	NJ	LAA	LAA
Minerals	NLAA-i	NLAA	NLAA-i	NJ	LAA	NJ	NLAA	LAA
Paleontology and Natural History	NLAA-d	NLAA-d	NLAA-d	NJ	NE	NJ	NLAA-d	NE
Recreation and Visitor Services	NLAA-i	NLAA-i	NLAA-i	NJ	LAA	NJ	NE	NE
Soil	NLAA-b	NLAA-b	NLAA-b	NJ	NLAA-b	NJ	NLAA-b	NE
Transportation, Access, and Travel Management	NLAA-i	NLAA-i	NLAA-i	NJ	NLAA-i	NJ	NLAA-d	LAA
Vegetation	NLAA-i	NLAA-i	NLAA-i	NJ	NLAA-i	NJ	NLAA	NE
Visual Resources	NLAA-b	NLAA-b	NLAA-b	NJ	NE	NJ	NE	NE
Watershed and Water Quality	NLAA-d	NLAA-d	NLAA-b	NJ	NLAA-b	NJ	NLAA-b	NE
Wildland Fire and Fuels	NLAA-i	NLAA-d	NLAA-i	NJ	LAA	NJ	NLAA-i	LAA

Species Program	Black-footed ferret	Grizzly Bear	Canada Lynx	Gray Wolf	Bald Eagle	Western Yellow-billed Cuckoo	Ute Ladies' Tresses	COLORADO RIVER FISH SPECIES Colorado Pikeminnow Humpback Chub Gila Chub Razorback Sucker
Wildlife and Fish Habitat	NLAA-i	NLAA-i	NLAA-i	NJ	NLAA-b	NJ	NLAA-b	LAA
Special Management Areas	NLAA-b	NLAA-b	NLAA-b	NJ	NLAA-b	NJ	NLAA-b	NE

Effects Determinations:

LAA—likely to adversely affect

NE—no effect

NLAA-b—may affect, but is not likely to adversely affect, because of beneficial effects

NLAA-d—may affect, but is not likely to adversely affect, because of discountable effects

NLAA-i—may affect, but is not likely to adversely affect, because of insignificant effects

NJ—not likely to jeopardize the continued existence of the species

7.0 SUMMARY OF SPECIES-SPECIFIC COORDINATION AND 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 RMPs. Specific to each species, this section discusses conservation measures, and in some cases, BMPs. Proposed protections are those conservation measures in the Pinedale Final RMP and EIS. In addition, BLM has already committed to implementing many conservation measures; many of these are from the statewide BAs and Biological Evaluations for the individual species. BLM would also consider implementing any appropriate BMPs to further protect the species and its habitat. In the event new populations of the species are discovered, these measures would apply until such time that further investigation and subsequent consultation with the USFWS result in more appropriate management prescriptions.

7.1 BLACK-FOOTED FERRET

The national recovery objective developed by the USFWS in 1998 for this species highlights several actions to ensure the immediate survival of the black-footed ferret. These actions included increasing the captive population of black-footed ferrets to a census size of 200 breeding adults by 1991, establishing a pre-breeding census population of 1,500 free-ranging black-footed ferret breeding adults in 10 or more populations with no fewer than 30 breeding adults in any population by the year 2010, and encouraging the widest possible distribution of reintroduced black-footed ferret populations.

In 2005, the Wyoming BLM submitted a Statewide Programmatic Biological Assessment for assessing the potential effects to the black-footed ferret from management actions included in ten RMPs of the Wyoming BLM. The measures discussed above were detailed in the BA. The USFWS issued a BO in

response to BLM's request for consultation on the black-footed ferret in 2006 citing the following conservation and recovery/reintroduction measures.

The Conservation Measures listed below are separated into Species Conservation Measures, which affect the species directly; Habitat and Mapping Measures, which protect habitat and address prairie dog colonies and mapping activities, and Recovery/Reintroduction Measures, which address BLM's role in and commitment to recovery of the species.

7.1.1 Conservation Measures

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 USFWS block clearance letter of February 2, 2004 (USFWS 2004)] and meet potential habitat criteria as defined by the USFWS guidelines (USFWS 1989), the BLM shall initiate coordination with the USFWS at the earliest possible date so that the USFWS 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 USFWS.
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 BLM and the USFWS 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 USFWS 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 the USFWS or BLM employees, and deposited with the USFWS Wyoming Field Office or the USFWS 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 USFWS 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 USFWS Field Office Supervisor, the Wyoming Game and Fish Department (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 USFWS. 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 USFWS, 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 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 USFWS 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 USFWS and BLM approved techniques to determine whether the criteria established for ferret occupancy in the USFWS (1989) guidelines for black-footed ferrets are met.

7.1.2 Best Management Practices

The following BMPs would be implemented to the greatest extent practicable for the recovery of the species:

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).

7.2 GRIZZLY BEAR

The following BLM-committed conservation measures are to be implemented in grizzly bear habitat, and are intended to minimize or eliminate adverse impacts likely to result from implementation of the management actions provided in the RMPs. The BLM is committed to the implementation of

Conservation Measures (1 through 12), and the BLM will also consider implementing any appropriate best management practices (BMPs), items 13 through 20, at every opportunity to further protect the grizzly bear. In the future, it is expected that grizzly bears will reoccupy historic ranges, and move into new areas. BLM will ensure the implementation of these conservation strategies for the protection and management of newly-established populations.

The most important factors affecting grizzly bears on the landscape are the levels of human activities including food storage, livestock allotments, motorized access, and site development (ICST 2003). One of the key habitat factors in the maintenance of grizzly bear populations is the protection of secure habitat, defined as all areas more than 500 m from an open or gated motorized access route or high use non-motorized trail, and larger than 10 acres, and providing all the key elements needed for the survival and life functions of these animals (such as food sources, cover, denning areas, and security from human disturbance and disruptive activities). Human behavior and habitat are both addressed in the following Conservation Measures and Best Management Practices.

7.2.1 Conservation Measures

1. The BLM 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 BLM 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 BLM 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, BLM shall inform the public of proper storage techniques for food and refuse.
4. The BLM 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 BLM 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 BLM 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 BLM shall continue to attend, and be a member of, the Yellowstone Ecosystem Subcommittee of the IGBC. After delisting, BLM shall continue to attend the appropriate coordination group(s).

7. The BLM shall not approve commercial cutting or other removal of whitebark pine in the six FOs analyzed in this document in occupied or potential grizzly bear habitat.
8. The BLM 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. The NW Wyoming Level One Streamlining Team continues to discuss these issues.
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 0.5 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 BLM 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 BLM range/wildlife specialist or ranger. In cases of uncertainty on carcass disposition the permit holder (or lessee) shall contact the appropriate BLM FO.
10. The BLM 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 BLM administered Public Lands. If these areas are polluted and/or damaged from activities, lessee/permittee/grantee or BLM will be required to assume full responsibility for rehabilitation and restoration of such areas (from IGBC 1986).
11. The BLM 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.

7.2.2 Best Management Practices

1. With the intent of reducing potential conflicts between grizzly bears and livestock and the BLM 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. BLM should offer no new permitted sheep AUMs in grizzly bear habitat where conflicts have occurred in the past, or are likely to occur in the future.
2. The BLM 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 BLM 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 BLM 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 BLM 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 BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM 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 ICST (2003) and conducted in the 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 which 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).

7.3 CANADA LYNX

These Conservation Measures are intended to conserve the lynx, and to reduce or eliminate adverse effects from the spectrum of management activities on BLM land. These measures are provided to outline opportunities to benefit the lynx, and to help avoid negative impacts through the thoughtful planning of activities. Plans that incorporate them, and projects that implement them, are generally not expected to have adverse effects on lynx, and implementation of these measures across the range of the lynx is expected to lead to conservation of the species (Ruediger et al. 2000).

These Conservation Measures are binding measures that BLM shall implement in order to facilitate conservation of lynx. LAUs typically encompass both lynx habitat (may or may not be currently in suitable condition for denning or foraging habitat) and other areas (such as lakes, low elevation ponderosa pine forest, and alpine tundra). The Conservation Measures listed below generally apply only to lynx habitat within the LAUs. However, their use in areas of lynx habitat or potential lynx habitat not fitting the criteria of an LAU is encouraged.

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

or modified Conservation Measures may be necessary to avoid or minimize adverse effects. The order in which the Conservation Measures appear below does not imply their relative priority.

7.3.1 Conservation Measures

1. Within an LAU, BLM shall ensure lynx habitat and non-habitat, including denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. BLM 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. BLM 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. BLM 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. BLM management actions shall not change more than 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. BLM shall maintain denning habitat in patches generally larger than 5 acres and comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present within an LAU, BLM will defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.
5. BLM 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. BLM shall ensure that habitat connectivity within and between LAUs is maintained.
7. BLM 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 FO.
8. Following a disturbance (blowdown, fire, and insects) that could contribute to lynx denning habitat, BLM 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. BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.
10. In aspen stands, BLM shall ensure that harvest prescriptions favoring the regeneration of aspen apply.

11. BLM 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, BLM 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. BLM 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. BLM 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, BLM 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. BLM 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, BLM 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. BLM 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. BLM 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, BLM 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, BLM 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 USFWS recommendations established through a formal Section 7 consultation process.
23. BLM 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, BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.
25. Within lynx habitat, BLM shall ensure that key linkage areas and potential highway crossing areas are identified using best available science.
26. BLM 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. BLM 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, BLM 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. BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. BLM shall encourage remote monitoring of sites that are located in lynx habitat so they do not have to be visited daily.

7.3.2 Best Management Practices

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-country 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 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.

7.4 GRAY WOLF

The only wolf pack known within the planning area is the Daniel pack. There is known wolf activity along the Wyoming and Wind River mountain ranges.

Wolves are very adaptable and have done very well in Wyoming since their release in 1995-1996. Two main factors affecting the continued existence of wolves in an area are the maintenance of a good

ungulate prey base and the containment of roads and human activity. Habitat improvement projects for elk and other big game foraging areas are already part of the RMPs and one of the main activities carried out by the individual FOs. The other significant factor is to reduce human-caused mortality. Road density (highly correlated with human causes of death), public outreach and education, and cattle-ranching practices as they relate to wolf depredations, are overarching elements in the maintenance of successful wolf populations.

The maintenance of a good data base on the location of wolf packs is the first step in protection of the animals. It is important to develop and maintain contact with appropriate staff with the USFWS and WGFN in order to stay informed of wolf packs in the FO and/or on BLM land. Following delisting and as wolf populations expand, it may be necessary to develop monitoring protocols for wolves on BLM lands. These would be most effective if coordinated with other agencies.

These conservation measures are meant to be a tool to clarify what activities have impacted the species in the past, what conservation measures have been or could be used to minimize impacts, and to assist the agencies in the development of BAs and BOs. Implementation of the following conservation strategies is intended to minimize adverse impacts that are likely to result from implementation of the management actions provided in the RMPs. The BLM has committed to implement conservation measures 1 through 5. The BLM will also consider implementing best management practices (BMPs), items 1 through 6, at every opportunity to further protect the gray wolf. All conservation measures and BMPs apply to the known populations of the gray wolf. In the event that wolf packs are formed in new areas, these measures would apply to these areas as well.

7.4.1 Conservation Measures

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. BLM 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. BLM 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. BLM will designate a state representative to attend the annual interagency coordination meeting.
5. BLM will continue to attend the annual coordination meetings with the Wyoming Game and Fish Department.

7.4.2 Best Management Practices

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

2. BLM will avoid situations that allow for wolves to habituate to humans or become exposed to and use human refuse as a food source.
3. BLM 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. BLM 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. BLM will continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.
6. BLM will encourage reporting of wolf observations by BLM staff and the public to the WGFD.

7.5 BALD EAGLE

Several measures are included in the existing Pinedale RMP that have been used over the years to directly or indirectly minimize impacts on the bald eagle. These actions include timing restrictions for surface disturbing activities and intensive management in specific areas.

In 2003, the Wyoming BLM submitted a Statewide Programmatic Biological Assessment for assessing the potential effects to the bald eagle from management actions included in twelve RMPs of the Wyoming BLM. The USFWS issued a BO in response to BLM's request for consultation on the bald eagle in 2004 citing the following conservation measures and BMPs.

7.5.1 Conservation Measures

1. When project proposals are received, BLM should initiate coordination with the USFWS at the earliest possible date so that USFWS 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 USFWS.
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 BLM 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 BLM should verify the status of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by BLM. As a matter of maintaining inventory information, BLM should coordinate annually with USFWS, 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 (within 0.5 mile February 1 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 (within 0.5 - 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) 0.5 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 may be made after consultation with USFWS.
6. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 to April 1. No ground disturbing activities will be permitted within 1 mile of active roost sites year round.
7. BLM-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).
9. Proponents of BLM 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. BLM should coordinate with APHIS - Wildlife Services 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. USFWS 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. BLM 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 water bodies); 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 USFWS Wyoming Field Office (307-772-2374) and the USFWS Law Enforcement Office (307-261-6365) should be notified within 24 hours of the discovery.

14. BLM 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. BLM 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. BLM should periodically review existing water quality records (e.g., WDEQ, WGFD, 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 BLM 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.

Bald Eagle Survey Methodology Guidelines for Breeding/Nesting Site Populations¹

Traditional monitoring methods for bald eagle breeding/nesting populations involve annual completion of 3 temporally separate surveys (collectively designated productivity surveys) to determine: 1) occupancy, 2) activity, and 3) results of all breeding attempts in the population.

Modification of accepted productivity survey practices for more efficient, less disruptive, and more representative methods of determining population trends are recommended. ***Number of active breeding pairs and number of total young of advanced age produced*** adequately represent annual status and reproductive performance of the population. Analysis of these annual statistics in a historical context will indicate trends.

Absence of occupancy surveys will not affect detection of new breeding areas because Flath et al. (1991) almost always found new nest sites or pairs during activity surveys, seldom during occupancy surveys, and rarely during production surveys or thereafter. Continued determination of occupancy would be at the discretion of the entity responsible for completion of productivity surveys.

Specific timing of surveys must be based on local nesting chronology. Surveys should be designed to minimize disturbance as much as possible. When planning surveys, agency personnel should be aware that ***nesting phenology among breeding areas may vary as much as 45 days***, but general guideline for timing is:

1. **Occupancy surveys (*not mandatory*)** – may occur as early as 7 February but should be concentrated in the third week of March for most breeding areas.
2. **Activity surveys and searches for new nests** – should generally occur from 15 April to 5 May (cottonwood leaf-out).

¹ Adapted from “Montana Bald Eagle Management Plan” July 1994

3. **Production surveys** – should occur in late June but may extend into early July.

Task: Annually survey in a standard manner all breeding areas known to be viable to determine status and annual productivity.

Guidelines:

1. A Bald Eagle Nest Survey Form standardizes data collection during nesting surveys and should be used. Individuals or agencies assigned specific nest survey responsibilities will receive from the Working Group survey forms prior to each year's survey effort.
2. At least once every 5 years, survey historical breeding areas that have not been active since 1990 to determine current status.
3. These surveys should follow the timing guidelines provided above and use the Bald Eagle Nest Survey Form.

Task: Maintain current nest record information for all bald eagle nests.

Guideline:

The Bald Eagle Nest Record Form establishes a permanent record of each nest location in the state. This form includes general descriptive information about the nest site. A map of the nest location and instructions on how to find the nest should be included whenever a new nest is found. It is the responsibility of the respective land management agency to complete the Bald Eagle Nest Record Form.

Guidelines for Wintering Period Surveys²

The guidelines in this appendix address four main questions: 1) What areas should be surveyed? 2) How often are surveys needed? 3) What information should be obtained?, and 4) What procedures should be used?

Survey Locations

The vicinities of known nest sites should be checked to determine whether eagles are resident during part or all of the non-breeding season. If eagles are present, attempts should be made to identify their feeding area(s) and night roost(s), and to determine the period of time the eagles remain in the area.

The selection of survey locations outside of nesting habitat depends on whether the objective is to check feeding areas and night roosts usually are checked in separate surveys because they may be as much as 15 miles apart (the highest recorded distance is approximately 17 miles), and because the number of eagles present at them varies with the time of day and several other factors.

To date, most surveys of feeding areas have been confined to locations associated with water. However, where food other than fish or waterfowl is available, open water is not a habitat requirement. Food resources from terrestrial habitats, such as big game and livestock carrion, jack and cottontail rabbits, and ground squirrels are the major food items of wintering bald eagles in several locations. Thus, in addition to aquatic habitats, surveys of feeding areas should include terrestrial habitats.

² Adapted from "Northern States Bald Eagle Recovery Plan" July 1983.

Priorities for areas to check can be established on the basis of known or suspected levels of prey availability. Other things equal, the number of eagles is likely to be greatest where the most food is available.

Night roosts are found in a variety of habitat types and are not necessarily in the immediate vicinity of feeding areas. Trees in ravines, on the leeward side of hills, or in other wind-protected situations are the most likely to be used, particularly during harsh weather. In relatively flat terrain where few trees are present, eagles usually roost in trees that are clumped or screened from the prevailing wind by other vegetation. As a general rule, trees in exposed sites are occupied only during mild weather.

Survey Frequency

The number of surveys needed in local wintering areas depends on the amount of information available for site-specific management plans. If the approximate date when bald eagles first arrive in an area is not known, surveys should begin in mid- to late October. The main value of an early survey is to establish the initial date for seasonal restrictions on human activity in important wintering areas.

At locations where peak periods and levels of use have not been determined, or where preferred feeding sites and night roosts are not known, surveys are recommended at 7 to 21 day intervals throughout the winter period. Survey frequency can be adjusted so that areas with the greatest potential for high use are checked most frequently.

Biologists unfamiliar with the characteristics of wintering eagles might question the need for more than one or two surveys each winter, especially because only two surveys are recommended for the breeding season. The need for repeated surveys stems from the high mobility of wintering bald eagles. Some remain in one location for months, but others move quite frequently. Reasons for the movements are not fully understood, although some clearly are related to changes in prey availability and weather conditions. As a result of these movements, distribution and abundance of eagles in local areas fluctuates considerably during winter. For example, a location where an average of 10 eagles are seen in January might have an average count of 40 in February and a peak of 60 in March. Preferred feeding sites within an area could shift from open water early in the winter to adjacent terrestrial habitat later in the season. The level of use at night roosts also is variable. Thus, to identify important feeding areas and night roosts, surveys are needed throughout the winter period. In many locations a high level of survey effort probably will be required for at least two winters to identify regularly used sites. Thereafter, survey frequency can be reduced to whatever is desired for monitoring a particular area of interest.

Survey Information

For each survey of a roost or feeding area a complete record should be made of the date, time, personnel, procedures, route, and weather conditions. Determining the distribution of wintering bald eagles is as important as determining their abundance. Therefore, the locations of eagles observed during surveys should be plotted as precisely as possible on maps. Consistently-used feeding areas and even individual hunting perches are identified by comparing the observations plotted over a number of surveys. Detailed information of this type is essential for delineating the boundaries and special features of wintering areas where a site-specific management plans are needed. This level of detail also is needed for Endangered Species Act (Section 7) formal consultations.

Survey Procedures

To the extent possible, survey procedures should be the same all winter. Because observer competence is a major source of variability in winter survey results, the same experienced observer(s) should conduct all surveys in a particular area, with the same pilot and aircraft for aerial surveys. Recording detailed information during a survey may require a primary observer to look for eagles and a recorder to plot the

locations of eagles, carrion, waterfowl, stretches of open water, or other items of interest and value. Eagles missed by the primary observer but seen by the recorder or the pilot should be noted separately.

Surveys can be conducted from the air, the ground, or by boat. Visibility from a boat usually is limited by shoreline vegetation or topography; therefore, surveys by boat are advisable only for locations inaccessible from the ground or unsafe for aerial survey. Surveys from the ground are recommended where vegetation and terrain do not restrict visibility, e.g. small lakes or rivers where the entire shoreline can be seen from a few fixed points. Aerial surveys are recommended for large wintering areas, and locations where ground access is poor, or visibility is limited. Some feeding areas and roosts appear suitable for both ground and aerial surveys. At such locations, initial surveys can be conducted simultaneously from the ground and the air to assess which procedure is better.

Safety is the foremost consideration during aerial surveys. Pilots should have considerable prior experience conducting wildlife surveys that require slow, low-level flying. The route and the location of potential hazards such as power lines should be determined before each flight. Tight turns should be minimized.

Aerial surveys can be conducted from helicopters or fixed-wing aircraft. More eagles are likely to be detected from helicopters because eagles usually flush ahead of them and are quite noticeable. However, flushing eagles from roosts or feeding areas on a regular basis could lead to abandonment of these essential wintering sites by some or all of the affected birds. Also, the cost of using a helicopter (about five times the hourly cost of a fixed-wing aircraft) is seldom justified. Therefore, helicopters are recommended only where use is dictated by safety considerations.

A small plane such as a Piper PA18 (“Super Cub”) is ideal for aerial surveys by one observer. For surveys that require two observers, a small four-seater capable of slow flight (e.g. Cessna 172 or 180) is recommended. During aerial surveys a speed of 60 to 75 mph is optimal; up to 90 mph is acceptable. Detection of bald eagles drops sharply above 90 mph. The recommended survey height is 100 to 300 feet above ground or tree level. Flights above 300 feet are of limited value because many less conspicuous eagles are missed. During surveys along rivers both shorelines should be visible from one side of the plane. Where tree cover is dense, or river is braided or so wide that both shorelines cannot be seen adequately on a single pass, the plane should circle and make additional passes until the area is covered thoroughly.

Surveys in feeding areas should coincide with the time of day when most bald eagles are foraging. This usually is one to three hours after daylight. It is advisable to check night roosts just before an early morning survey of feeding areas, and to delay the survey until later in the morning if a large number of birds are still at roosts. Surveys late in the morning or in the afternoon are not recommended because some bald eagles soar when weather conditions are appropriate, and others move to roosts or other protected sites to rest after feeding.

Both direct and indirect methods can be used to determine whether bald eagles hunt in terrestrial habitats adjacent to water. One indirect, highly recommended method is checking beneath roost trees for prey remains and regurgitated pellets of undigested material. Do this only when no eagles are at the roosts, e.g., at mid-day. Because eagles can digest fish completely, few castings are found where fish are the major item in the diet. Vegetation from fish stomachs sometimes is regurgitated in pellet form, and fish scales and cartilage occasionally are found in castings that contain feathers or hair. A large proportion of castings with hair indicate that eagles are obtaining carrion or live prey in terrestrial habitats. By analyzing castings it may be possible to determine which mammals are fed upon; in many instances one species clearly is dominant. These data can be used to infer that eagles hunt at particular sites or in certain vegetation types known to support the prey species. Roost sites should be checked for castings on a

regular basis, e.g., once per month and compare the results with a count made the following morning in aquatic feeding areas. The morning survey should be preceded by a check of roost areas to determine how many eagles are still there. A night roost count that substantially exceeds the count from the morning aquatic area survey is an indication that some of the eagles may be in terrestrial areas.

The general pattern of eagle distribution in terrestrial feeding areas usually can be determined directly by conducting surveys in suitable prey habitat. Where there are few suitable sites for bald eagles to hunt, each site can be checked. However, where the potential hunting area is vast, aerial surveys along the transect lines are recommended. This type of survey provides an index of eagle distribution in relation to vegetation types and other habitat characteristics. Transect lines spaced 1.5 miles apart are suggested. The length of the lines depends on the suitability of vegetation as prey habitat. In any case, transects normally need not extend further than 15 miles from roosts. It should be recognized that a survey along transect lines provides an index of distribution and information on the extent of feeding areas; it does not provide accurate data on use by eagles, the best means of assessing abundance is to count at night roosts.

Night roost surveys are conducted at dusk or dawn. Dusk is preferred because most eagles return to roosts before dark, while there still is enough light to see them, whereas some eagles leave roosts at or before daybreak, when it is too dim for accurate count. It is important to search periodically for roosts, until there is a high degree of confidence that all regularly used sites have been identified.

Occasionally, counts at roosts cannot be made safely from the air, nor can roosts be seen directly from the ground. In these situations observers watch from a distance and count eagles as they fly toward the roost site (or from it, if the survey is done in the morning). This procedure underestimates the actual number of birds using a roost because eagle remaining there all day are not seen, and some flying to (or from) the roost could be missed.

Other Considerations

There has been confusion over the interpretation of winter survey data, particularly with regard to abundance, and a discussion of the matter is appropriate in these guidelines:

1. Because of visibility biases inherent to surveys, a survey provides an index rather than an absolute count of the eagles present at a particular time.
2. Counts at night roosts generally provide more accurate indices of abundance than counts in feeding areas, provided all roosts in a wintering area are checked.
3. The total number of eagles using a particular location during winter cannot be determined because individual birds vary in the length of time they remain in any one place. Therefore, the “wintering population” in a particular location, county, state, or region is dynamic, not fixed in size. At present the range, average, and peak number of eagles observed in feeding areas or at roost sites are the most meaningful measures of use in wintering years. Better indices (e.g. estimates of “bald eagle use days”) for comparing levels of use in various locations are desirable and hopefully will be developed in the future.
4. Fluctuations in use occur between winters and within winters. As a general rule, however, wintering areas where suitable prey resources are regularly available, relatively abundant, and easy for eagles to obtain are used each year and support far more eagles than do surrounding, less suitable locations. Properly conducted surveys should reflect these types of differences.

Surveys do not provide all the information necessary for the preparation of site-specific management plans. Additional studies are needed for the following:

- identifying and assessing important habitat for major prey species;
- assessing tree regeneration at night roosts and in feeding areas; and
- identifying vegetation or terrain features that screen roosts and feeding areas from human activity or wind.

Also, in some locations intensive observations or telemetry studies will be necessary to adequately define the extent of bald eagle hunting areas. This is particularly true when eagles use terrestrial habitats extensively.

SAMPLE BALD EAGLE NEST SURVEY FORM

Year: _____

I. ID Territory Name: _____ Territory Number _____
 _____ Historical Data: _____ Survey Results _____

II. SURVEY SUMMARY Survey: _____ (1) Not Checked _____ (2) Not Located _____ (3) No
 Occupancy Check _____ (4) No Activity _____ (5) Unknown Outcome _____ (6) Complete Survey
 Status: _____ (1) Unoccupied _____ (2) Other Species _____ (3) Single Adult _____ (4) Occupied _____
 (5) Active _____ (6) Unsuccessful _____ (7) Successful _____ (8) Inactive _____ (9) Unknown _____
 (A) Found _____ (B) New Territory Nest Condition: _____ (1) New Nest # _____ (2) Good _____
 (3) Fair _____ (4) Poor _____ (5) Destroyed Nest # _____ Number of Young: _____

III. SURVEY RESULTS

Nesting Period	Date Checked	Survey Method	Nest Condition	Findings	Observer	Comments
Occupancy (3/1-3/31)						
Activity (4/1-4/31)						
Nestlings (5/1-5/31)						
Fledglings (6/1-7/15)						

IV Supplemental Nesting Information (if known)

Date of adult arrival: _____ Date of adult dispersal: _____

 Date of hatching: _____ Date/Number of fledglings at dispersal: _____

 Date of fledging: _____ Banding Data: _____

V NARRATIVE INFORMATION

Nesting Failure, date/nesting period failure _____
 Reason for failure _____
 Observations, remarks, food habits: _____

Prepared by: _____ Phone: _____ Date: _____

Mailing Address: _____

Date

Agency and Office

SAMPLE BALD EAGLE NEST RECORD FORM

Species: _____

Territory name: _____

Territory/nest number: _____

Reported by and date: _____

Location: T _____ R _____ Section _____ ¼ _____ ¼ _____

State: _____ County: _____

Elevation: _____ Aspect: _____

Lat/long: _____ Hydrologic unit: _____

Nest stratum: _____ Nest height: _____

Position on slope: _____ Nest condition: _____

Land Ownership: _____

Directions to nest: _____

Other: _____

Map (1:24000 USGS quad) and Photos

Photograph Showing Nest Site

Photograph Showing Nest

Prepared by: _____ Date: _____

Bald Eagle Habitat Management Zones³

Nest Site Management Zones

Nest Site Management Zones include areas that are progressively farther from a nest constructed by bald eagles (i.e., 0.5 mile, 0.5 - 1 mile, and 0.25 - 2.5 mile). Correspondingly, recommended restrictions decrease as distance from the nest site increases. Zone boundaries may be altered after intensive study of eagle activity and development of site specific management plans.

Definitions of terms used in the zone recommendations:

1. Habitat alterations – Any removal of trees, snags, or understory (includes such activities as timber harvest, firewood cutting of standing snags, or clearing and treatment of vegetation). Habitat alterations also includes projects dealing with wetland and aquatic habitats such as levee building, channeling, dredging, gravel removal, or wetland draining. Livestock use that significantly impacts the habitat or occurs at a level that would prevent habitat or prey base objectives being obtained are included in habitat alterations.
2. Minimal human activity levels – (Min) Essentially no human activity with the following exceptions:
 - a. Existing patterns of ranching and agricultural activities.
 - b. Nesting surveys and banding by biologists experienced with eagles.
 - c. River traffic by boats that continue travel at the rate of the main current and at a frequency which results in no boat traffic for at least 30% of the daylight hours (fishing from boats with such movement rates and frequency is acceptable).
3. Light human activity levels – (L) This level allows for day use and low impact activities such as boating, fishing and hiking but at low densities and frequencies. Activities which are excluded include extended use and activities such as heavy construction, timber harvest, seismic exploration, blasting, concentrated use associated with recreation centers (i.e., picnic areas, boat landings), permanent housing and helicopters or jets within ½ mile of the ground.
4. Moderate human activity levels – (Mod) Low impact (light) activity levels are included, but intensity of such activities are not limited. A limited number of recreation centers designed to avoid eagle conflicts may be considered. Other activities such as construction, seismic exploration, blasting, and timber harvest, also should be designed to specifically avoid disturbance. (Mod+) Designing projects or land uses to avoid eagle conflicts requires sufficient data to formulate a Site-specific Management Plan.

Zone I: Occupied Nesting Zone

Zone I is the area within a 0.5 mile radius of an occupied nest. Ideally, this zone should be biologically relevant to the tolerance of eagles to human disturbances (i.e., the distance at which the presence of humans first causes significant stress or behavior that results in inattentiveness to young or eggs). Since human activity patterns are easier to control if restrictions do not fluctuate from year to year, it may be

³ Adapted from "Greater Yellowstone Bald Eagle Management Plan."

desirable that this zone be established for each alternate nest. However, Zone I guidelines for **habitat alterations** should be applied to all alternate nests.

Recommendations

1. Human activity should not exceed minimal levels during the period from first occupancy of the nest site until two weeks following fledging (approximately 1 February to 15 August). Light human activity levels should not be exceeded during the rest of the year.
2. Habitat alterations should be restricted to projects specifically designed for maintaining or enhancing bald eagle habitat and conducted only during September through January.
3. Human activity restrictions for Zone I may be relaxed during years when a nest is not occupied. However, light human activity levels should not be exceeded and land use patterns should not preclude a return to minimal activity levels.

Zone II: Primary Use Area

Zone II includes the area within a 0.5 to 1 mile radius of the active nest and of all known alternate nests. Intensive study of a nesting pair for several years should allow for the boundaries of this zone to be altered to include the area where over 75 percent of the adults foraging and loafing activity occurs during the nesting season (excluding Zone I). The area could be discontinuous if movement data indicate the need.

Recommendations

1. Light human activity levels should not be exceeded during the nesting season. Moderate levels should not be exceeded during other times in the year.
2. Habitat alterations should be carefully designed and regulated to insure preferred nesting and foraging habitat are not degraded.
3. Developments that may increase human activity levels and use patterns should not be allowed.
4. Structures that have the potential for increasing mortality due to collision should not be constructed (i.e., power and telephone lines). Existing lines posing a potential problem should be modified to minimize collision or electrocution.

Zone III: Home Range

Ideally, the home range should be delineated by monitoring eagle movements during nesting and brood rearing for several years. Lacking such data, the zone should include all potential foraging habitat within a 2.5 mile radius of the nest. Areas within the 2.5 mile radius of the nest that do not include potential foraging habitat may be excluded. However, the zone will include a 0.25 mile buffer along foraging habitat where the zone has been reduced. The primary purposes of this zone are to maintain adequate foraging conditions and aid in maintaining the integrity of Zones I and II.

Recommendations

1. Human activity levels should not exceed moderate.
2. Projects that could potentially alter the habitat of forage species should be carefully designed to insure availability of prey is not degraded. Adequate design of such projects will require data from Site-specific Management Plans.

3. Terrestrial habitat alterations should insure important components are maintained (i.e., perch trees and snags, visual screening from existing or anticipated areas of human activity, and potential nesting habitat). Major habitat alterations should be considered only if Site-specific Management Plans are developed and only if alterations are compatible with management plans.
4. Permanent developments that are suitable for human occupancy should be avoided.
5. Other developments that may increase human activity levels should be carefully designed to insure objectives will not be exceeded for all 3 management zones.
6. Utility lines should be limited and restricted to locations where the potential for eagle collisions and electrocutions is minimal.
7. Avoid pesticide use within the home range.

Zone IV: Communal Winter Roost Protection Zone

The area within one mile of a communal winter roost. Zone IV would only be applicable from November 1 to April 1. No ground-disturbing activities will be permitted within 0.5 mile of active communal winter roost sites year-round.

7.6 WESTERN YELLOW-BILLED CUCKOO

The following habitat conservation measures and species conservation measures will be implemented within the PFO in areas where there is the potential for the western yellow-billed cuckoo to occur in nesting and/or foraging habitat.

7.6.1 Conservation Recommendations

The following habitat conservation measures and species conservation measures will be implemented within the PFO in areas where there is the potential for the western yellow-billed cuckoo to occur in nesting and/or foraging habitat.

1. Surface disturbing activities would be avoided within 500 feet of perennial waters and wetland/riparian areas for protection of Western yellow-billed cuckoo and identified habitat.
2. Boat and raft landing areas will not be developed, and outfitting camps will not be permitted, in western yellow-billed cuckoo habitat.
3. Surface-disturbing or disruptive activities will be prohibited within 0.5 mile of identified habitat during the period of April 15 to August 15 for the protection of nesting western yellow-billed cuckoos.

7.6.2 Best Management Practices

Best Management Practices (BMP) would be applied to surface-disturbing and disruptive activities to maintain or enhance the western yellow-billed cuckoo and their habitats.

1. Incorporate yellow-billed cuckoo habitat guidelines into livestock Standards and Guidelines assessments.

2. Where possible, biological control of pests would be used rather than chemical control. Where needed, pesticide use would be applied by hand within ¼ mile of cuckoo habitat and only in cases where insect or weed outbreaks have the potential to degrade area ecological health. Outside the ¼ mile buffer, aerial application of pesticides would be carefully planned to prevent drift. The BLM shall work with APHIS and the USFWS to select a pesticide and method of application that will most effectively manage the infestation and least affect the western yellow-billed cuckoo.
3. Ensure adequate livestock practices in order to protect yellow-billed cuckoo habitat. These include, but are not limited to placement of salt and mineral blocks, livestock water locations, fencing, livestock handling facilities, and season of use.
4. All high quality riparian areas of 20 hectares or more shall be managed to preserve, protect, and, if necessary, restore natural functions to minimize degradation of stream banks and the loss of riparian habitat.
5. When necessary or required, fence known occupied cuckoo habitat to exclude or shorten the duration of livestock use where livestock grazing is determined to impede regeneration of the habitat. This will stabilize and protect eroding stream banks in cuckoo habitat.
6. Avoid building roads or new trails parallel to streams in riparian zones or through wet meadows that have the potential, or are identified as containing, habitat for the western yellow-billed cuckoo. If stream crossings are required, then they shall be constructed at right angles to minimize impacts to riparian vegetation, stream-banks, soils, and water quality. Roads and trails shall be placed near current habitat edge areas to reduce fragmentation of larger blocks of pristine habitat. Combine multiple roads and rights-of-ways to one stream crossing site.
7. Avoid depleting ground water and diverting streams outside their natural stream channels in riparian areas that contain potential western yellow-billed cuckoo habitat.
8. Maintain beaver populations where they occur in cuckoo habitat and encourage re-introduction into areas that were historically occupied by beavers in western yellow-billed cuckoo habitat.
9. In identified western yellow-billed cuckoo habitat, implement riparian monitoring programs to establish baseline data and identify changes that have occurred in order to evaluate both long-term and short-term impacts and/or benefits to the birds.
10. Manage for stable or increasing population of cottonwood-willow vegetation in areas identified as western yellow-billed cuckoo habitat. Ensure that all age classes are present (seedling, young, mature, and decadent), with more seedlings present than decadent plants, and more young plants present than mature plants.
11. Prescribed fire would only be used to maintain or enhance yellow-billed cuckoo habitat. Restrictions such as smoke dispersal, heat intensity, buffer zones or timing stipulations would be incorporated into the fire plan.

7.7 UTE LADIES' TRESSES

These conservation measures are intended to directly conserve the orchid, and to reduce or eliminate adverse effects from the spectrum of management activities on BLM land. These measures are provided

to outline opportunities to benefit the orchid, and to help avoid negative impacts through the thoughtful planning of activities.

These conservation measures are binding measures that BLM shall implement in order to facilitate conservation of the orchid. However, because it is impossible to provide measures that will address all possible actions, in all locations across the range of the orchid, it is imperative that project-specific analysis and design be completed for all actions that have the potential to affect the orchid. Circumstances unique to individual projects or actions and their locations may still result in adverse effects to this plant. In these cases, additional or modified conservation measures may be necessary to avoid or minimize adverse effects or further consultation with the USFWS will be required. The order in which the conservation measures appear below does not imply their relative priority.

7.7.1 Conservation Measures

1. The Wyoming BLM Standard Mitigation Guidelines for Surface Disturbing Activities requires any lessee or permittee to conduct inventories or studies in accordance with BLM and USFWS 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 1990).
 - Surface disturbance will be prohibited within 500 feet of surface water and/or riparian areas (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
 - No Surface Occupancy will be allowed within special management areas (e.g., known threatened or endangered species habitat) (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
 - 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 BLM and U.S. Fish and Wildlife Service 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) (Wyoming BLM Mitigation Guidelines for Surface-disturbing and Disruptive Activities).
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 (BLM Wyoming Guidelines for Livestock Grazing Management).
 - 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 (BLM Wyoming Guidelines for Livestock Grazing Management).
3. The BLM 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 BLM 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 BLM with concurrence by USFWS and implemented on a case-by-case basis only.
6. The BLM will not increase permitted livestock stocking levels in any allotment with pastures containing known orchid populations without consulting with the USFWS. 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. BLM 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 BLM's authorized officer and with concurrence by the USFWS, 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 specific 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 BLM will work with the Animal and Plant Health Inspection Service (APHIS), the USFWS 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 BLM.
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 BLM 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 BLM 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 BLM “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 BLM will survey to assess the habitat boundary and retain that area in Federal ownership. BLM-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 BLM will re-initiate consultation with the USFWS. Projects will not be authorized closer than 0.25 miles from any known populations of the orchid without concurrence of the USFWS and the BLM 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. BLM 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.

7.7.2 Best Management Practices

1. When project proposals are received, BLM will initiate coordination with the USFWS 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 USFWS.
2. The BLM 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 USFWS and other agencies as appropriate. Orchid habitat on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.
3. The BLM will coordinate with the USFWS, 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 USFWS 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 BLM 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 BLM "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 BLM 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 BLM 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.

Research/Monitoring/Inventories

12. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS 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.

Collection

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.

Education

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.

Introduction/Reintroduction

21. The BLM should work towards developing reintroduction sites in coordination with the USFWS 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.

7.8 COLORADO RIVER FISH SPECIES

Because of the potential for further water depletions from the Colorado River Basin, implementation of the Pinedale RMP is likely to adversely affect Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub.

7.8.1 Conservation Measures

1. The BLM will continue to participate in the Colorado River Recovery Program.
2. For projects that cause depletions to the Colorado River system, the BLM would initiate formal consultation with the Service.

7.8.2 Best Management Practices

When developing or improving water source in the Colorado system, BLM would consider development designs such as water wells and guzzlers rather than surface impoundments to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

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