BLM

Final Biological Assessment for the Lander Field Office Resource Management Plan Revision

Wyoming Wind River Bighorn Basin District - Lander Field Office

September 2012

The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

Final Biological Assessment
for the
Lander Field Office Resource Management Plan Revision

U.S. Department of the Interior
Bureau of Land Management
Lander Field Office, Wyoming

September 2012

TABLE OF CONTENTS

1.0 INTRODUCTION 1-1

1.1 Overview of the Proposed RMP 1-2
1.1.1 Physical Resources 1-2
1.1.2 Mineral Resources 1-2
1.1.3 Fire and Fuels Management 1-2
1.1.4 Biological Resources 1-3
1.1.5 Heritage and Visual Resources 1-3
1.1.6 Land Resources 1-4
1.1.7 Special Designations 1-4
1.1.8 Socioeconomic Resources 1-5

2.0 CONSULTATION AND BIOLOGICAL ASSESSMENT OBJECTIVES 2-1

3.0 OVERVIEW OF THE PLANNING AREAS 3-1

3.1 Fremont County 3-4
3.2 Natrona County 3-5
3.3 Carbon County 3-5
3.4 Sweetwater County 3-6
3.5 Hot Springs County 3-6
3.6 Wind River Indian Reservation 3-6

4.0 CURRENT STATUS AND HABITAT USE OF SPECIAL STATUS SPECIES 4-1

4.1 Black-footed Ferret 4-2
4.1.1 Status 4-2
4.1.2 Life History 4-3
4.1.3 Habitat Requirements 4-3
4.1.4 Regional and Local Distribution 4-3
4.1.5 Threats 4-4
4.2 Canada Lynx 4-4
4.2.1 Status 4-4
4.2.2 Life History 4-5
4.2.3 Habitat Requirements 4-5
4.2.4 Regional and Local Distribution 4-6
4.2.5 Threats 4-7
4.3 Gray Wolf 4-8
4.3.1 Status 4-8
4.3.2 Life History 4-10
4.3.3 Habitat Requirements 4-11
4.3.4 Regional and Local Distribution 4-11
4.3.5 Threats 4-12
4.4 Greater Sage-grouse 4-13
4.4.1 Status 4-13
4.4.2 Life History 4-14
4.4.3 Habitat Requirements 4-14
4.4.4 Regional and Local Distribution 4-15
4.4.5 Threats 4-15

4.5 Grizzly Bear 4-16
4.5.1 Status 4-16
4.5.2 Life History 4-17
4.5.3 Habitat Requirements 4-18
4.5.4 Regional and Local Distribution 4-19
4.5.5 Threats 4-20
4.6 Blowout Penstemon 4-21
4.6.1 Status 4-21
4.6.2 Life History 4-21
4.6.3 Habitat Requirements 4-21
4.6.4 Regional and Local Distribution 4-21
4.6.5 Threats 4-22
4.7 Desert Yellowhead and Designated Critical Habitat 4-22
4.7.1 Status 4-22
4.7.2 Life History 4-23
4.7.3 Habitat Requirements 4-23
4.7.4 Regional and Local Distribution 4-23
4.7.5 Threats 4-24
4.7.6 Designated Critical Habitat 4-25
4.8 Ute Ladies'-tresses 4-25
4.8.1 Status 4-25
4.8.2 Life History 4-26
4.8.3 Habitat Requirements 4-26
4.8.4 Regional and Local Distribution 4-26
4.8.5 Threats 4-27

5.0 SPECIES WITH HABITAT DOWNSTREAM (PLATTE RIVER) THAT MAY BE AFFECTED BY WATER DEPLETION RESULTING FROM BLM-AUTHORIZED ACTIONS WITHIN THE PLANNING AREA 5-1

5.1 Introduction 5-1
5.2 Whooping Crane and Designated Critical Habitat 5-1
5.2.1 Status 5-1
5.2.2 Life History 5-1
5.2.3 Habitat Requirements 5-2
5.2.4 Regional and Local Distribution 5-2
5.2.5 Threats 5-2
5.3 Interior Least Tern 5-3
5.3.1 Status 5-3
5.3.2 Life History 5-3
5.3.3 Habitat Requirements 5-3
5.3.4 Regional and Local Distribution 5-3
5.3.5 Threats 5-3
5.4 Piping Plover 5-4
5.4.1 Status 5-4
5.4.2 Life History 5-4
5.4.3 Habitat Requirements 5-4
5.4.4 Regional and Local Distribution 5-4
5.4.5 Threats 5-5

5.5 Pallid Sturgeon 5-5
5.5.1 Status 5-5
5.5.2 Life History 5-5
5.5.3 Habitat Requirements 5-5
5.5.4 Regional and Local Distribution 5-6
5.5.5 Threats 5-6
5.6 Western Prairie Fringed Orchid 5-6
5.6.1 Status 5-6
5.6.2 Life History 5-6
5.6.3 Habitat Requirements 5-7
5.6.4 Regional and Local Distribution 5-7
5.6.5 Threats 5-7
5.7 Impact Analysis and Effect Determination for Platte River Species 5-7
5.8 Conservation Measures 5-8
5.9 Best Management Practices 5-8

6.0 METHODS AND CONTEXT OF THE ANALYSIS 6-1

6.1 Activity Description 6-1
6.2 Impacts Analysis 6-1
6.3 Effects Determinations 6-1
6.4 Coordination and Conservation Measures 6-3
6.5 Conservation Measures Common to All Species 6-4

7.0 ANALYSIS OF PROPOSED MANAGEMENT ACTIONS AND EFFECTS 7-1

7.1 Air Quality 7-1
7.1.1 Proposed Actions for Air Quality in the Lander Proposed RMP and Final EIS 7-2
7.1.2 Best Management Practices 7-2
7.1.3 Impact Analysis and Effects Determinations 7-2
7.2 Geologic Resources 7-4
7.2.1 Proposed Actions for Geologic Resources in the Lander Proposed RMP and Final EIS 7-5
7.2.2 Best Management Practices 7-5
7.2.3 Impact Analysis and Effects Determinations 7-5
7.3 Soil 7-6
7.3.1 Proposed Actions for Soil in the Lander Proposed RMP and Final EIS 7-6
7.3.2 Best Management Practices 7-7
7.3.3 Impact Analysis and Effects Determinations 7-7
7.4 Water Resources 7-10
7.4.1 Proposed Actions for Water Resources in the Lander Proposed RMP and Final EIS 7-11
7.4.2 Best Management Practices 7-12
7.4.3 Impact Analysis and Effects Determinations 7-13
7.5 Cave and Karst Resources 7-15
7.5.1 Proposed Actions for Cave and Karst Resources in the Lander Proposed RMP and Final EIS 7-15
7.5.2 Best Management Practices 7-15
7.5.3 Impact Analysis and Effects Determinations 7-15
7.6 Lands with Wilderness Characteristics 7-17

7.6.1 Proposed Actions for Lands with Wilderness Characteristics in the Lander Proposed RMP and Final EIS 7-17
7.6.2 Best Management Practices 7-17
7.6.3 Impact Analysis and Effects Determinations 7-17
7.7 Mineral Resources—Locatable 7-18
7.7.1 Proposed Actions for Locatable Minerals in the Lander Proposed RMP and Final EIS 7-19
7.7.2 Best Management Practices 7-20
7.7.3 Impact Analysis and Effects Determinations 7-20
7.8 Mineral Resources—Leasable Coal 7-23
7.8.1 Proposed Actions for Coal in the Lander Proposed RMP and Final EIS 7-23
7.8.2 Best Management Practices 7-23
7.8.3 Impact Analysis and Effects Determinations 7-23
7.9 Mineral Resources—Leasable Geothermal 7-23
7.9.1 Proposed Actions for Geothermal in the Lander Proposed RMP and Final EIS 7-24
7.9.2 Best Management Practices 7-25
7.9.3 Impact Analysis and Effects Determinations 7-25
7.10 Mineral Resources—Leasable Oil and Gas 7-25
7.10.1 Proposed Actions for Oil and Gas in the Lander Proposed RMP and Final EIS 7-26
7.10.2 Best Management Practices 7-27
7.10.3 Impact Analysis and Effects Determinations 7-27
7.11 Mineral Resources—Leasable Oil Shale 7-30
7.11.1 Proposed Actions for Oil Shale in the Lander Proposed RMP and Final EIS 7-31
7.11.2 Best Management Practices 7-31
7.11.3 Impact Analysis and Effects Determinations 7-31
7.12 Mineral Resources—Other Solid Leasables 7-32
7.12.1 Proposed Actions for Other Solid Leasables in the Lander Proposed RMP and Final EIS 7-32
7.12.2 Best Management Practices 7-32
7.12.3 Impact Analysis and Effects Determinations 7-33
7.13 Mineral Resources—Salable 7-35
7.13.1 Proposed Actions for Salable Mineral Materials in the Lander Proposed RMP and Final EIS 7-36
7.13.2 Best Management Practices 7-36
7.13.3 Impact Analysis and Effects Determinations 7-36
7.14 Fire and Fuels Management—Unplanned/Wildfire 7-39
7.14.1 Proposed Actions for Wildfire in the Lander Proposed RMP and Final EIS 7-40
7.14.2 Best Management Practices 7-41
7.14.3 Impact Analysis and Effects Determinations 7-41
7.15 Fire and Fuels Management—Planned/Prescribed Fire 7-43
7.15.1 Proposed Actions for Prescribed Fire in the Lander Proposed RMP and Final EIS 7-43
7.15.2 Best Management Practices 7-44
7.15.3 Impact Analysis and Effects Determinations 7-44
7.16 Fire and Fuels Management—Stabilization and Rehabilitation 7-46
7.16.1 Proposed Actions for Stabilization and Rehabilitation in the Lander Proposed RMP and Final EIS 7-47
7.16.2 Best Management Practices 7-47

7.16.3 Impact Analysis and Effects Determinations 7-47
7.17 Forest, Woodlands, and Aspen Communities 7-49
7.17.1 Proposed Actions for Forests, Woodlands, and Aspen Communities in the Lander Proposed RMP and Final EIS 7-49
7.17.2 Best Management Practices 7-50
7.17.3 Impact Analysis and Effects Determinations 7-50
7.18 Grassland and Shrubland Communities 7-52
7.18.1 Proposed Actions for Grassland and Shrubland Communities in the Lander Proposed RMP and Final EIS 7-52
7.18.2 Best Management Practices 7-53
7.18.3 Impact Analysis and Effects Determinations 7-53
7.19 Invasive Species and Pest Management 7-55
7.19.1 Proposed Actions for Invasive Species and Pest Management in the Lander Proposed RMP and Final EIS 7-56
7.19.2 Best Management Practices 7-56
7.19.3 Impact Analysis and Effects Determinations 7-56
7.20 Riparian-Wetland Resources 7-59
7.20.1 Proposed Actions for Riparian-Wetland Resources in the Lander Proposed RMP and Final EIS 7-59
7.20.2 Best Management Practices 7-60
7.20.3 Impact Analysis and Effects Determinations 7-60
7.21 Fish and Wildlife Resources 7-62
7.21.1 Proposed Actions for Fish and Wildlife Resources in the Lander Proposed RMP and Final EIS 7-63
7.21.2 Best Management Practices 7-65
7.21.3 Impact Analysis and Effects Determinations 7-66
7.22 Special Status Species—Plants 7-68
7.22.1 Proposed Actions for Special Status Species—Plants in the Lander Proposed RMP and Final EIS 7-69
7.22.2 Best Management Practices 7-70
7.22.3 Impact Analysis and Effects Determinations 7-71
7.23 Special Status Species—Fish and Wildlife 7-73
7.23.1 Proposed Actions for Special Status Species—Fish and Wildlife in the Lander Proposed RMP and Final EIS 7-74
7.23.2 Best Management Practices 7-75
7.23.3 Impact Analysis and Effects Determinations 7-76
7.24 Wild Horses 7-79
7.24.1 Proposed Actions for Wild Horses in the Lander Proposed RMP and Final EIS 7-80
7.24.2 Best Management Practices 7-80
7.24.3 Impact Analysis and Effects Determinations 7-80
7.25 Cultural Resources 7-82
7.25.1 Proposed Actions for Cultural Resources in the Lander Proposed RMP and Final EIS 7-83
7.25.2 Best Management Practices 7-84
7.25.3 Impact Analysis and Effects Determinations 7-84
7.26 Paleontological Resources 7-86
7.26.1 Proposed Actions for Paleontological Resources in the Lander Proposed RMP and Final EIS 7-87

7.26.2 Best Management Practices 7-88
7.26.3 Impact Analysis and Effects Determinations 7-88
7.27 Visual Resources 7-90
7.27.1 Proposed Actions for Visual Resources in the Lander Proposed RMP and Final EIS 7-91
7.27.2 Best Management Practices 7-92
7.27.3 Impact Analysis and Effects Determinations 7-92
7.28 Lands and Realty—Acquisitions, Disposals, and Withdrawals 7-92
7.28.1 Proposed Actions for Lands and Realty—Acquisitions, Disposals, and Withdrawals in the Lander Proposed RMP and Final EIS 7-93
7.28.2 Best Management Practices 7-93
7.28.3 Impact Analysis and Effects Determinations 7-93
7.29 Renewable Energy 7-96
7.29.1 Proposed Actions for Renewable Energy in the Lander Proposed RMP and Final EIS 7-97
7.29.2 Best Management Practices 7-97
7.29.3 Impact Analysis and Effects Determinations 7-98
7.30 Rights-of-Way and Corridors 7-100
7.30.1 Proposed Actions for Rights-of-Way and Corridors in the Lander Proposed RMP and Final EIS 7-101
7.30.2 Best Management Practices 7-101
7.30.3 Impact Analysis and Effects Determinations 7-101
7.31 Comprehensive Trails and Travel Management 7-104
7.31.1 Proposed Actions for Comprehensive Trails and Travel Management in the Lander Proposed RMP and Final EIS 7-105
7.31.2 Best Management Practices 7-107
7.31.3 Impact Analysis and Effects Determinations 7-107
7.32 Livestock Grazing 7-110
7.32.1 Proposed Actions for Livestock Grazing in the Lander Proposed RMP and Final EIS 7-110
7.32.2 Best Management Practices 7-111
7.32.3 Impact Analysis and Effects Determinations 7-111
7.33 Recreation 7-116
7.33.1 Proposed Actions for Recreation in the Lander Proposed RMP and Final EIS 7-117
7.33.2 Best Management Practices 7-118
7.33.3 Impact Analysis and Effects Determinations 7-118
7.34 Special Designations—Areas of Critical Environmental Concern 7-121
7.34.1 Proposed Actions for Areas of Critical Environmental Concern in the Lander Proposed RMP and Final EIS 7-122
7.34.2 Best Management Practices 7-125
7.34.3 Impact Analysis and Effects Determinations 7-125
7.35 Special Designations—Congressionally Designated Trails 7-125
7.35.1 Proposed Actions for Congressionally Designated Trails in the Lander Proposed RMP and Final EIS 7-126
7.35.2 Best Management Practices 7-126
7.35.3 Impact Analysis and Effects Determinations 7-126
7.36 Special Designations—Wilderness Study Areas 7-128
7.36.1 Proposed Actions for WSAs in the Lander Proposed RMP and Final EIS 7-129

7.36.2 Best Management Practices 7-129
7.36.3 Impact Analysis and Effects Determinations 7-129
7.37 Special Designations—Wild and Scenic Rivers 7-130
7.37.1 Proposed Actions for Wild and Scenic Rivers in the Lander Proposed RMP and Final EIS 7-130
7.37.2 Best Management Practices 7-130
7.37.3 Impact Analysis and Effects Determinations 7-131
7.38 Socioeconomic Resources 7-131
7.38.1 Proposed Actions for Socioeconomic Resources in the Lander Proposed RMP and Final EIS 7-131
7.38.2 Best Management Practices 7-132
7.38.3 Impact Analysis and Effects Determinations 7-132
7.39 Health and Safety 7-132
7.39.1 Proposed Actions for Health and Safety in the Lander Proposed RMP and Final EIS 7-133
7.39.2 Best Management Practices 7-133
7.39.3 Impact Analysis and Effects Determinations 7-133

8.0 SUMMARY OF CUMULATIVE EFFECTS 8-1

9.0 SUMMARY OF EFFECTS DETERMINATIONS 9-1

10.0 SUMMARY OF SPECIES-SPECIFIC COORDINATION AND CONSERVATION MEASURES 10-1

10.1 Black-footed Ferret Conservation Measures 10-1
10.1.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-1
10.1.2 Conservation Measures Committed to by the BLM 10-1
10.1.3 Best Management Practices 10-3
10.2 Canada Lynx Conservation Measures 10-4
10.2.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-4
10.2.2 Conservation Measures Committed to by the BLM 10-4
10.2.3 Best Management Practices 10-6
10.3 Gray Wolf Conservation Measures 10-8
10.3.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-8
10.3.2 Conservation Measures Committed to by the BLM 10-8
10.3.3 Best Management Practices 10-9
10.4 Grizzly Bear Conservation Measures 10-9
10.4.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-9
10.4.2 Conservation Measures Committed to by the BLM 10-9
10.4.3 Best Management Practices 10-11
10.5 Greater Sage-grouse Conservation Measures 10-12
10.5.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-12
10.5.2 Conservation Measures Committed to by the BLM 10-13
10.5.3 Best Management Practices 10-13
10.6 Blowout Penstemon Conservation Measures 10-13
10.6.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-13
10.6.2 Conservation Measures Committed to by the BLM 10-13
10.6.3 Best Management Practices 10-15
10.7 Desert Yellowhead and Designated Critical Habitat Conservation Measures 10-17
10.7.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-17

10.7.2 Conservation Measures Committed to by the BLM 10-17
10.7.3 Best Management Practices 10-18
10.8 Ute Ladies'-tresses Conservation Measures 10-18
10.8.1 Proposed Protections in the Lander Proposed RMP and Final EIS 10-18
10.8.2 Conservation Measures Committed to by the BLM 10-18
10.8.3 Best Management Practices 10-21

11.0 SUMMARY OF SPECIES STATUS IN THE FUTURE 11-1

12.0 REFERENCES 12-1

LIST OF TABLES

Table 1. Federally Listed Threatened, Endangered, and Candidate Species in the Planning Area 4-1

Table 2. Greater Sage-grouse Seasonal Habitat Requirements 4-15

Table 3. Summary of Effects Determinations for Threatened and Endangered Species 9-1

LIST OF FIGURES

Figure 1. Surface Ownership in the Planning Area 3-2

ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AML	Abandoned Mine Land
APD	application for permit to drill
APHIS	Animal and Plant Health Inspection Service
AUM	animal unit month
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
BP	Before Present
CBNG	Coalbed natural gas
CDNST	Continental Divide National Scenic Trail
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	Condition of approval
CSU	controlled surface use
DDA	Designated Development Area
DEQ	Department of Environmental Quality
DOE	United States Department of Energy
DOI	United States Department of the Interior
DPS	distinct population segment
EIS	Environmental Impact Statement
ERMA	Extensive Recreation Management Area
ES&R	Emergency Stabilization and Rehabilitation
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FMP	Fire management plan
FMU	Fire management unit
FR	Federal Register
GIS	Geographic Information System
GYA	Greater Yellowstone Area
HMA	Herd Management Area
ICST	Interagency Conservation Strategy Team
IGBC	Interagency Grizzly Bear Committee
IM	Instruction Memorandum
INNS	Invasive nonnative species
LAA	likely to adversely affect
LRP	low reclamation potential
LWG	Local Working Group
MA	Management Area
MBTA	Migratory Bird Treaty Act
MI	may impact
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mph	miles per hour
NE	no effect
NEPA	National Environmental Policy Act
NHT	National Historic Trail
NI	no impact
NJ	not likely to jeopardize
NLAA	not likely to adversely affect
NLCS	National Lands Conservation System
NMFS	National Marine Fisheries Service
NNL	National Natural Landmark
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NSO	No Surface Occupancy
NST	National Scenic Trail
NTSA	National Trails System Act
NWSRS	National Wild and Scenic Rivers System
OHV	off-highway vehicle
PFC	Proper Functioning Condition
PM	Particulate matter
R&PP	Recreation and public purposes
RMP	Resource Management Plan
RMZ	Recreation Management Zone
ROD	Record of Decision
ROW	rights-of-way
SGIT	Sage-grouse Implementation Team
SLAMS	State and Local Monitoring Site
SMA	Special Management Area
SRMA	Special Recreation Management Area
TCP	Traditional cultural property
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WGFD	Wyoming Game and Fish Department
WRIR	Wind River Indian Reservation
WSA	Wilderness Study Area
WYNDD	Wyoming Natural Diversity Database
YNP	Yellowstone National Park

1.0 INTRODUCTION

Section 7 of the Endangered Species Act (ESA) requires that federal agencies (such as the Bureau of Land Management [BLM]) consult with the United States (U.S.) Fish and Wildlife Service (USFWS) and address the potential effects of their proposed actions on plant and animal species listed or proposed for listing in accordance with the ESA. Informal consultation includes the list of species protected by the ESA and provided to the BLM by the USFWS on September 6, 2007 (USFWS 2007a). Species listed or proposed for listing in accordance with the ESA occurring in the assessment area (i.e., planning area) that may be affected by the agency's proposed action require the BLM to continue informal consultation and/or to prepare a Biological Assessment (BA). The initial determination of effect is documented in the BA by the lead agency, in this case the BLM (50 Code of Federal Regulations [CFR] Part 420). If the BA determines that the proposed action may adversely affect a listed species or adversely modify its critical habitat, the BLM must enter into formal consultation with the USFWS. Following receipt of the BA, the USFWS prepares a Biological Opinion (BO), which determines whether the proposed action would jeopardize the continued existence of listed species or adversely modify their critical habitats. The process of formal and informal consultation with the USFWS ensures that BLM actions minimize adverse impacts on listed species and designated critical habitats.

The process for the development, approval, maintenance, and amendment or revision of a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) is initiated under the authority of Section 202(f) of the Federal Land Policy and Management Act (43 United States Code [USC] § 1701 et seq.) (FLPMA) of 1976 and Section 202(c) of the National Environmental Policy Act (42 USC § 4321 et seq.) (NEPA). The process is guided by BLM planning regulations in Title 43 of the CFR, part 1600 (43 CFR 1600) and the Council on Environmental Quality (CEQ) regulations in 40 CFR 1500. The purpose, or goal, of the land use plan is to ensure lands administered by the BLM are managed in accordance with the FLPMA and the principles of multiple use and sustained yield.

Revising an existing land use plan is a major federal action for the BLM. The NEPA of 1969, as amended, requires federal agencies to prepare an EIS for major federal actions. The Proposed RMP and Final EIS analyze the impacts of four alternative RMPs for the planning area, including the No Action Alternative, the Proposed RMP, and two other action alternatives. Only the effects of the Proposed RMP on species listed and proposed for listing are analyzed in this BA.

The purpose of the Lander Proposed RMP is to provide a comprehensive and environmentally adequate framework for managing and allocating uses of the BLM-administered public lands and resources in the planning area. The Lander Field Office covers approximately 6,487,464 acres of federal, state, tribal, and private land in Carbon, Fremont, Hot Springs, Natrona, and Sweetwater Counties, Wyoming. A small portion of Teton County is within the planning area; however, there are no BLM-administered lands within Teton County in the planning area; therefore this area is not further discussed. Public land in the planning area includes most of Fremont County, the southwest corner of Natrona Country, and small portions of Carbon, Sweetwater, and Hot Springs Counties. There are many isolated parcels of state and private land dispersed throughout the planning area intermingled with public land. Management decisions and prescriptions in this document apply only to BLM-administered surface lands (BLM-administered surface) and federal mineral estate in the planning area. Of the total planning area, approximately 2,394,210 acres are BLM-administered surface and 2,809,101 acres are BLM-administered federal mineral estate. Approximately 2.2 million acres of the planning area are within the Wind River Indian Reservation (WRIR).

The objectives of the Lander Proposed RMP are to provide specific management direction to prevent or address potential conflicts among energy resources development, recreational activities, livestock

grazing management, important wildlife habitats, and other important land and resource uses in the planning area, as well as to determine the appropriate levels and timing of these activities. Section 7.0 of this BA, *Analysis of Proposed Management Actions and Effects*, briefly describes the actions for each major functional activity (e.g., air quality, cultural resources, livestock grazing management), their interrelated and interdependent actions, and their general occurrence in the planning area.

1.1 Overview of the Proposed RMP

The Proposed RMP balances the use and conservation of planning area resources. This alternative generally allows resource use if the activity can be conducted in a manner that conserves physical, biological, and heritage and visual resources. The Proposed RMP designates Special Recreation Management Areas (SRMAs) and Areas of Critical Environmental Concern (ACECs) to protect resource values and emphasizes moderate constraints on resource uses (e.g., mineral development) to reduce adverse impacts on resource values.

1.1.1 Physical Resources

Under the Proposed RMP, the BLM increases some management restrictions compared to current management. For example, the BLM manages slopes between 15 and 24 percent as well as 25 percent and greater with controlled surface use (CSU) stipulations. The BLM will also prioritize areas with soil disturbance that were not successfully reclaimed on a case-by-case basis. Under the Proposed RMP, the BLM places greater emphasis on protecting aquifers by avoiding surface-disturbing activities in identified or inferred groundwater recharge areas. The BLM manages the Little Red Creek Complex as non-Wilderness Study Area (WSA) land with wilderness characteristics to protect its wilderness character under the Proposed RMP.

1.1.2 Mineral Resources

The Proposed RMP places more constraints on mineral development. Approximately 2,348,028 acres are available for locatable mineral entry under this alternative, while 461,073 acres are proposed for locatable mineral withdrawals or are currently withdrawn.

The Proposed RMP closes approximately 166,574 acres of federal mineral estate to oil and gas leasing in the planning area and opens the remaining federal mineral estate to oil and gas leasing subject to the following constraints: 44,945 acres are subject to standard lease stipulations; 1,260,715 acres are subject to moderate constraints; and 1,336,867 acres are subject to major constraints. Additionally, 1,853,092 acres are open to mineral materials disposal subject to standard lease stipulations or CSU stipulations, while 956,011 acres are closed to mineral materials disposal.

In contrast to the other alternatives, the Proposed RMP establishes Development Areas for intensive mineral exploration, development, and production. New fluid and solid mineral leases and sales within these areas will be subject to standard stipulations with any exceptions authorized through an expedited process. The Proposed RMP also establishes a 144,265-acre Master Leasing Plan in the Beaver Rim area which establishes restrictions on oil and gas development to protect other resource values.

1.1.3 Fire and Fuels Management

Fire and fuels management under the Proposed RMP allows for a full range of suppression tactics, including the use of unplanned ignition to achieve resource benefit.

1.1.4 Biological Resources

The BLM manages biological resources under the Proposed RMP to provide habitat for fish and wildlife, meet public demand for forest products, protect natural functions in riparian-wetland areas, and control the spread of invasive nonnative species (INNS). Vegetation management supports both resources and resource uses and often requires proactive and case-by-case management to respond to conditions on the ground. For example, the Proposed RMP authorizes clear-cuts and determines their sizes and locations using a combination of resource values and silvicultural objectives. Riparian/wetland management emphasizes a more proactive approach to address watershed health by using a full range of techniques to achieve Proper Functioning Condition (PFC). The BLM prohibits surface-disturbing activities within 500 feet of riparian/wetland areas, but would allow such activity in Designated Development Areas (DDAs) if a lesser distance is shown to provide equal protection. For invasive species and pest management, the Proposed RMP generally manages activities that contribute to the spread of invasive plants on a case-by-case basis.

Fish and wildlife under the Proposed RMP, in general, receive more protection compared to current management, especially within important habitat areas. For example, the BLM prohibits surface-disturbing activities within ¾-mile of all active raptor nests, but increases the buffer to 1 mile for bald eagle and ferruginous hawk nests. Management also emphasizes minimizing the footprint of surface-disturbing activities as much as practically possible to protect wildlife and their habitats.

Similarly, the Proposed RMP provides more protection for special status species than current management by increasing the size of protective buffers and limiting potentially disruptive activities near the habitats of these species. For example, the Proposed RMP allows chemical vegetation treatments within identified sensitive plant populations only if the treatment benefits the population. For greater sage-grouse, constraints on resource uses are greater within the Governor's greater sage-grouse Core Area than outside the Core Area. The Proposed RMP prohibits surface disturbance within 0.6 mile of greater sage-grouse leks in the Core Area and within ¼ mile of leks outside the Core Area. The Proposed RMP would also avoid activities that contribute sediment to waterbodies containing certain special status fishes.

The Proposed RMP establishes scenic loops for viewing wild horses and, in consideration of herd health, allows the removal or modification of fences to allow free movements among herd populations.

1.1.5 Heritage and Visual Resources

The Proposed RMP generally increases the protection of cultural and paleontological resources compared to current management by placing more limitations on activities near known cultural and paleontological sites. For example, the Proposed RMP increases the protective area in the Warm Springs Canyon Flume site and manages mineral and realty actions in the area with more stringent restrictions. However, protection from development-related impacts continues to be managed on a case-by-case basis. The Proposed RMP does increase proactive inventory efforts in areas of significant resources such as in the Lander Slope and Gas Hills high potential fossil areas. Both the Beaver Rim and Bison Basin proposed National Natural Landmarks (NNLs) are managed with minimal protections.

The BLM manages visual resources under the Proposed RMP in a similar fashion to current management, but more acreage is allocated as either Visual Resource Management (VRM) Class I or II. Approximately 65 percent of BLM-administered land in the planning area is managed as VRM Class IV (694,759 acres) and Class III (857,979 acres), and this allows for moderate to major changes to the characteristic landscape.

1.1.6 Land Resources

Land resource program actions under the Proposed RMP identify approximately 2,390,657 acres for retention within the planning area and approximately 3,553 acres as available for disposal. The Proposed RMP places more restriction on renewable energy development compared to current management, opening 224,289 acres to wind-energy development and managing 1,215,599 acres as avoidance areas and 954,322 acres as exclusion areas for wind-energy development. Similarly, the Proposed RMP places more limitations on rights-of-way (ROW) and corridor management than current management, including managing much more area as ROW avoidance (1,396,977 acres) and exclusion (418,444 acres) areas in which ROW authorizations are restricted.

Trails and travel management under the Proposed RMP seeks to provide for access and motorized vehicle use across the planning area while limiting associated resource damage in sensitive areas. Therefore, proposed management is more site-specific than current management and includes travel prescriptions for specific areas. For example, travel is limited to designated roads and trails in portions of the Lander Slope, Red Canyon, Whiskey Mountain, and Green Mountain areas to protect resource values. In areas not identified for site-specific management, however, travel is limited to existing roads and trails on 2,213,081 acres, limited to designated roads and trails on 154,772 acres, and closed on 26,357 acres. The Proposed RMP closes more acres (70,425 acres) to over-snow travel than current management but still allows over-snow vehicle travel on 2,214,003 acres within the planning area.

Compared to current management the Proposed RMP increases restrictions on livestock grazing in certain areas for the protection of other resource values, but also increases proactive management approaches to improve rangeland health. The Proposed RMP closes 7,566 acres to livestock grazing and increases the areas where the placement of salt and mineral supplements is prohibited. Acquired lands are available to livestock grazing on a case-by-case basis. Utilization would vary based upon conditions on the ground and would be managed in accordance with a comprehensive Grazing Management Strategy. Range improvement projects would be employed to improve rangeland health, but only in consideration of other resource values and with a clear link to a comprehensive grazing strategy.

The Proposed RMP focuses more on protecting the setting and recreational experience of public land users than does current management. It also places greater emphasis on nonmotorized recreation and utilizes allowable use decisions to protect important recreation areas. The Proposed RMP increases many of the resource use limitations within certain recreation areas to protect the values for which the area was designated. The BLM maintains seven SRMAs encompassing 293,774 acres and six Extensive Recreation Management Areas (ERMAs) encompassing 223,275 acres. Within the Lander Valley, National Historic Trails (NHTs), and Continental Divide National Scenic Trail (CDNST) SRMAs, the BLM manages ten Recreation Management Zones (RMZs) within the SRMAs to meet market demand for specific types of recreation.

1.1.7 Special Designations

Under the Proposed RMP, the BLM manages eight ACECs, including six existing ACECs, two of which include expansion areas: East Fork and Green Mountain. The Proposed RMP would also designate the Twin Creek and South Pass Historical Landscape ACEC.

The BLM manages WSAs in the planning area to improve access while protecting sensitive areas from resource damage. To that end, three WSAs are closed to motorized vehicle use (Dubois Badlands, Copper Mountain, and Whiskey Mountain) while the remaining WSAs are limited to designated roads and trails. Within these limited open areas, travel systems and linear features found to conflict with wilderness values may be modified—or closed—to protect these values.

The Proposed RMP identifies three waterways, the Baldwin Creek Unit, the Sweetwater Unit, and Warm Springs Segment 1 as suitable for inclusion in the National Wild and Scenic Rivers System (NWSRS). Management of these areas increases limitations placed on activities that could degrade the outstanding remarkable values of these waterways, including livestock grazing and motorized vehicle use.

Under the Proposed RMP, the BLM manages 82,802 acres of the CDNST as an SRMA and 4,589 acres as a separate ERMA to specifically address local recreation issues. The BLM also designates trails-related land subject to mining impacts as the South Pass Historical Landscape ACEC and trails-related land outside this ACEC as the National Trails Management Corridor. The National Trails Management Corridor is managed as VRM Class II while the designated utility crossings and the CDNST ERMA are managed as VRM Class III. Highly visible projects outside National Trails Management Corridor (except within the main Lost Creek designated utility corridor) are authorized only if the project causes no more than a weak contrast.

1.1.8 Socioeconomic Resources

BLM management under the Proposed RMP emphasizes the continued analysis of impacts on socioeconomic resources. The Proposed RMP would also consider paced development options for mineral development projects in the planning area to avoid adverse impacts to socioeconomic resources. The Proposed RMP includes high potential mineral areas to facilitate mineral development and emphasizes recreation and heritage and wildlife tourism.

2.0 CONSULTATION AND BIOLOGICAL ASSESSMENT OBJECTIVES

Under provisions of the federal ESA of 1973, as amended (16 USC Section 1531 et seq.), federal agencies are directed to conserve threatened and endangered species and the habitats in which these species are found. Federal agencies also are required to ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of endangered and threatened species or their critical habitats. The ESA requires action agencies, such as the BLM, to consult or confer with the USFWS and/or the National Marine Fisheries Service (NMFS) when there is discretionary federal involvement or control over the action. Formal consultation becomes necessary when the action agency requests consultation after determining the Proposed RMP is likely to adversely affect listed species or critical habitats, or the aforementioned federal agencies do not concur with the action agency's finding (USFWS 1998). Under the 1994 Memorandum of Understanding (MOU) and the 2000 Memorandum of Agreement (MOA) among the BLM, U.S. Forest Service (USFS), USFWS, and NMFS, all four agencies agreed to promote the conservation of candidate and proposed species and streamline the section 7 consultation and coordination process.

This programmatic BA provides documentation for the Proposed RMP of the Lander Proposed RMP to meet federal requirements and agreements set forth among the federal agencies listed above. It addresses federally listed threatened and endangered, candidate, and proposed species and is prepared under the 1973 ESA section 7 regulations, in accordance with the 1998 procedures set forth by the USFWS and the NMFS, and in accordance with the 1994 and 2000 MOU and MOA, respectively. As appropriate, the BLM will conduct site-specific evaluations for activities authorized under the Lander Proposed RMP. The BLM will consult with the USFWS for activities authorized by the Lander Proposed RMP that may affect threatened, endangered, candidate, or proposed species. In addition, in compliance with BLM Manual 6840, the BLM will address potential effects to special status species.

Objectives of this BA include the following:

- Summarize the biology, distribution, and habitats of species listed or proposed for listing as threatened or endangered occurring in the planning area.
- Assess the past, current, and future effects (direct and indirect) of the proposed RMP actions to the species.
- Assess the cumulative effects of state and private actions on the subject species.
- Make an effects determination for each species based on the actions identified in the RMP.
- Document conservation measures to foster the welfare of the subject species.
- Predict the expected future status of the subject species based on the effects analysis.

The outcome of this BA will determine the need for, and type of, conferencing and consultation necessary with the USFWS. In addition, during implementation of specific actions identified in the RMP, the potential effects to federally listed species will be evaluated again, and any necessary consultation with the USFWS will be initiated, as appropriate.

Emergency consultation may be necessary when emergency actions (i.e., responses to wildland fires, disasters, casualties, national defense or security emergencies, including response activities taken to prevent imminent loss of human life or property) are required that may affect listed species and/or critical habitats, and the federal action agency may not have the time for the normal administrative work required by the ESA or NEPA under nonemergency conditions. Emergency consultations will consider the action agency's critical mission, while ensuring that anticipated actions will not violate sections 7(a)(2) or 7(d) of the ESA.

3.0 OVERVIEW OF THE PLANNING AREAS

The planning area (Figure 1) covers approximately 6,487,464 acres of federal, state, tribal, and private land in Carbon, Fremont, Hot Springs, Natrona, and Sweetwater Counties, Wyoming. A small portion of Teton County is within the planning area; however, there are no BLM-administered lands in Teton County in the planning area; therefore this area is not further discussed. Public land in the planning area includes most of Fremont County, the southwest corner of Natrona Country, and small portions of Carbon, Sweetwater, and Hot Springs Counties. There are many isolated parcels of state and private land dispersed throughout the planning area intermingled with public land. Management decisions and prescriptions in this document apply only to BLM-administered surface and federal mineral estate in the planning area. Of the total planning area, approximately 2,394,210 acres are BLM-administered surface and 2,809,101 acres are BLM-administered federal mineral estate. Approximately 2.2 million acres of the planning area are within the WRIR.

The BLM has a fiduciary trust responsibility for the management of minerals on the WRIR. The BLM does not make land management decisions for the WRIR, and duties associated with trust responsibilities are performed independent of the provisions of the Lander Proposed RMP. Information the BLM obtains and uses pursuant to its exercise of duties associated with trust responsibility is considered proprietary to the WRIR, and the BLM treats this information as confidential.

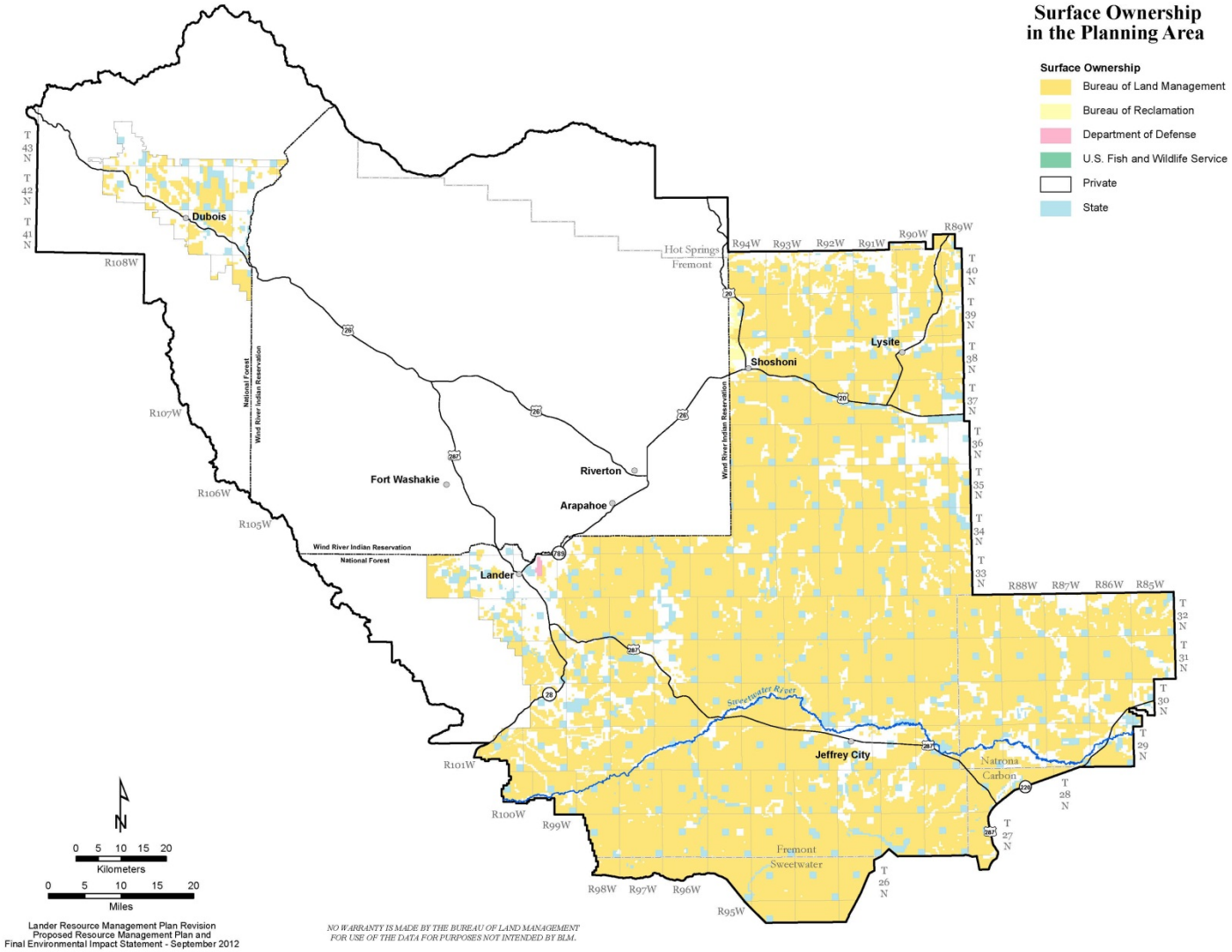
The geologic setting in the planning area is one of basins separated and surrounded by mountain ranges, specifically the Owl Creek, Bridger, Bighorn, Ferris, Washakie, Absaroka, Wind River, Granite, and Rattlesnake Ranges. Most of the planning area is in the Wind River Basin; approximately one-third of the planning area is within the Granite Mountain Range landform, and fewer than 150,000 acres in the southern part of the planning area are in the Great Divide Basin.

There are two main hydrologic basins in the planning area: (1) the Wind River and Popo Agie River Basins, which together drain most of the area north of Beaver Rim, and (2) the North Platte River Basin of which its tributary, the Sweetwater River, drains the area south of Beaver Rim. A minor acreage drains directly to the North Platte River in the far eastern portion of the planning area in southeast Natrona County. Roughly 150,000 acres of the Great Divide Basin, a hydrologically closed basin with no external drainage, is found along the far southern boundary of the planning area; most of this basin occurs in a 7- to 9- inch annual precipitation zone.

Elevations in the planning area range from 4,750 feet to 10,400 feet, supporting habitats including coniferous forests, juniper woodlands, aspen stands, mountain shrub, canyons and rim rock, badlands, sagebrush-steppe shrublands, grasslands, and riparian-wetland areas. The dominant vegetation type in the planning area is sagebrush, which occupies valleys and basins. Juniper and limber pine occur on slopes and in mountainous areas and lodgepole/limber pine mixed with aspen occurs in higher elevations.

BLM-administered public lands in the planning area support a variety of game and non-game wildlife species, including several special status species. These lands contain a variety of habitats that possess the biological and physical attributes important in the life-cycles of many wildlife species. The diversity of habitats and landscapes provides important areas for wildlife breeding, birthing, foraging, wintering, and migration.

Figure 1. Surface Ownership in the Planning Area



The soils of the planning area are typical for arid and semi-arid cold deserts and sub-humid mountainous areas of the world that have a continental climate. Summers are generally short and hot and winters, long and cold. Annual precipitation ranges from 5 to 9 inches in the Wind River Basin and 15 to 19 inches in the foothills of the Wind River Mountains. The mountain areas have a sub-humid, continental climate. Drought is common in the planning area. With drought comes increased risk of fire, decreased vegetation for forage and soil cover, accelerated soil erosion by wind, and decreased air quality from additional particulate matter in the air.

The soils in the Wind River and Great Divide Basins are typical for those of high, semi-arid, cold deserts. Soils of the planning area vary greatly in potential and capability for any given use. Some soils produce abundant vegetation while other soils do not. Some soils support winter habitat for wildlife, others support summer habitat. Some soils are easier to rehabilitate after disturbance than other soils.

Economic development in the planning area has been based on resource extraction, tourism, and agriculture. Oil and gas development is an important economic component of public land use in the planning area. Tourism has historically been a substantial economic generator, primarily in the Dubois and Lander areas. Agriculture, particularly cattle and sheep ranching, has also contributed to the economy and the social fabric of communities in the planning area.

The availability of a wide spectrum of recreational opportunities on public lands is an important component of public land use, lifestyles, and communities in the planning area. Many towns in the planning area serve as recreation destinations as well as “gateway cities” for recreation activities in Yellowstone and Teton National Parks. Recreation resources in the planning area include both developed and undeveloped opportunities.

Ecoregions within the planning area are described below after Griffith and Omernik (2009).

Dry Mid-Elevation Sedimentary Mountains. This ecoregion includes the mid-elevation Bighorn Mountains and the drier northeastern portion of the Wind River Range that are underlain by sedimentary rocks. The natural droughtiness of the soil is enhanced by its location in the rain shadow of the two mountain ranges. The various sedimentary rock types have a distinctive topographic expression: rounded shale hills, limestone bluffs, and sandstone flatirons. Forested canyons slice through the more soluble limestone layer. Upland forest cover is open and patchy because of the droughty conditions. The vegetation cover is a combination of grasses; dry, open forest; and shrubland, including mountain big sagebrush and mountain mahogany. Forest cover is more extensive on the east slopes of the Bighorns where there is more summer precipitation. A ponderosa pine/juniper/mountain mahogany association exists here similar to one in the Black Hills to the east, but it is of limited extent. The forest of the eastern Bighorn Mountains lacks enough precipitation to support the eastern deciduous species and boreal vegetation present in the Black Hills. Some quaking aspen groves occur (Griffith and Omernik 2009).

Rolling Sagebrush Steppe. This semi-arid ecoregion is a vast region of rolling plains with hills, mesas, terraces, and near the mountains, footslopes, ridges, alluvial fans, and outwash fans. Average annual precipitation is 6 to 16 inches and varies with elevation and proximity to mountains. The region has a continental climate with cold winters and mild summers. Potential natural vegetation is mostly sagebrush steppe, with the eastern edge of the region having more mixed grass prairie. Wyoming big sagebrush is the most common shrub with silver and black sagebrush occurring in the lowlands and mountain big sagebrush in the higher elevations. Frequent fires have affected the sagebrush steppe and, in some places, European annual grasses have replaced it. Most of the land is in rangeland, cattle and sheep ranches, or wildlife habitat. Oil, gas, and coal deposits are scattered throughout the region

and oil shale deposits are found in the southwest. Uranium mining occurs in areas in the Red Desert and the Shirley Basin (Griffith and Omernik 2009).

Sub-Irrigated High Valleys. This ecoregion is made up of wet meadow systems located in areas of high drainage density beneath surrounding mountain ranges. The term *sub-irrigated* refers to the high water table that keeps the soil moist much of the year. Physiographically, this ecoregion includes floodplains, low terraces, riparian-wetlands, and alluvial fans. Willows, alders, cottonwoods and hydrophilic wetland plants, such as horsetail, spikerush, sedges, and tufted hairgrass, line the drainages. Irrigation projects have increased the areal extent of this ecoregion (Griffith and Omernik 2009).

Foothill Shrublands and Low Mountains. This ecoregion includes isolated dry mountain ranges and foothill slopes scattered across the Wyoming Basin. It has a more rugged topography than the Rolling Sagebrush Steppe. Elevations range between 5,000 and 7,000 feet in foothill areas to over 9,000 feet on a few isolated ranges. Tertiary sedimentary rock including sandstone and conglomerate are most extensive, but shale, siltstone, and limestone also occur. Big sagebrush, rabbitbrush, prickly pear, bluebunch wheatgrass, and Idaho fescue dominate on fine-textured soils; Rocky Mountain juniper, Utah juniper, and mountain mahogany woodlands occur on rock outcrops. Small forested areas occur at higher elevations in the Owl Creek, Pine, Green, Ferris, and Shirley Mountains. Land use is mostly livestock grazing and wildlife habitat (Griffith and Omernik 2009).

Salt Desert Shrub Basins. This arid ecoregion includes disjunct playas and sand dunes scattered throughout the Wyoming Basin. Soils in this ecoregion tend to be more alkaline and less permeable than soils in the Rolling Sagebrush Steppe Ecoregion. Vegetation is a sparse cover of arid land shrubs such as shadscale, greasewood, and Gardner saltbush. Plant life is more diverse on sand dunes, which provide greater moisture, higher permeability, and lower alkalinity than the basin floor. This arid landscape is very sensitive to grazing pressure, which may promote the invasion of weeds such as Russian thistle, cheatgrass, and halogeton (Griffith and Omernik 2009).

Bighorn Salt Desert Shrub Basins. This ecoregion is comprised of two large, arid, alkaline depressions surrounded by mountains. This ecoregion was distinguished from the other salt desert shrub basins because it forms a larger contiguous area that is somewhat geographically isolated from the scattered small basins and playas in southern Wyoming. It also experiences greater human influence because of its proximity to major rivers that provide water for irrigation. Soils are alkaline or gypsum bearing and are derived from sedimentary rocks such as shale, sandstone and siltstone, or from windblown material. The arid climate (just 6 inches of precipitation per year) supports desert shrubs and grasses: greasewood, Gardner saltbush, shadscale saltbush, alkali sacaton, and saltgrass. Oil, bentonite, and coal deposits are extensive throughout this ecoregion (Griffith and Omernik 2009).

3.1 Fremont County

The Wyoming Territorial Legislature established Fremont County in 1884 and named Lander the county seat. The earliest historic records indicate that the Shoshone and Crow bands originally occupied Fremont County. In the 1820s and 1830s, fur traders explored much of Fremont County, and John C. Fremont explored and mapped southern Fremont County along the Oregon Trail in 1842 and 1843. The South Pass gold rush of 1867 brought an influx of thousands of people, accelerating the settlement of Fremont County and the development of early farms and villages. The creation of the WRIR in 1868 was another important event that accelerated the settlement of the county.

Fremont County is the second largest county in land size (after Sweetwater County, Wyoming) in the six Rocky Mountain States. The Oregon, Mormon, California, and Pony Express Trails cross the southern

portion of the county, and Dubois, a gateway town for Yellowstone National Park (YNP) and Grand Teton National Park, lies in the northwest corner of the county. The county seat is Lander, and is home to the Wyoming State Life Resource Center and several nonprofit organizations including the National Outdoor Leadership School, The Nature Conservancy, and the Wyoming Outdoor Council. The largest community is Riverton, home of Central Wyoming College. A large portion of the western edge of the county follows the Continental Divide at the crest of the Wind River Range of the Rocky Mountains. U.S. Highway 287 crosses the southern and western portions of Fremont County and intersects U.S. Highway 28 just south of Lander. The Sweetwater River, the second largest major river in the planning area, runs east-west in the southern portion of the planning area. The southern boundary of Fremont County is south of the Sweetwater River, running more or less along the northern edge of the Great Divide Basin.

Fremont County comprises 2,751,355 acres of surface area in the central portion of the planning area, of which the BLM administers approximately 1,933,364 acres. In addition, the Lander Field Office administers approximately 2,281,159 acres of federal mineral estate in the county. The WRIR, home of the Eastern Shoshone and the Northern Arapaho Native American tribes, occupies approximately one-third of Fremont County. Parts of five counties are included within the planning area. Of these, Fremont County encompasses the largest amount of surface area.

3.2 Natrona County

Natrona County was officially established in 1890 after originally being part of Carbon County. That same year, Casper, Wyoming, was designated as the county seat. Pioneers traveling west in the mid- to late-1800s followed both the Mormon and Oregon Trails, which cross present-day Natrona County. Early pioneers established homesteads in the late 1800s, and settlers used the open rangelands for cattle and sheep ranching.

Oil and gas prospecting began in the Natrona County region in the 1870s and accelerated economic and population growth in the area. Oil and gas development continues to be an important contributor to the local economy in the county. The important historical sites of Split Rock, Martin's Cove, and Devil's Gate are along portions of the Mormon and Oregon Trails in the planning area. Wyoming State Highway 220 runs in a northeast-southwest direction in the southeastern portion of the county in the planning area.

Natrona County covers approximately 422,519 acres of surface area in the easternmost portion of the planning area, of which the BLM administers approximately 297,991 acres. In addition, the Lander Field Office administers approximately 364,256 acres of federal mineral estate in the county.

3.3 Carbon County

Carbon County was originally established in 1868 as a county in the Dakota Territory. Rawlins, Wyoming, was later named the county seat. Carbon County has a rich history of ranching, mining, and railroad development and use. U.S. Highway 287 runs through the northwestern portion of the county in the planning area.

Carbon County covers approximately 45,434 acres of surface area in the southeastern portion of the planning area, of which the BLM administers approximately 38,406 acres. In addition, the Lander Field Office administers approximately 41,482 acres of federal mineral estate in the county. Carbon County has the second least amount of BLM-administered surface area of the five counties in the planning area.

3.4 Sweetwater County

Sweetwater County was established in 1867, the same year Green River, Wyoming, was named its county seat. Several emigrant trails, which are now historic trails, pass through the county, including the Oregon, California, Mormon, Overland, and Pony Express Trails. Construction of the transcontinental railroad in 1868 accelerated development in the county's two major population centers, Green River and Rock Springs.

U.S. Highway 28 parallels the Oregon, Mormon, California, and Pony Express Trails. Interstate 80 crosses the southern portion of Sweetwater County in an east-west direction. Along with mineral commodities, agriculture is an important commodity and economic contributor in the county.

Sweetwater County covers approximately 128,335 acres of surface area in the southernmost portion of the planning area, of which the BLM administers approximately 122,670 acres. In addition, the Lander Field Office administers approximately 119,407 acres of federal mineral estate in the county.

3.5 Hot Springs County

Hot Springs County was established in 1911, with Thermopolis serving as the county seat. Oil and gas prospecting, as well as coal extraction, helped accelerate growth in the county in the early 1900s. Hot Springs County is home to reputedly the world's largest mineral hot springs, located near Thermopolis in Hot Springs State Park. Hot Springs County contains a relatively large amount of paleontological resources, including dinosaur fossils. Important recreational opportunities in the county include rafting and fishing in Wind River Canyon and on the Bighorn River.

Hot Springs County covers approximately 3,244 acres of surface area in the north-central portion of the planning area, of which the BLM administers approximately 1,779 acres. In addition, the Lander Field Office administers approximately 2,796 acres of federal mineral estate in the county. Hot Springs County has the least amount of BLM-administered surface area of the five counties in the planning area.

3.6 Wind River Indian Reservation

The Bridger-Teton Treaty with the Federal Government in 1868 established the WRIR. In 1868, Chief Washakie signed a treaty making the WRIR home to the Eastern Shoshone. A band of Northern Arapaho moved from Colorado to the WRIR in 1868. Today the Eastern Shoshone and the Northern Arapaho share the reservation and govern it jointly, with each tribe holding 50 percent interest in the land, water, and other natural resources. Fort Washakie, the only military fort named for an American Indian chief, is now the headquarters of the Eastern Shoshone government and the United States Department of the Interior (DOI) Bureau of Indian Affairs.

The WRIR includes approximately one-third of Fremont County and approximately one-fifth of Hot Springs County. Encompassing approximately 2.2 million acres, the WRIR is the seventh largest Indian reservation in the United States. Within the Lander Field Office boundaries, the WRIR occupies 2,253,375 acres.

4.0 CURRENT STATUS AND HABITAT USE OF SPECIAL STATUS SPECIES

Special status species are defined in this document as those listed as threatened or endangered, are proposed for listing, or are candidates for listing under the ESA. The USFWS Ecological Service office in Cheyenne, Wyoming, provided a list of threatened, endangered, proposed, and candidate species that may occur in the planning area. The USFWS letter dated September 6, 2007, contained six of the ten species listed in Table 1 (USFWS 2007a). On March 26, 2010, the protections for the grizzly bear were reinstated in the Greater Yellowstone Ecosystem in compliance with a court order (75 Federal Register [FR] 58, 14496–14498). In March 2010 (75 FR 55 Proposed Rules) the USFWS identified the greater sage-grouse as a candidate species. Because 70 percent of the Lander planning area has been designated by the State of Wyoming as greater sage-grouse "Core Area," greater sage-grouse is also included in this BA.

Table 1. Federally Listed Threatened, Endangered, and Candidate Species in the Planning Area

Common Name	Scientific Name	Status[1]	Expected Occurrence
Black-footed ferret	*Mustela nigripes*	Endangered	Prairie dog towns
Canada lynx	*Lynx canadensis*	Threatened	Montane forests
Canada lynx critical habitat	*Lynx canadensis*	Designated	All designated critical habitat in the planning area occurs on U.S. Forest Service managed lands in the Dubois area
Gray wolf	*Canis lupus*	Delisted as of September 30, 2012 (was Experimental, Non-essential)	Greater Yellowstone Ecosystem
Greater sage-grouse	*Centrocercus urophasianus*	Candidate	Sagebrush communities
Grizzly bear	*Ursus arctos horribilis*	Threatened	Montane forests
North American wolverine	*Gulo gulo luscus*	Candidate	Subalpine to alpine
Blowout penstemon	*Penstemon haydenii*	Endangered	Sand dunes
Desert yellowhead	*Yermo xanthocephalus*	Threatened	Shallow deflation hollows in outcrops of Miocene sandstones and limestones of the Split Rock Formation
Desert yellowhead critical habitat	*Yermo xanthocephalus*	Designated	Approximately 360 acres of federal lands managed by the BLM in the Beaver Rim area approximately 6 miles north of Sweetwater Station in southern Fremont County, Wyoming
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 feet in elevation
Whitebark pine	*Pinus albicaulis*	Candidate	Cold and windy subalpine to alpine sites above 8,000 feet in elevation

[1] Status refers to federal status in accordance with the Endangered Species Act.

The USFWS identified the North American wolverine as a candidate species in December 2010 (75 FR 78030-78061) and whitebark pine as a candidate species in July 2011 (76 FR 42631-42654). The North American wolverine generally inhabits areas at or above timberline and there are no BLM-administered public lands in the Lander Field Office that support this type of habitat. A wolverine sighting in recent years indicates wolverines may utilize BLM-administered lands as dispersal lands to access new territories. Whitebark pine has not been identified on BLM-administered lands although it has been documented on adjacent USFS lands in the Dubois area. The North American wolverine and whitebark pine will not be discussed further in this BA since there is no documented evidence of these species occupying BLM-administered lands and because they are candidate species that do not require consultation with USFWS under the ESA.

Of the ten species within the planning area, the only designated critical habitat on BLM-administered land is for the desert yellowhead. Designated critical habitat for Canada lynx exists in the planning area; however, it is limited to USFS lands adjacent to BLM-administered land in the Dubois area.

4.1 Black-footed Ferret

4.1.1 Status

The black-footed ferret was listed as endangered on March 11, 1967, by the USFWS under a precursor to the ESA of 1973. The BLM Wyoming completed the *Final Statewide Programmatic Biological Assessment: Black-footed Ferret (Mustela nigripes)* in August 2005 (BLM 2005a). Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate, and unless otherwise referenced, the black-footed ferret species information contained herein came from the *Final Statewide Programmatic Biological Assessment: Black-footed Ferret (Mustela nigripes).*

A captive-breeding program began in 1985 and continues today. The USFWS designated non-essential experimental populations in northwestern Colorado and northeastern Utah, north-central South Dakota, Arizona, Montana, and Wyoming (including the Shirley Basin) for the purpose of reintroducing ferrets to these areas. This designation allows for more flexibility in managing new populations. In Wyoming, the black-footed ferret state conservation status is S1, meaning it is critically imperiled (WYNDD 2010a). The *Black-footed Ferret Recovery Plan* was approved in 1988 (USFWS 1988), and it is currently being revised.

On February 2, 2004, the USFWS issued a block clearance letter and map indicating that ferret surveys are no longer necessary in black-tailed prairie dog (*Cynomys ludovicianus*) towns statewide or in white-tailed prairie dog (*Cynomys leucurus*) towns except those noted in an attachment to the letter (USFWS 2004). Approximately 98 percent of the planning area has received block-clearance due to the negligible likelihood of a wild population of ferrets occurring. Although block clearance has been given, the clearance does not relieve the BLM's responsibility to evaluate the effects of its actions on the survival and recovery of the species.

In November 2008, the USFWS released *Black-footed Ferret 5-Year Status Review: Summary and Evaluation* (USFWS 2008). By 2010, the 1988 Recovery Plan aimed to establish a pre-breeding population of 1,500 free-ranging adults in 10 or more populations with no fewer than 30 breeding adults in any population. This aim has not yet been fully met, although several populations have been successfully established that have more than 30 breeding adults.

On August 19, 2009, the USFWS released the *Spotlight Species Action Plan for the Black-footed Ferret* (USFWS 2009a). In the action plan, the USFWS targeted a 5-year goal (2009–2014) for ferret recovery with continued improvement in status and with an increased number of ferret reintroduction sites.

4.1.2 Life History

A member of the weasel family (*Mustelidae*), the black-footed ferret is a long, slender-bodied animal with relatively short limbs. Black-footed ferrets have a black-masked face, black legs, and a black-tipped tail, and they have yellowish buff upper body parts (USFWS 2008). Black-footed ferrets are the only ferret native to North America (USFWS 1988). The black-footed ferret is a medium sized mustelid typically weighing 1.4 to 2.5 pounds (645 to 1,125 grams) and measures 19 to 24 inches (479 to 600 millimeters) long (USFWS 2008). Black-footed ferrets generally are nocturnal carnivores, but occasionally they are active aboveground during the day. Although prairie dogs make up most of the black-footed ferret diet, these animals also feed on rabbits, mice, voles, ground squirrels, pocket gophers, birds, and insects.

Black-footed ferrets are solitary except during the breeding season or when females are caring for young. Breeding occurs in April or May and gestation is between 42 and 45 days (NatureServe 2010). The average litter size is 3.5 and the range is from 1 to 5. The young appear aboveground usually in July and disperse in fall. Some females reproduce as yearlings. Black-footed ferrets are secretive and rarely observed except at night (NatureServe 2009).

Predators of the black-footed ferret include great-horned owls (*Bubo virginianus*), golden eagles (*Aquila chrysaetos*), and coyotes (*Canis latrans*). Potential but undocumented predators include badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), red foxes (*Vulpes vulpes*), prairie falcons (*Falco mexicanus*), and ferruginous hawks (*Buteo regalis*).

4.1.3 Habitat Requirements

Black-footed ferrets are almost exclusively associated with prairie dogs and prairie dog towns (USFWS 1988). In addition to using prairie dogs as a food source, black-footed ferrets use prairie dog burrows for shelter, breeding, and brood-rearing. The size and density of prairie dog towns may be the most important factors for suitable habitats for black-footed ferrets. Black-footed ferrets are not normally found in black-tailed prairie dog towns or complexes of fewer than 80 acres, or in white-tailed prairie dog towns or complexes of fewer than 200 acres.

4.1.4 Regional and Local Distribution

Historically, the distribution of black-footed ferrets closely matched that of prairie dogs. Black-footed ferrets occurred throughout the Great Plains, from southern Canada down to Texas, and from Arizona and Montana to eastern Nebraska. By the 1970s, the only known population was in South Dakota, but it soon disappeared. In 1981, another population was discovered in Meeteetse, Wyoming. This population was monitored, and in 1986 and 1987 all animals were brought into captivity because of outbreaks of plague and canine distemper.

In 1991, the first reintroduction of captive-raised black-footed ferrets occurred in the 2,068-square-mile white-tailed prairie dog complex in the Shirley Basin/Medicine Bow Management Area (Shirley Basin). Over a 4-year period, 228 ferrets were released at this site. This USFWS designated this population as a non-essential experimental population in accordance with the ESA. Reintroduction efforts in Wyoming were suspended in 1995 due to sylvatic plague. Successful reproduction in the wild has occurred. The present distribution of known ferrets in Wyoming is limited to the one population in the Shirley Basin.

Ferret numbers at this site went from a low of 19 animals in June 2002, to 52 animals and 10 litters in September 2003, and 85 to 100 animals with 21 litters in September 2004. This introduced population is entirely in Albany and Carbon counties, with some animals east of the Medicine Bow River.

In the planning area, three records of black-footed ferrets are known from the Lander Field Office, all from Fremont County. One record is from 1957, 4 miles east of Dubois. Two records are from 1973, 7.5 miles south of Jeffrey City. Pathfinder prairie dog complex overlaps Lander and Rawlins Field Offices, and is the only significant complex in the planning area. This site is the only location in the planning area with potential to reintroduce the black-footed ferret.

4.1.5 Threats

The main causes of decline in the black-footed ferret population include habitat conversion to agricultural uses and urbanization, efforts to eliminate prairie dogs, and the sylvatic plague (NatureServe 2010). Approximately one-third of the ferret's historical range has been converted to land uses that no longer support prairie dogs (e.g., cropland). However, extensive grasslands and rangelands to support black-footed ferret recovery goals remain, and the USFWS does not consider the present or future loss of habitat from cropland conversion to be a threat (USFWS 2009a).

Rodenticide use has been responsible for extensive reduction of prairie dog habitat and was the most important factor in the initial large-scale population reductions of the ferret. Furthermore, rodenticides used to kill prairie dogs throughout most of the 20th century consequently also poisoned ferrets. Certain rodenticides (chlorophacinone and diphacinone) that can cause secondary poisoning to non-target animals, including ferrets, are still used. However, alternatives such as zinc phosphide have minimal secondary toxicity problems. Widespread use of rodenticides continues, but the government-sponsored eradication programs appear to have ceased. Most ferret reintroduction sites are able to balance rodenticide use and prairie dog/ferret conservation; the greater challenge is ensuring rodenticide use does not preclude or delay opportunities at certain locations before ferrets are reintroduced. The USFWS considers the threat from prairie dog poisoning to be a medium magnitude imminent threat (USFWS 2009a).

The sylvatic plague, a disease that has wiped out large numbers of prairie dogs, also has affected black-footed ferrets. The sylvatic plague kills individual black-footed ferrets and reduces prey abundance. With aggressive proactive management, the threat of plague has been reduced from a high to medium magnitude imminent threat (USFWS 2009a). Black-footed ferrets also are susceptible to canine distemper, which can be fatal to infected individuals.

4.2 Canada Lynx

4.2.1 Status

The Canada lynx was listed as a federally threatened species on March 24, 2000, pursuant to the ESA. BLM Wyoming completed the *Final Statewide Programmatic Canada Lynx (Lynx canadensis) Biological Assessment* in July 2005 (BLM 2005b). Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate, and unless otherwise referenced, the Canada lynx species information contained herein came from the *Final Statewide Programmatic Canada Lynx (Lynx canadensis) Biological Assessment*.

On July 8, 1998, the USFWS published a proposed rule to list the Canada lynx as threatened (63 FR 36994). On March 24, 2000, the USFWS published a final rule listing the Canada lynx as threatened and

found that the designation of critical habitat for the Canada lynx was prudent (65 FR 16052). As a result of an order from the U.S. District Court for the District of Columbia (Court), the USFWS again determined the Canada lynx was threatened in a clarification of findings published on July 3, 2003 (68 FR 40076). The Court ordered the USFWS to propose critical habitat by November 1, 2005, and to issue a final critical habitat rule by November 1, 2006. The final rule designating critical habitat for Canada lynx was published in the *Federal Register* on November 9, 2006 (71 FR 66007). On July 20, 2007, the USFWS announced it would review the November 9, 2006, final rule after questions were raised about the integrity of scientific information used and whether the decision was consistent with the appropriate legal standards. Based on its review of the previous final critical habitat designation, the USFWS determined it necessary to revise critical habitat. On January 15, 2008, the Court ordered the USFWS to propose a rule for revised critical habitat by February 15, 2008, and to issue a final rule for revised critical habitat by February 15, 2009 (USFWS 2009b). No designated critical habitat for Canada lynx occurs on BLM-administered lands in the planning area.

In March 2009, the USFWS released *Final Rule for the Revised Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx*. In total, approximately 39,000 square miles fall within the boundaries of the revised critical habitat designation, in five units in the States of Maine, Minnesota, Montana, Wyoming, Idaho, and Washington. This rule went into effect on March 27, 2009. No designated critical habitat occurs on BLM-administered land in the planning area.

4.2.2 Life History

The Canada lynx is a medium-sized, short-bodied cat with long legs and an overall stocky build. Paws are large and well-furred, ears tufted, tail blunt and short, and the head has a flared facial ruff. Winter coloring is typically grizzled brownish-gray mixed with buff or pale brown on the top and grayish-white or buff-white on the underside. In summer, the pelage is more reddish to gray-brown. The tail is black-tipped all the way around. Total length is 26 to 34 inches and weight is 17.5 to 23 pounds. Males are slightly larger than females. The Canada lynx differs from the bobcat by having a less spotted coat; a shorter tail (just half the length of its hind foot); paws with twice the surface area, enabling them to forage in deep snow; and a black-tipped tail, rather than a tail with black along its top surface.

The breeding season for Canada lynx lasts just one month between March and May, depending on the local climate. Gestation lasts around 64 days, so that the young are born in May or early June. The dens are generally situated mid-slope and face south or southwest. Litters contain from one to eight cubs, and tend to be much larger when prey is abundant. Canada lynx cubs weigh 6.2 to 8.3 ounces at birth and initially have greyish buff fur with black markings. They are blind and helpless for the first 14 days and weaned at 12 weeks.

4.2.3 Habitat Requirements

Cool, moist coniferous forests with cold, snowy winters and abundant snowshoe hares define the required habitat of Canada lynx. Primary vegetation in Canada lynx habitat is lodgepole pine, subalpine fir, and Engelmann spruce. Secondary habitat includes cool, moist Douglas-fir, grand fir, western larch, and aspen woodlands. In the western United States, 70 percent of Canada lynx occurrences were at elevations of 4,920 to 6,560 feet, but in Wyoming, the elevation range for all Canada lynx occurrences was 4,920 to 11,480 feet. Snow conditions in northern boreal forests are consistent, cold, and dry; in contrast, southern boreal forests have snow depths that are more variable and may be subjected to more freezing and thawing, causing crusting on the snow, which may reduce the competitive advantage that Canada lynx have in soft snow with their long legs and low foot loadings.

Canada lynx require a complex mosaic within their home range to meet different habitat needs. They prey on snowshoe hares in areas with high stem density and dense shrubby and coniferous growth with stems and branches that protrude above the snow, and they den in areas with large woody debris in the form of downed logs or root wads. Older and mixed-age forests with a patchwork of well-developed shrubs and young trees provide the dense understory and large downed logs required for both foraging and denning habitats. These forest types provide snowshoe hare habitat over a longer period and support red squirrel populations.

The primary prey is the snowshoe hare (*Lepus americanus*). In studies from Canada, Alaska, and Washington State, snowshoe hares comprised 35 to 97 percent of the Canada lynx diet. Alternative prey includes red squirrels (*Tamiasciurus hudsonicus*) and other squirrels (*Spermophilus* spp.), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), mice and voles (*Peromyscus* spp. and *Microtus* spp.), shrews (*Sorex* spp.), fishes, and deer (*Odocoileus* spp.) and moose (*Alces alces*), mostly as carrion. In Washington, the only state in the contiguous United States for which data are available, the annual diet was 79 percent hares, 24 percent tree squirrels, 3 percent ungulates, and 3 percent grouse. In northern populations red squirrels, voles, and other small mammals are a larger component of summer and fall diets compared with the winter diet focus on snowshoe hares.

Denning sites require the large downed timber more typically found in mature forests. This coarse woody debris provides protection from predators for vulnerable kittens and thermal cover. Multiple natal dens are typically used. Females require nearby foraging habitat to feed their kittens.

4.2.4 Regional and Local Distribution

The Canada lynx lives in the boreal forests of North America from Alaska to Newfoundland, descending into the lower 48 states in northern New England (Maine, New Hampshire, New York, Vermont), the Western Great Lakes region (Michigan, Minnesota, Wisconsin), the Pacific Northwest (Oregon, Utah, Washington), and the Rocky Mountains (Colorado, Idaho, Montana, Wyoming).

Lynx have been present in Wyoming prehistorically, in historic times, and in the present. The best contiguous lynx habitat in Wyoming is in the northwestern portion of the state. The remainder is highly fragmented, widely dispersed, and typically separated by shrublands. The distribution of lynx specimens and reports in Wyoming indicate they occurred in the mountains of western and northern Wyoming, including the Salt River, Wyoming, Teton, northern Wind River, Gros Ventre, and Absaroka ranges; and they occurred in small numbers in the Uintah Range and the Bighorn Range, and sporadically in eastern Wyoming.

The Wyoming Natural Diversity Database (WYNDD) lists lynx as present in Fremont, Lincoln, Park, Sublette, Teton, Uinta, and possibly Big Horn counties. In 1997, observers recorded lynx tracks in Horse Creek, Long Creek, and the Dunoir areas near Dubois. The Wyoming Game and Fish Department (WGFD) performed lynx surveys from November 1998 through April 1999. The effort focused on three areas: Dubois (Horse, Burroughs, Long, and Warm Springs drainages in the Wind River District of the Shoshone National Forest), Merna (Pass, Horse, Spring, Lead, Dry Beaver, South Beaver, Chall, and North Fork Middle Beaver drainages in the Big Piney District of the Bridger-Teton National Forest), and Cottonwood (North and South Cottonwood drainages in the Big Piney District of the Bridger-Teton National Forest). In 1998, observers documented tracks in the Dunoir and Burroughs Creek. One lynx track was found at Merna, and lynx tracks were found six times in the Cottonwood drainage. The WYNDD performed lynx surveys during the winters of 1999–2000 and 2000–2001. Two probable and three possible lynx trails were found during this survey. These observations occurred in three separate

areas—Big Sandy, Pine Creek, and Water Canyon. In 2006, WGFD personnel documented the presence of radio-collared lynx in Long Creek.

The recent reintroduction of lynx in Colorado has resulted in a number of collared animals taking residence in the Medicine Bow National Forest. One den was located, although the female died before kittens would have become independent. Because lynx can move great distances, it is likely that additional animals from Colorado will appear in Wyoming.

Two lynx were captured and outfitted with radio-telemetry collars in the Wyoming Range near Big Piney– a male in December 1996 and a female in March 1997. These animals were followed for 3 years, and their home ranges during this time were 72 miles and 65 miles for the male and female, respectively. Winter home ranges were 39 miles and 31 miles, and in the summers, they were 50 miles and 35 miles for the male and female, respectively. Daily travel distances were 1.3 to 2.5 miles. Exploratory movements of 18.6 miles were made.

Directly adjacent to the planning area, the Pinedale Field Office has the largest area in lynx analysis units (LAUs) (227,769 acres) and the largest area of habitat (47,098 acres, 21 percent). The Lander Field Office also has large acreage in LAUs (115,611 acres). Of this, approximately 23 percent (27,022 acres) of the LAUs are on BLM-administered surface.

4.2.5 Threats

In determining threatened status for the contiguous United States distinct population segment (DPS), the USFWS cited the inadequacy of existing regulatory mechanisms. The USFWS stated, “Current U.S. Forest Service Land and Resource Management Plans include programs, practices, and activities within the authority and jurisdiction of federal land management agencies that may threaten Canada lynx or Canada lynx habitat. The lack of protection for Canada lynx in these plans renders them inadequate to protect the species” (NatureServe 2010).

There appear to be some notable differences in Canada lynx ecology between southern and northern boreal forests. In the south, snowshoe hare densities are lower and Canada lynx populations appear less stable and at higher risk. The ecological differences between latitudes are likely due to use of alternative prey species; the effect of habitat patchiness on movements, reproduction, and survival; and the potential effects of different communities of predators and competitors. Persistence of Canada lynx in the contiguous United States appears to rely on dispersal from larger populations and maintenance of connectivity between northern and southern populations. For Canada lynx in Wyoming and Colorado, this translates to maintaining connectivity between populations in those two states, connectivity between populations in Canada and Montana, and connectivity between populations in Montana and Wyoming.

Additional threats to Canada lynx include those listed below (NatureServe 2010).

- Lack of immigration from Canadian Canada lynx.
- Patchiness and distribution of Canada lynx habitat in the southern part of the range.
- Forest management activities that reduce habitat for snowshoe hares and/or red squirrels.
- Clear-cuts, shelterwood cuts, seed tree cuts, and diameter-limit prescriptions that result in distances to cover greater than 325 feet (100 meters) may restrict Canada lynx movement and use patterns until forest regeneration occurs.
- Fragmentation due to forestry, agriculture, and roads, and the subsequent isolation of suitable habitat are also concerns.

- Wildfire management in the west has resulted in forests that are more homogeneous and composed of shade-tolerant species with more canopy layers. Habitat has been lost due to suppression of forest fires and ecological succession to habitats that no longer support snowshoe hare and Canada lynx.
- Recreational trails created by snowmobiles and even cross-country skiers create packed snow conditions that allow other predators and competitors into what would otherwise be exclusive Canada lynx habitat.
- During denning in the spring, Canada lynx are more vulnerable and require more secure habitat and fewer disturbances than might be tolerated at other times of year. This type of vulnerability to human disturbance may also be exacerbated during periods when food is scarce.
- Increased winter recreation (snowmobiles, ski area development) may cause displacement and/or incidental mortality of Canada lynx.
- Habitat changes and increased access into Canada lynx habitats has resulted in increased competition and displacement of Canada lynx by bobcat and coyote in some areas.
- Roads into areas occupied by Canada lynx may pose a threat to Canada lynx from incidental harvest or poaching, increased access during winter for competing carnivores (especially coyotes), disturbance or mortality from vehicles, and loss of habitat.
- Snowshoe hares prefer seedling-sapling stands and pre-commercial thinning, wildfire, fire exclusion, and forest management activities (Griffin and Mills 2007, 2009) that reduce these stands may pose a threat to Canada lynx by reducing prey availability.
- Development of oil wells can be harmful to Canada lynx, mostly as a consequence of new roads created to access areas for exploration and development. The result is increased human use and competing predator use. Mining may directly impact habitat and promote recreational activities as a consequence of new roads.
- Road construction causes habitat fragmentation and allows increased human access into Canada lynx habitat; this may increase Canada lynx mortality by facilitating access for hunters and trappers, and incidental harvest of Canada lynx in the course of legal trapping/hunting for other species may be a problem in some areas.

4.3 Gray Wolf

4.3.1 Status

The gray wolf was listed as endangered under the ESA in 1974 in the conterminous 48 states. The BLM Wyoming completed the *Final Statewide Programmatic Gray Wolf Biological Assessment* in September 2004 (BLM 2004a). Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate, and unless otherwise referenced, the gray wolf species information contained herein came from the *Final Statewide Programmatic Gray Wolf Biological Assessment*.

The USFWS listed the eastern timber wolf subspecies (*C. l. lycaon*) as endangered in Minnesota and Michigan, and the northern Rocky Mountain wolf subspecies (*C. l. irremotus*) as endangered in Montana and Wyoming. In 1976 the USFWS listed a third subspecies, the Mexican wolf (*C. l. baileyi*), as endangered. In 1978, the USFWS published a rule that relisted the gray wolf at the species level (*C. lupus*) as endangered throughout the lower 48 states and in Mexico. A wolf recovery team for the northern Rocky Mountain region was appointed in 1974, and a recovery plan was approved in 1987.

In 1995 and 1996 the USFWS reintroduced 66 wolves from Alberta and British Columbia into the wilderness areas of central Idaho and YNP as nonessential, experimental populations (59 FR 60252) under ESA Section 10(j) with the goal of reestablishing a sustainable gray wolf population in the northern Rocky Mountain states of Wyoming, Idaho, and Montana. At the end of 2002, there were 663 wolves, including 43 breeding pairs (284 individuals in the Central Idaho Recovery Area, 271 in the Greater Yellowstone Recovery Area, and 108 in the Northwest Montana Recovery Area). This was the third year in which there were 30 or more breeding pairs documented in the overall recovery area.

The USFWS determined that the reintroduced wolves in the northern Rocky Mountain region would comprise an experimental, nonessential population. At the same time, the USFWS established a rule under ESA Section 4(d) that gives the USFWS flexibility in responding to wolf-human conflicts outside the experimental population areas. The 4(d) rule allows landowners and permittees who have federal grazing allotments to non-injuriously harass wolves without a permit, injuriously harass wolves with a permit, or kill a wolf that is in the act of either attacking livestock or herding an animal.

The USFWS defined a recovered wolf population in the northern Rocky Mountain Recovery Area as one that contains at least 30 breeding pairs of wolves (an adult male and female raising two or more pups-of-the-year until December 31), with an equitable and uniform distribution throughout the three states for 3 consecutive years. The USFWS found that 2002 was the third year in which at least 30 breeding pairs of wolves inhabited the Northern Rocky Mountain Recovery Area and the population of 663 wolves had achieved biological recovery objectives. If the wolf population remains at least at current levels and distribution, and state management plans are developed, the USFWS may publish its proposal to delist gray wolves in the northwestern United States.

On April 1, 2003, the USFWS officially identified three DPS of gray wolves in the lower 48 states: Eastern DPS, Western DPS, and the Southwestern DPS. To qualify as a DPS, a group of vertebrates must satisfy criteria of both discreteness and significance. The USFWS found that (1) each of these segments comprised a group of wolves geographically separated from the other groups, hence they were *discrete* and (2) each of these groups demonstrated unique evolutionary lineages and the loss of any one would result in a substantial range gap, hence they were *significant*. The USFWS concluded that these three DPSs represent separate *reservoirs of diversity* and thus warrant reclassification reflecting this uniqueness.

The Western DPS completely encompasses California, Idaho, Montana, Nevada, Oregon, Washington, Wyoming, Utah north of U.S. Highway 50, and Colorado north of Interstate 70. Wolves that are part of an experimental population are not included in the DPS. When the USFWS established the nonessential, experimental populations in the Northern Rocky Mountain area, the rule stated that this status would not be changed until the wolf populations were delisted. Thus, there are two classifications based on geography in the Northern Rocky Mountain area – the Western DPS and the nonessential, experimental populations. With downlisting, all of the wolves in the Northern Rocky Mountain area are managed under almost identical rules, the 4(d) rule applied to the Western DPS and the regulations applying to the experimental population.

The rule reclassifying gray wolves into three DPSs also downlists wolves in the Eastern and Western DPSs from endangered to threatened, except where they were already listed as threatened or as an experimental population. Wolves in the Southwestern DPS retained their endangered status. At the same time, the USFWS established a rule under ESA section 4(d) that applies to wolves listed as threatened in the Western DPS.

Wolves are currently listed in Wyoming as predatory animals and may be taken any time of year without limit. However, because of their status under the ESA, wolves are not currently managed pursuant to

Wyoming statute and regulations. The WYNDD has assigned the gray wolf the rank of G4/S1, meaning it is critically imperiled (WYNDD 2010a). Wolves in Wyoming are currently managed primarily by the USFWS, the National Park Service, and U.S. Department of Agriculture (USDA) Wildlife Services.

Wyoming published a Final Management Plan in preparation for satisfying the requirements of the Northern Rocky Mountain Recovery Plan for delisting. The plan established a dual status for gray wolves in Wyoming of trophy game animal and predatory animal, depending on the location of the pack or individual. Specifically, if there were 15 packs in Wyoming (eight packs in YNP, Grand Teton National Park, and John D. Rockefeller, Jr. Memorial Parkway, and seven packs in the rest of Wyoming), then wolves would be trophy game animals in YNP, Grand Teton National Park, the John D. Rockefeller, Jr., Memorial Parkway, and contiguous wilderness areas (Absaroka-Beartooth, North Absaroka, Washakie, Teton, Jedediah Smith, Winegar Hole, and Gros Ventre). Wolves outside these areas would be classified as predatory animals. However, the USFWS rejected the delisting petition in January 2004 due to the inadequacy of Wyoming's plan to protect wolves.

On February 8, 2007, the USFWS published a proposed rule to establish a DPS of the gray wolf in the Northern Rocky Mountain region of the United States and to remove the gray wolf in the Northern Rocky Mountain DPS from the List of Endangered and Threatened Wildlife under the ESA of 1973 (74 FR 62 Page 15123-15188).

In 2009, the USFWS announced the *Final Rule to Identify the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment* to revise the List of Endangered and Threatened Wildlife (74 FR 62 Page 15123-15188). The population estimate for 2008 indicates the Northern Rocky Mountain DPS contains approximately 1,639 wolves (491 in Montana, 846 in Idaho, 302 in Wyoming) in 95 breeding pairs (34 in Montana, 39 in Idaho, 22 in Wyoming). These numbers are about five times higher than the minimum population recovery goal and three times higher than the minimum breeding pair recovery goal.

As of 2012, population and distribution recovery goals for the gray wolf have been exceeded for 10 consecutive years. On August 30, 2012, the USFWS (2012) announced that the Wyoming population of gray wolves is recovered and no longer warrants protection under the ESA. USFWS issued a Final Rule delisting gray wolves in Wyoming, effective September 30, 2012 (74 FR 77 page 55530-55604), and returning management to the State. Because of litigation threats raised from the delisting and subsequent State management of the gray wolf, this document will continue to address impacts to the gray wolf from the Proposed RMP.

4.3.2 Life History

The gray wolf is the largest of the wild canids. It has a long bushy tail and erect, slightly rounded ears. Its legs are longer, feet larger, and chest narrower than a dog of similar size. The wolf has long, thick, coarse fur that is typically grizzled gray but can vary from black through white. The most common pelt colors in the northern Rocky Mountains are grizzled gray and black. Average height at the shoulders is 26 to 32 inches; length (nose to tip of tail) is 4.2 to 5 feet, with some individuals approaching 6 feet; and weight is 79 to 90 pounds for females and 90 to 110 pounds for males.

Wolves are opportunistic predators that feed primarily on ungulates, although they will also take beavers and other small mammals. In YNP and adjacent areas, elk have been the primary ungulate taken (more than 85 percent of documented kills have been elk), followed by bison (2 percent of kills), deer (2 percent), moose (less than 0.5 percent), and pronghorn (less than 0.5 percent). Most elk killed in the Greater Yellowstone Area (GYA) were calves, adult females, or individuals with low marrow fat, and the adults killed were older than the mean age, by sex, within the general elk population. In Riding

Mountain National Park, Canada, elk were the main food base. The kill rate per wolf was one elk per 14 days. The kill success rate varies seasonally. In the GYA from November 15 to December 15, when elk are in good condition, the kill rate is lower than in March, when elk are in poor condition.

4.3.3 Habitat Requirements

Wolves are habitat generalists and historically occupied most habitats in the northern hemisphere including all of Wyoming, and populations flourished in areas with plentiful large prey. The presence of abundant prey, which in Wyoming is elk, and relatively low levels of human activity are the main habitat requirements for wolves.

In the Bow River Valley in Alberta, Canada, use of habitat types was related to human use levels and habitat potential. Alienation of wolves occurred when more than 10,000 people per month used an area, regardless of habitat quality. Wolf use patterns were altered at lower human use levels as well.

In the Central Rocky Mountains of Canada, wolves were affected by topographic complexity and elevation. Wolves converged in broad river valleys in winter, where movement was less restricted by snow and elk converged. Human activities associated with highways, roads, and other linear corridors cause fragmentation of wolf ranges and result in wolf death. Persistent occupancy of wolves is usually ensured at road densities below approximately 0.4 mile. (Road density is the measurable manifestation of human activity, and the mortality of wolves is caused by humans using the roads, rather than road density.) Roads with low use can provide travel corridors for wolves. Wolves also appear to avoid snowmobile activity.

Wolves do not tolerate human activity near dens and pups, although researchers have been able to make observations without disturbing the animals. Disturbance can cause desertion of home sites. Dens within 1.5 miles of roads or campgrounds were used by wolves, and wolves may be adapting to human activity and disturbances. The first wolf den found in recent years consisted of five den openings on a flat, forested knoll adjacent to a meadow. The den openings were hidden in Engelmann spruce, Douglas-fir, and lodgepole pines; the meadow was thought to be used as a rendezvous site. Dens in northwest Montana and the Canadian Rocky Mountains are typically located in valley bottoms and lower slopes with flat to moderate slopes; on south and east aspects; on depositional landforms; at sites close to trails, far from human habitation and activity; and close to meadows and other openings. Dens are frequently used repeatedly, and thus den sites represent an important habitat element for wolves.

4.3.4 Regional and Local Distribution

As recently as the mid-1800s, gray wolves existed throughout most of North America, exclusive of the Gulf Coast region where the red wolf (*Canis rufus*) was found. Wolves were present throughout the northern Rocky Mountain region before colonization by Europeans, which resulted in reduction of native ungulate populations, introduction of livestock, and persecution of wolves. 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. In 1985, a pack of 12 wolves crossed the border from Alberta to Glacier National Park. Breeding was documented in 1986, for the first time in 50 years in the United States, and by 1992 at least 50 individuals were known to reside in at least 4 packs along the continental divide of Montana. Wolves were documented in Idaho beginning in the early 1980s. Before reintroduction, lone wolves have ventured into the GYA on a number of occasions, and a single wolf was documented in northwestern Wyoming in 1992.

After many years of effort and planning, wolves were reintroduced into the GYA in 1995 and 1996. This effort targeted large tracts of federal public lands (YNP and the surrounding national forest) 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. Numerous sightings of wolves suggest that they roam over much of western Wyoming. The known distributional extent of these wandering wolves is the Big Horn Mountains and Ten Sleep, Wyoming, to the east; Morgan, Utah, to the south; and into Idaho to the west. Wolves have been sighted southwest of Meeteetse and around Worland and Thermopolis. Wolves are also routinely seen around Kemmerer, Cokeville, and Lander, and have shown up east of Rock Springs. In these southern portions of the Red Desert, the wild prey density is very low and cattle and sheep density is higher; the wolves switch to the available prey and conflicts result.

The *Wyoming Wolf Recovery Annual Report*, released in 2009, shows that more than 320 gray wolves in more than 44 packs (more than 27 breeding pairs) inhabited Wyoming, including YNP. The wolf population increased statewide by approximately 6 percent, making 2009 the seventh consecutive year that the wolf population in Wyoming has exceeded the numerical, distributional, and temporal recovery goals established by the USFWS. The wolf population in Wyoming (outside YNP) increased by approximately 26 percent, consisting of more than 224 wolves in more than 30 packs, of which more than 21 breeding pairs produced more than 89 pups that survived through December 31, 2009. Average pack size was 7 wolves per pack and average litter size was 4.1 pups per litter. Wolf numbers in YNP declined by approximately 23 percent, with 96 wolves living in 14 packs, of which 6 breeding pairs produced 23 pups that survived through the end of the year. Average pack size in YNP was 7.1 wolves per pack (Jimenez et al. 2010).

In the planning area, one gray wolf pack has consistently maintained a home range since 2000, and a second pack has had part of its home range in the area. In 2003, there were two pack home ranges mapped at the west end of the planning area. As identified in the *Final Statewide Programmatic Gray Wolf Biological Assessment* (BLM 2004a), these home ranges encompassed approximately 3,889 acres. However, lone wolves have also been sighted in a number of locations in the planning area, including south and west of Lander on the front range of the Wind River Mountains.

4.3.5 Threats

Human-caused mortality, including legal and illegal harvest, depredation control, and vehicle collisions, is the largest cause of gray wolf mortality and is the only source of mortality that can extensively affect wolf populations at recovery levels. In the GYA, of twenty documented wolf mortalities in 2000, nine were human-caused (six control actions, two vehicle collisions, and one illegal take), six resulted from natural causes, and five were of unknown cause. Researchers have found that if annual mortality exceeds 30 to 40 percent, population growth of wolves may be suppressed. The response of wolves to humans is variable, as can be expected in a long-lived animal with a large degree of social transmission. Wolves are sensitive to human predation and harassment, which both influence the distribution and survival of wolves. However, human-caused mortality is consistently noted as the problem.

In unexploited populations, annual mortality is 45 percent for yearlings and 10 percent for adults. Intraspecific conflict between neighboring packs, starvation, disease, and injury are the primary causes of mortality. However, natural mortality does not regulate populations in the northern Rocky Mountains.

Flexible food habits, high annual productivity, and dispersal capabilities enable wolves to respond to natural and human-induced disturbances. These traits confer a high degree of resiliency on wolves. Wolf distribution will ultimately be defined by the interaction of wolves' ecological requirements and human tolerance, not by artificial delineations that are administratively determined. In short, ungulate abundance and distribution and human settlement patterns will define wolf habitat. Loss of habitat is a trend to be expected as human populations increase and more development occurs. The network of public lands in western Montana, central Idaho, and northwest Wyoming facilitates connectivity between the three sub-populations and the public lands in the rest of the Rocky Mountain west will provide dispersal routes. Wolf populations will fluctuate as a result of management actions, natural mortality, legal harvest, illegal take, wolf productivity, and ungulate population fluctuations.

Other important factors are stochastic – fire, weather (drought and/or hard winters), and disease. These unpredictable and often uncontrollable factors can create unforeseen circumstances and effects on recovering wolf populations. The Yellowstone fires of 1988 took out old growth, which caused a decline in the moose population. The hard winter of 1996–1997 caused a decline in the elk populations, as has the current drought.

Disease can present a surprising vulnerability. In the early 1980s the introduction of a human-introduced canine parvovirus to the wolves at Isle Royale caused a crash in the wolf population from 50 to 14 animals in a period of 2 years. The transmission of disease from domestic dogs (e.g., parvovirus) is a conservation concern. Sarcoptic mange is an epizootic of concern, and some researchers suggest that it could be a regulating factor in canid populations. Viral infections of concern are distemper and canine hepatitis.

4.4 Greater Sage-grouse

4.4.1 Status

On March 23, 2010, the USFWS identified the greater sage-grouse as candidate pursuant to the ESA (50 CFR Part 17). The greater sage-grouse will remain a candidate species until it is either removed from candidate status because listing is no longer warranted or when a proposed listing regulation is published (USFWS 2010a). The BLM anticipates preparing a programmatic biological evaluation in coordination with both the USFWS and the WGFD to further enhance conservation of the greater sage-grouse (Wyoming Association of Conservation Districts 2010).

In July 2007, Governor Dave Freudenthal developed the Wyoming Sage-grouse Implementation Team (SGIT). On June 28, 2010, the SGIT, with assistance from eight local working groups (LWGs) and substantial input from the public, released a report on the following tasks, which they completed: (1) reassess the Core Population Area maps in light of the most current biological and development information, (2) address the issue of connectivity between populations of geographic importance, (3) recommend a procedure and guidelines for development within Core Population Areas and non-Core Population Areas, and (4) consider needs for research, inventory, and habitat protection. SGIT and LWG efforts have led to development of the same process in other states and it is adaptive to changing realities. More importantly, the results of the effort directly address USFWS concerns related to its listing decision.

4.4.2 Life History

The greater sage-grouse is a large, rounded-winged, ground-dwelling bird, up to 30 inches long and 2 feet tall, weighing from 2 to 7 pounds. It has a long, pointed tail with legs feathered to the base of the toes. Females are a mottled brown, black, and white. Males are larger and have a large white ruff around their neck and bright yellow air sacks on their breasts, which they inflate during their mating display. The birds are found at elevations ranging from 4,000 to more than 9,000 feet and are highly dependent on sagebrush for cover and food (USFWS 2010b).

For greater sage-grouse, clutch size averages seven to eight eggs, and incubation by the female lasts 25 to 27 days. Young can fly when 7 to 14 days old. Populations may be migratory or non-migratory. Leks are located on relatively open sites surrounded by sagebrush. The choice of lek sites may be determined by the quality of adjacent nesting or brood-rearing habitat. During the winter, greater sage-grouse feed on sagebrush. At other times of the year, greater sage-grouse feed on sagebrush, leaves, flowers, and insects. Insects are important food items for newly hatched broods.

Early accounts suggest that this species was once widespread and abundant in many areas of the west, and there are reports of them blackening the sky and being shot by the wagon load (NatureServe 2010). Populations throughout the range experienced serious declines over the last 50 years.

4.4.3 Habitat Requirements

Sagebrush is essential for survival of sage-grouse. Suitable habitat consists of plant communities dominated by sagebrush and a diverse understory of native grasses and forbs. The sagebrush species most important to sage-grouse found in the planning area are Wyoming big sagebrush (*Artemisia tridentata)* at lower elevations and mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*) at higher elevations. The composition of shrubs, grasses, and forbs varies with the subspecies of sagebrush, ecological condition of habitat, and range-site potential. Both quantity and quality of the sagebrush environment determines suitability for and productivity of sage-grouse.

Water is important to sage-grouse and its availability could affect summer distribution. Sage-grouse have been observed in large flocks near water during the autumn migration, watering from 10 to 30 minutes daily. Movements to agricultural lands or high-elevation summer ranges, however, are probably in response to lack of succulent forbs in an area rather than a lack of free water. It has been suggested that sage-grouse do not commonly use water developments even during relatively dry years, but instead obtain moisture from consuming succulent vegetation. Evidence (feathers, tracks, droppings) of sage-grouse, however, can be found at guzzlers and stock tanks throughout the planning area.

Providing for all habitat needs on the scale required by sage-grouse has been the most challenging element of managing sagebrush habitat for sage-grouse. There is debate about how sagebrush communities should be managed to maximize benefits to sage-grouse. All habitat types are important, and an overabundance of one type will not make up for a lack of another. Table 2 summarizes habitat requirements for the greater sage-grouse.

Table 2. Greater Sage-grouse Seasonal Habitat Requirements

Greater Sage-grouse Physiologic Phase or State	Dates	Relative Nutritional Requirement	Vegetation to Meet Requirements	Desired Vegetation Structure
Nesting	Late April to early May	Moderate	Grasses with overhead cover	15 to 25% sagebrush canopy cover with grass understory
Early Brood-rearing	Late May to mid-July	High	Lush grasses, young forbs, and insects	Open stands of sagebrush with good understory
Late Brood-rearing	Mid-July to mid-September	Moderate	Quality herbaceous riparian meadows	Riparian and wet meadows; forbs and grasses adjacent to sagebrush
Wintering	November to March	Low	Mature sagebrush	Sagebrush exposed above snow

Source: WRSW LWG 2007

4.4.4 Regional and Local Distribution

Currently, greater sage-grouse are found in Washington, Oregon, Idaho, Montana, North Dakota, eastern California, Nevada, Utah, western Colorado, South Dakota, and Wyoming and the Canadian provinces of Alberta and Saskatchewan and occupy approximately 56 percent of their historical range (USFWS 2010b).

Approximately 70 percent of the planning area is within the Governor's greater sage-grouse Core Area with an additional 29 percent identified as occupied greater sage-grouse habitat outside of Core Area boundaries. Based on 2012 data, there are 178 documented leks in the Lander Field Office, of which 160 occur within the Core Area boundaries.

According to the Wind River/Sweetwater River Local Sage Grouse Working Group (WRSW LWG), lek surveys in the Lander region showed that in 2006 greater sage-grouse numbers exceeded records (WRSW LWG 2007). Since that time, lek attendance has dropped significantly across Wyoming with the planning area averaging 60 percent fewer numbers since 2006.

Due to the density of sage-grouse leks and high quality habitat, the WRSW LWG recommended that the BLM-administered lands in the Government Draw-Upper Sweetwater area be specially managed to protect greater sage-grouse. This area, encompassing 306,360 acres, will be referred to as the WRSW LWG-nominated management area in this document.

4.4.5 Threats

Evidence suggests that habitat loss, fragmentation, and destruction across much of the species' range have contributed to extensive population declines over the past century (USFWS 2010b). Threats to greater sage-grouse also include hunting, disturbance, life history (e.g., population cycles, genetic diversity), exurban development, energy development, disease, mining, livestock grazing, and climate change (USFWS 2009c).

The USFWS analyzed potential factors that may affect the habitat or range of the greater sage-grouse and determined that habitat loss and fragmentation resulting from wildfire, energy development,

urbanization, agricultural conversion, and infrastructure development are the primary threats to the species (USFWS 2010a). The adverse effects of fragmentation on greater sage-grouse are diverse and include reduced courtship-site persistence, courtship-site attendance, winter habitat use, recruitment, yearling annual survival, and female nest-site choice (USFWS 2010a).

Research examining the effects of energy development (primarily oil, gas, and coalbed natural gas [CBNG]) indicates that greater sage-grouse populations are adversely affected by energy development activities, especially those that degrade important sagebrush habitat, even when mitigation measures are implemented. Impacts can result from direct habitat loss; fragmentation of important habitats by roads, pipelines, and powerlines; and direct human disturbance. Population declines associated with energy development results from abandonment of leks (courtship sites), decreased attendance at the leks that persist, lower nest initiation, poor nest success and chick survival, decreased yearling survival, and avoidance of energy infrastructure in important wintering habitat.

West Nile Virus has been identified as a cause of mortality at a local scale for greater sage-grouse. Reservoirs and water impoundments associated with traditional and CBNG development and livestock grazing can provide benefits to greater sage-grouse, but also create habitat (e.g., breeding grounds) for the mosquitoes that carry West Nile Virus (WRSW LSGWG 2007). Repairing and rebuilding reservoirs may enhance late brood-rearing habitat for greater sage-grouse. Ponds with flooded shoreline vegetation provide breeding habitat for mosquitoes. Properly constructed ponds and a mosquito larva control program would reduce the prevalence of mosquitoes and resulting West Nile Virus.

Rangewide, more than 30 percent of greater sage-grouse habitat has high potential for wind power. The effects of renewable energy development are likely to be similar to those of nonrenewable energy because similar types of infrastructure are required (USFWS 2010a). However, those few sites with most desirable wind conditions are not in sage-grouse habitat. There has been little research to assess the impacts of wind-power generation on sage-grouse. Construction of wind turbines can result in direct loss and fragmentation of habitat and indirect loss of habitat because grouse avoid tall structures (e.g., turbines and power poles). Noise from wind turbines could also disrupt breeding behavior.

Invasive plants are also a range-wide threat to greater sage-grouse habitat because they can out-compete sagebrush and are increasing wildfire frequencies, further contributing to direct loss of habitat. Once established, invasive plants reduce and eliminate vegetation essential for greater sage-grouse to use as food and cover. Sagebrush restoration techniques are limited and have generally been ineffective (USFWS 2010a).

Federal agencies manage most of the greater sage-grouse habitat in the United States. Overall, the ability of these agencies to adequately address the issues of wildfire and invasive plants across the landscape is limited. However, the USFWS believes that new mechanisms could be adopted to target the protection of greater sage-grouse habitats from fire. Energy development and its associated infrastructure are expected to continue. Protective measures and strategic siting of energy developments away from core sage-grouse habitats are needed to reduce this threat into the future (USFWS 2010a).

4.5 Grizzly Bear

4.5.1 Status

In 1975 the USFWS listed the grizzly bear as threatened in the lower 48 states under the ESA. The BLM Wyoming completed the *Final Statewide Programmatic Grizzly Bear (Ursus arctos) Biological Assessment*

in 2005 and updated it in 2006 (BLM 2006). Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate, and unless otherwise referenced, the grizzly bear species information contained herein came from the *Final Statewide Programmatic Grizzly Bear (Ursus arctos) Biological Assessment*.

The Grizzly Bear Recovery Plan (USFWS 1993a) outlines the conditions required for grizzly bears to reach recovery and establishes several demographic (population) recovery targets that must be achieved for a recovered grizzly bear population. Recovery targets are currently being met. The Interagency Grizzly Bear Committee (IGBC) produced the *Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area* (ICST 2007) that defines the primary conservation area (PCA), formerly the recovery zone, and outlines a cooperative management strategy to be implemented by state and federal agencies upon delisting of this population of grizzly bears. This plan is a necessary precursor to delisting. The PCA encompasses 9,200 square miles in southeast Idaho, southwest Montana, and northwest Wyoming. The National Park Service and the USFS manage most of lands in the PCA.

The Wyoming Game and Fish Commission adopted the *Wyoming Grizzly Bear Management Plan* on February 22, 2002 (WGFD 2005). It is in consensus with the conservation strategy developed by the IGBC and provides management plans for areas outside the PCA to ensure the long-term viability of grizzly bears and preclude re-listing; support expansion of grizzly bears beyond the PCA in areas that are biologically suitable and socially acceptable; and manage grizzly bears as a trophy game animal, including allowing regulated hunting when and where appropriate. Subsequently, and in response to concerns by segments of the public that the original plan included extensive amounts of private property where social tolerance for bear occupancy is low, an addendum management proposal was issued to be appended to both the *Wyoming Grizzly Bear Management Plan* and the *Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem.*

On March 29, 2007, the USFWS delisted the Yellowstone DPS of the grizzly bear (Yellowstone grizzly bear) due to robust population growth, state and federal cooperation to manage mortality and habitat, public support for recovery, and the development of adequate regulatory mechanisms (72 FR 14865). Following the delisting, three lawsuits challenging the decision were filed in federal courts in Boise, Idaho, and Montana. On March 26, 2010, the USFWS reinstated the regulatory protections for the grizzly bear as a threatened species in the GYA and surrounding area to comply with a court order (75 FR 30617).

4.5.2 Life History

The grizzly bear is large and powerful, with a massive head, prominent nose, small rounded ears, small eyes, and short tail. The species is recognized in the field by its dished facial profile; prominent shoulder hump; and long, slender, slightly recurved foreclaws, which are twice the length of its hind claws. Dorsal guard hairs of some individuals from western North America are variegated and show a silver tipped or grizzled appearance, hence the name *grizzly*. In North America, pelage color varies from nearly yellow to black and may be any shade of brown.

Grizzly bears in the GYA consume a variety of foods, including whitebark pine seeds; army cutworm moths; ants; earthworms; rodents; spawning cutthroat trout (*Oncorhynchus clarki*); ungulates including young in the spring and summer, winter-killed or winter-weakened animals, bull elk weakened by the fall rut, and wolf kills; gut piles of hunter-killed elk and moose; fungal sporocarps; horsetails (*Equisetum arvense*); graminoids; forbs; berries; roots, especially roots of the biscuitroot; and man-made foods such as garbage, pet food, and livestock. Of these items, ungulates and whitebark pine seeds appear to be

the two most important foods for Yellowstone grizzly bears, followed by army cutworm moths and spawning cutthroat trout.

The grizzly bear diet varies seasonally and yearly depending on the availability of high-quality foods. When preferred foods are not available, grizzly bears will shift to eating lower-quality foods. For instance, grizzly bears consume ants more heavily during years when known high-quality foods are scarce. Ants generally are not an important source of energy for Yellowstone grizzly bears (averaging less than 5 percent of fecal volume at peak consumption), but are likely to become a more important food as currently important foods decline because of disease and regional climate warming. Army cutworm moths are also an important food item for some grizzly bears in July and August.

4.5.3 Habitat Requirements

Grizzly bears occupy a variety of habitats throughout their range. They are highly adaptable and are capable of exploiting different landscapes given their omnivorous generalist lifestyle and intelligence. This indication is further reinforced by the wide range of habitats utilized by any one population.

Occupied grizzly bear habitat in the lower 48 states is characterized by extensive forest cover often interspersed with grasslands and meadows; in Wyoming these habitats are generally above 4,921 feet. Although grizzly bears do not intrinsically require such cover, populations living near developed areas may require the isolation provided by forest cover. Home ranges must encompass a complex of habitat types because the animals move among these habitats seasonally to take advantage of various food items as they become available. In addition, home ranges must include sites suitable for hibernation. Denning sites are most commonly located in the subalpine fir stands on north-facing exposures.

The general pattern of seasonal habitat use in YNP follows plant phenology. Before the growing season, grizzly bears congregate on ruminant wintering grounds. As succulent herbaceous material becomes available, bears concentrate activity at feeding sites in open areas near cover. After the growing season, bears move to moist sites where succulent grasses and forbs remain available. As valley vegetation desiccates, bears move to the lodgepole pine forests to exploit late season foods such as whitebark pine seeds, berries, mushrooms (*Russula* spp.), and smilacina rhizomes.

Yellowstone grizzly bear habitat is characterized by sporadic and widely fluctuating food production primarily controlled by weather. As a result, the natural carrying capacity of the overall habitat fluctuates. During years of low productivity, bears compensate by using a larger area. Mortality is also higher during these periods and fecundity decreases. Estimated mean home ranges of males and females in the GYA are 543 square miles and 174 square miles, respectively. The 14,477-square-mile area available to Yellowstone grizzly bears is roughly six times the size of the average male's lifetime home range and 26 times the size of the average female's lifetime home range.

Foraging areas for grizzly bears are comprised of a mosaic landscape containing different seasonal foods. These areas include elk wintering grounds, calving areas, tributaries of Yellowstone Lake for trout, and whitebark pine forests inhabited by red squirrels. Lush meadows with sedges and equisetum and areas of shrubs for berries are important. For ants, grizzly bears tend to select large ants nested in logs, mostly at low elevations or on southerly aspects where there is abundant, large-diameter, well-decomposed woody debris under an open forest canopy. Grizzly bears feeding on army cutworm moths in the Shoshone National Forest are most often observed feeding on aggregated moths at elevations above 3,350 meters (approximately 11,000 feet) on or near alpine talus with slopes greater than 30 degrees and south and west facing aspects.

In North America, grizzly bear dens may be located in treeless alpine areas, the forest-alpine ecotone, or forest, depending on availability. Grizzly bears select den sites with stable snow conditions for the duration of time required. The typical den documented for grizzly bears in North America is excavated under trees where root systems provide stability for the roof. Grizzly bears likely use the most suitable denning habitat within their home range, but local tradition may play a role in site selection and den construction. The most frequently used denning habitat in the GYA is in subalpine fir forest.

Grizzly bears engage in five kinds of movements – movement to an abundant or preferred food source, localized movement, intensive feeding prior to denning, movement to a den site, and natal dispersal. Movement and activity patterns are influenced by a number of factors, including weather, key food items, breeding, reproductive status, security, and human disturbance, and therefore can be variable within and among populations of grizzly bears.

In the planning area, grizzly bears use habitats distinguished by high (elevation of 9,000 to 10,900 feet) alpine tundra with windswept slopes and mountainous cliffs scattered with erratic dense patches of conifer and aspen. The bare rocky soil along lower draws and ridges and sagebrush grasslands along wide creek bottoms enhance this mountain transition area.

4.5.4 Regional and Local 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 the U.S. Great Plains west of the Mississippi River. Historically, grizzly bears occurred throughout most of Wyoming. Grizzly bear populations have been eliminated from more than 98 percent 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 population in north-central Montana; and the GYA population in eastern Idaho, southwestern Montana, and northwestern Wyoming. 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.

The PCA of the Yellowstone grizzly bear, previously known as the recovery zone, encompasses 14,809 square miles centered on YNP and includes Grand Teton National Park; John D. Rockefeller, Jr. Memorial Parkway; contiguous portions of the Shoshone, Bridger-Teton, Targhee, Gallatin, Beaverhead, and Custer National Forests; and more than 138 square miles of state and private lands in southeast Idaho, southwest Montana, and northwest Wyoming.

The current general 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.

The *Final Statewide Programmatic Grizzly Bear (Ursus arctos) Biological Assessment* (BLM 2006) indicates there are 29,000 acres of the mapped grizzly bear distribution in the planning area based on Schwartz et al. 2002. Grizzly bears are known to occur in the following areas in the planning area:

- The Pole/Bear Creek areas, where there are small BLM parcels.
- Drainages of the East Fork of the Wind River, including lands on the East Fork Big Game Winter Range.
- Horse Creek and Tappan Creek drainages north of Dubois.
- Small parcels of BLM-administered land in the Dunoir Creek and Warm Springs Creek drainages (occasional use only).
- BLM-administered land in the Jakeys Fork of the Wind River (potential use, as there is known use in areas to the north and west of this area).
- USFS lands on the north end of the Lander Slope of the Wind River Range.

Parts of the Lander Slope on the Wind River Range contain grizzly bear habitat including the Lander Slope, Red Canyon, and South Pass areas. There have been recent confirmed sightings of grizzly bear in the Wind River Mountains and foothills southwest of Lander. Given the expanding range and number of grizzly bears and the change in available food sources, it is likely that there will be an increase in grizzly bear occupied habitat during the life of the plan.

4.5.5 Threats

The key reasons for decline of grizzly bears in North America are human-caused mortality and habitat loss. Stochastic environmental events also pose extensive threats to long-term persistence of small isolated populations and are therefore real threats to persistence of the grizzly bear population in Wyoming. A stochastic environmental event can impact a population of grizzly bears by means of direct mortality of bears or indirectly by impacting important food sources and carrying capacity. Researchers are concerned about impacts of future climate warming on two very important foods – seeds of whitebark pine and aggregated army cutworm moths. These two species occur at high elevations and are therefore susceptible to climate warming. Worst-case scenarios predict total elimination of these food sources in the GYA. Replacement sources of high-quality foods are unknown.

Large-area requirements, low reproductive potential, and sensitivity to human disturbance contribute to intrinsic vulnerability in this species. Throughout the entire grizzly bear range, documented human disturbances include helicopter and fixed-wing aircraft flying overhead, hydrocarbon exploration and development, hydroelectric development, timber extraction, recreational activities, and roads and highways. These disturbances may result in displacement and/or disruption of normal behavior patterns such as copulation, movement, denning, foraging, physiological arousal without overt behavioral response, and even direct loss of habitat via avoidance. However, many of these disturbances are not factors for the GYA population of grizzly bears because they do not occur there.

Disturbances associated with roads and developments can displace grizzly bears from quality habitats; however, there is individual variation in road avoidance. Sensitive to disturbances associated with roads and developments, grizzly bears generally avoid areas within approximately 1.9 miles of developments and within 2.5 miles of roads (BLM 2006). Displacement from quality habitats in these areas may prevent dispersal, force bears to use poorer-quality sites, increase intraspecific competition, and may cause social disruption in areas away from developments and roads. Road avoidance may result in higher mortality and lower fecundity of displaced individuals.

4.6 Blowout Penstemon

4.6.1 Status

Blowout penstemon was listed as endangered under the ESA on October 1, 1987 (USFWS 1987). In Wyoming and Nebraska, blowout penstemon's state conservation status is S1, meaning it is critically imperiled (NatureServe 2010). The USFWS commissioned a recovery plan for blowout penstemon in the early 1990s and has been funding basic research into the life history and management needs of this species in Nebraska for nearly 2 decades. The BLM Wyoming completed the *Statewide Programmatic Biological Assessment: Blowout Penstemon (Penstemon haydenii)* in August 2005 (BLM 2005c). Consideration of effects and conservation measures identified in the *Statewide Programmatic Biological Assessment: Blowout Penstemon (Penstemon haydenii)* are included in this BA where appropriate.

4.6.2 Life History

The blowout penstemon is a milky-blue, aromatic, perennial herb with one to many glabrous stems arising from a branched caudex or buried stem nodes. Stems are generally less than 11.8 inches tall with greenish-blue, waxy, linear to lanceolate, entire leaves 1- to 4.75- inches long and 0.1- to 0.5-inches wide. The inflorescence is 2.5- to 6.5-inches long with 6 to 10 compact leafy whorls of milky-blue to pale lavender flowers. Floral bracts are broad and heart-shaped at the base and narrow to an elongate tip. Individual flowers are 9- to 10-inches long with tubular bi-lobed and faintly vanilla-scented corollas and glabrous linear sepals. Anther sacs are 0.07- to 0.08-inches long and glabrous. Fruits are a capsule 0.5- to 0.6-inches long with light-brown, disk-shaped seeds. This species flowers from May to early July and produces fruits from late June to mid-July. Each fruit contains an average of 25 to 35 seeds. Seeds are released in late August to September and are often buried in shifting sand and can remain viable for 20 years. Prolonged wet conditions and abrasion are required for breaking dormancy and seed germination. The plant is primarily an outcrosser (i.e., it transfers genes from one plant of the same species to another plant of the same or closely related species), although studies show that it is potentially self-fertile.

4.6.3 Habitat Requirements

The blowout penstemon occurs in *blowouts*, or sparsely vegetated depressions in actively shifting sand dunes created by wind erosion. In Wyoming, blowout penstemon primarily occurs on steep north-facing slopes of active blowout-like sand dunes with sparse cover of blowout grass, thick spike wheatgrass, lemon scurfpea, and occasional rubber rabbitbrush. Plants are not evenly distributed throughout their habitats but are found in sparse, nonrandom clusters.

4.6.4 Regional and Local Distribution

There are two known endemic populations of the blowout penstemon in the United States, one in the sand hills of west-central Nebraska and the second in the northeastern Great Divide Basin in the Ferris Dunes area of Carbon County, Wyoming. Currently, only 3,000 to 5,000 plants are found in Nebraska at approximately 13 sites.

The Wyoming population was first discovered in 1996 and includes at least eight main subpopulations occupying about 80 acres within a 5-square-mile area. Based on surveys in 2000, the total Wyoming population is estimated at 4,150 to 5,840 individuals. The largest population in the state (and apparently the world) occurs on the south slopes of Bear Mountain and adjacent to Junk Hill, numbering

3,950 to 5,540 plants in July 2000. The Bradley Peak population, estimated at 300 to 500 plants in 1999, apparently declined to 200 to 300 individuals in 2000. Additional surveys in other areas for the species were conducted in 2002, and no additional populations were found. Intensive surveys were conducted by WYNDD in potential habitats throughout the planning area during the 2002 and 2003 field seasons.

In 2000, surveys in suitable habitat located south of Green Mountain were conducted and no plants or populations were found. According to the most recent survey in 2008, occurrences in Wyoming include 3 occurrences in multiple dunes or dune complexes (Heidel 2008). Partial population counts had a peak tally of over 17,000 plants in 2005, followed by over 8,000 plants in 2006. Population's numbers appear to have peaked in 2005, and preliminary interpretation of 2004–2006 census data indicates that overall trends are stable or increasing slightly (Heidel 2008). By 2006 the dune habitat had become extensively destabilized, signifying both new potential habitat and lost occupied habitat. All known occurrences in Wyoming are on federal or state lands managed for multiple use (Heidel 2008).

No populations of blowout penstemon are known to occur within the planning area; however, this species does occur in the neighboring BLM Rawlins planning area.

4.6.5 Threats

Oil and gas exploration and associated development have the potential to adversely impact the plant's habitats. However, these activities would be avoided in occupied habitat areas. Invasive plants could potentially threaten habitats and populations of penstemon due to weed competition. Weed-control activities have an adverse impact on the penstemon, and use of pesticides could adversely impact the penstemon's pollinators. Off-highway vehicle (OHV) use may have both beneficial and adverse impacts on penstemon and its habitats. OHV activities could ensure continued soil disturbance and erosion, possibly creating new habitats; however, driving over plants could cause plant mortality.

4.7 Desert Yellowhead and Designated Critical Habitat

4.7.1 Status

On March 14, 2002, the USFWS listed the desert yellowhead (*Yermo xanthocephalus)* as threatened rangewide under the ESA (67 FR 11442). At the time of listing, desert yellowhead was threatened by surface disturbances associated with recreation, oil and gas development, mineral extraction, trampling by livestock, soil compaction by vehicles, and invasive plant species.

On March 16, 2004, the USFWS designated critical habitat on 360 acres of federal lands managed by the BLM (69 FR 12278). Within the single critical habitat unit, desert yellowhead occurs in three subpopulations.

In 2005, the BLM and the USFWS completed the *Conservation Agreement, Assessment and Strategy for the Desert Yellowhead (Yermo xanthocephalus)* to identify specific actions that will contribute to reducing threats and provide for the long-term conservation of the species (BLM and USFWS 2005). Implementation of this strategy has reduced some of the threats facing the species.

On February 25, 2010, the USFWS completed the *Recovery Outline for Desert Yellowhead (Yermo xanthocephalus)* (WYNDD 2010b). This document lays out a preliminary course of action for the recovery of desert yellowhead. It serves to guide recovery efforts and inform consultation and permitting activities until a comprehensive recovery plan for this species is developed and approved. Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate. Unless otherwise referenced, the desert yellowhead species information contained

herein came from the Desert Yellowhead Recovery Outline, the Statewide Programmatic Biological Assessment: Desert Yellowhead *(Yermo xanthocephalus)* (BLM 2004b), and the *Desert Yellowhead Biological Opinion* (USFWS 2005a).

In June 2010, a new location of desert yellowhead was discovered in the planning area (Cedar Rim population). The location encompasses 7 subpopulations totaling 0.85 acres in an approximate 20-acre area. The new location is approximately five miles northeast of the original identified population. The BLM and USFWS have agreed to management actions for the new subpopulation. A no surface occupancy (NSO) restriction for mineral leasing will be instituted on 85 acres surrounding the Cedar Rim population and the designated corridor for ROWs will be adjusted so that it falls outside the population and the area covered by the NSO restriction. Unlike management for the original identified population, the Cedar Rim population will not have critical habitat designated and will not be subject to a locatable mineral withdrawal or closed to motorized vehicle use.

4.7.2 Life History

Desert yellowhead is a tap-rooted, hairless perennial herb with leafy stems to 12 inches high. The leathery leaves are alternate, lance-shaped to oval. Flower heads are yellow and are crowded at the top of the stem. Desert yellowhead is thought to be a long-lived perennial that produces sexually by seed and possibly asexually by vegetative buds. The species has been described as a classic K selected species characterized by a long lived perennial growth form, adaptation to severe habitats, and low annual reproductive output (USFWS 2010c).

The life history of desert yellowhead was initially characterized from qualitative field observations and later refined by germination studies that report three stages of seedling development. There were preliminary inferences that flowering levels decline in drought years and that its seeds have capacity for wind dispersal.

4.7.3 Habitat Requirements

The desert yellowhead is restricted to shallow deflation hollows in outcrops of Miocene sandstones and limestones of the Split Rock Formation at its junction with the White River Formation. These wind-excavated hollows accumulate drifting snow and may be more mesic (moist) than surrounding areas. The vegetation of these sites is typically sparse, consisting primarily of low cushion plants and scattered clumps of Indian rice grass *(Oryzopsis hymenoides)*. The newly discovered population (Cedar Rim population) of desert yellowhead is found on sparsely vegetated gravel slopes.

4.7.4 Regional and Local Distribution

Complete population censuses were initiated and conducted from 1995 to 2003. A permanent, survey grid is now in place and has facilitated an annual census of all known individuals.

Desert yellowhead is currently known from two populations of plants, in the planning area; one of which is widely scattered over an area of 50 acres in Fremont County, Wyoming. The first population is restricted to shallow deflation hollows in outcrops of Miocene sandstones and limestones of the Split Rock Formation at its junction with the White River Formation. In recent years, the total population has varied from about 9,000 to 13,000 individuals.

The newly discovered population (Cedar Rim population) of desert yellowhead encompasses 7 subpopulations totaling 0.85 acres in an approximate 20-acre area. The new location is approximately five miles northeast of the original identified population and occurs in sparsely vegetated gravel slopes.

4.7.5 Threats

The following paragraphs come primarily from the USFWS's *Recovery Outline for Yermo xanthocephalus (desert yellowhead)* (WYNDD 2010b), with new information added.

Small Population Size. An inherent vulnerability for desert yellowhead is its small population size and restricted distribution. Two populations are known to occur in the planning area. One population occurs on 50 acres in southern Fremont County, Wyoming. This species physically occupies an area of 8.33 acres. Population numbers have ranged from 9,293 to 13,244 individuals in recent years. The second population encompasses 7 subpopulations totaling 0.85 acres in an approximate 20-acre area. While small population size remains a substantial issue of concern, there is no evidence that the plant has occurred in substantially larger numbers any time in the recent past.

Destruction or Modification of Habitat. At the time of listing, oil and gas development was the most severe and immediate threat to desert yellowhead populations through habitat destruction. In 1997, the BLM granted a lease for oil and gas development on a 1,160-acre tract (designated WYW140702) that encompasses the desert yellowhead population. In May 1996, the same operator purchased a lease on an adjacent tract of 2,080 acres WYW138846). Applications for four permits to drill also were filed, and two were permitted in 1998 on pre-existing wellpads. These leases were for a 10-year period and were allowed to expire in 2006 and 2007 without being developed or disturbed.

Mineral Extraction. The area also has locatable mineral resources such as gold and uranium. Private parties can stake a mining claim, explore for, and extract locatable minerals in accordance with the 1872 General Mining Law. Such activity could jeopardize the known populations of desert yellowhead. In January 2008, a 20-year locatable mineral withdrawal on 360 acres (critical habitat) was completed (73 FR 5586).

Invasive Species. Desert yellowhead occurs on relatively barren sites with less than 25 percent total vegetative cover and may be intolerant of competition. Competition from plants not native to the area would pose a greater threat than competition from species with which desert yellowhead has evolved. To date, no nonnative plants have been identified in the area where desert yellowhead occurs. Invasive species could be introduced to desert yellowhead habitat by domestic livestock, native ungulates, on the tires of vehicles during illegal use of the area, or on footwear or clothing of humans visiting the area. This threat will likely be ongoing. However, the BLM's conservation actions involving closure of the area to foot and OHV traffic have reduced the level of this threat to moderate to low levels.

Livestock and Wild Ungulate Grazing. Livestock and wild ungulate grazing may present a threat to Desert yellowhead individuals and habitat quality. The critical habitat area is within an existing grazing allotment. Domestic and wild ungulate herbivory exerts considerable impact on structure and composition of native plant communities. Livestock, in particular, have been recognized as agents of detrimental change in the composition, structure, and development of plant communities. In the past, herbivory by wild ungulates was considered to have little or no impact to plant community composition and structure, but now is recognized as an ecological force in ecosystems.

OHV Use. Recreational OHV use presents a threat to desert yellowhead through the crushing of plants, destruction of seeds, and compaction or erosion of soil. This threat is greatest in the spring and summer when plants are in flower or heavy with fruit.

4.7.6 Designated Critical Habitat

On March 16, 2004 (69 FR 12278–12290), the USFWS designated critical habitat for the desert yellowhead in Fremont County, Wyoming, within the planning area. Within critical habitat, three primary constituent elements necessary for the conservation of desert yellowhead have been identified:

> "(1) Recent soils derived from sandstones and limestones of the Split Rock Formation at its junction with the White River Formation. These are shallow, loamy soils of the Entisol order that can be classified as course-loamy over sandy-skeletal, mixed, Lithic Torriorthent. The surface stratum has little organic matter and subsurface layers show no accumulation of huymus, clay, gypsum, salts, or carbonates.
>
> (2) Plant communities associated with desert yellowhead that include, but may not be limited to, sparsely-vegetated cushion plant communities with scattered clumps of *Oryzopsis hymenoides* (Indian rice grass) between 2,043 and 2,073 m (6,700 and 6,800 ft) in Fremont County Wyoming. Species common to these communities include *Arenaria hookeri* (Hooker's sandwort), *Astragalus kentrophyta* (thistle milkvetch), *Hymenoxys acaulis* (stemless hymenoxy) and *Phlox muscoides* (squarestem phlox). These cushion-plant communities also contain natural openings.
>
> (3) Topographic features/relief (outcroppings, cliffs, and hills) and physical processes, particularly hydrologic processes, that maintain the shape and orientation of the hollows characteristic of *Yermo xanthocephalus* habitat (through microscale dynamics of local winds and erosion) and maintain moisture below the surface of the ground (through sheet wash from the adjacent outcroppings, cliffs, and hills)."

The designated critical habitat encompasses the original desert yellowhead population and is approximately 360 acres of federal lands managed by the BLM in the Beaver Rim area. Unoccupied habitat was not designated. Within the single critical habitat unit, desert yellowhead occurs in three subpopulations. Critical habitat will not be designated for the Cedar Rim population of desert yellowhead discovered in 2010.

4.8 Ute Ladies'-tresses

4.8.1 Status

On January 17, 1992, the USFWS listed the Ute ladies'-tresses (*Spiranthes diluvialis*) as threatened in the lower 48 states under the ESA. The BLM Wyoming completed the *Final Statewide Programmatic Biological Assessment Ute Ladies'-tresses* in 2005 with final edits in 2007 (BLM 2007). Consideration of effects and conservation measures identified in the assessment are included in this BA where appropriate. Unless otherwise referenced, the Ute ladies'-tresses species information contained herein came from the *Final Statewide Programmatic Biological Assessment Ute Ladies'-tresses*.

The Natural Heritage rank is G2 and S1, meaning that the species is imperiled because of rarity on the global level (often known from 6 to 20 locations) and critically imperiled because of extreme rarity on the state level (known from 5 or fewer occurrences). The WYNDD lists the Ute ladies'-tresses as sparse and a High Conservation Priority.

4.8.2 Life History

Ute ladies'-tresses is a perennial plant with stems 8 to 19 inches tall, arising from tuberous-thickened roots. Basal leaves are linear, up to 0.4 inches wide and 11 inches long. Leaves are small and number higher up the stem. The species is characterized by a flowering stalk 1.2 to 5.9 inches long with numerous small, ivory white flowers arranged in a helix at the top of the stem. The lip petal is oval to lance-shaped, narrowed at the middle, and has wavy margins. Sepals are separate or fused only at the base and often spread at their tips. In general, Ute ladies'-tresses blooms from late July to early September; however, it does not necessarily flower every year. The peak of flowering occurs in Wyoming around August 10, but flowering depends on temperature and moisture. It reproduces by seed only.

4.8.3 Habitat Requirements

Ute ladies'-tresses occurs primarily in seasonally moist peat, sand, silt, or gravel soils near wet meadows, springs, lakes, ponds, or perennial streams. Ute ladies'-tresses establishes in open grass- and forb-dominated riparian areas that are not particularly dense or overgrown. Ute ladies'-tresses seems generally intolerant of shade, although a few populations in eastern Utah and Colorado occur in riparian woodlands. Most populations occur as small, scattered groups occupying relatively small areas within the riparian system. Populations occur in mesic or wet meadows near riparian edges, gravel bars, and old oxbows along perennial streams at elevations ranging from 4,000 to 7,000 feet. Most sites are sub-irrigated and seasonally flooded, remaining moist into the summer.

Ute ladies'-tresses is well-adapted to periodic disturbances from stream movement and grazing. It is known to establish in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms.

4.8.4 Regional and Local Distribution

Populations of Ute ladies'-tresses occur in southeastern Wyoming, western Nebraska, north central Colorado, northeastern and southern Utah, east central Idaho, southwestern Montana, and central Washington. Nine populations of the Ute ladies'-tresses occur in Wyoming at eight sites in Goshen, Laramie, Converse, and Niobrara counties.

- Three populations on BLM-administered lands in northwest Converse County (Casper Field Office): a small population along a tributary to Antelope Creek, a tributary to the Cheyenne River; a population along North Wind Creek, a tributary to Antelope Creek; and a population along Stinking Water Creek, a tributary of Sand Creek, which is a tributary to Antelope Creek.
- Two populations on state lands: one population along Bear Creek in southwestern Goshen County (Casper Field Office) and a second population along Bear Creek in north-central Laramie County (Rawlins Field Office).
- A large population along the Niobrara River near McMaster's Reservoir in southeastern Niobrara County (Newcastle Field Office) on private land.
- Two populations along Sprager Creek in Laramie County (Rawlins Field Office) on private lands.
- Another population on private lands in the Horse Creek watershed in Laramie County (Rawlins Field Office).

These populations were all discovered between 1993 and 2005. They are monitored on a limited basis and appear to be stable. Mowing occurs on at least four of the sites and grazing occurs on all of the sites and appears to have only minor impacts on the populations. In fact, the combination of mowing and grazing appears to benefit Ute ladies'-tresses on the private parcels. The populations that are not on BLM-administered land do not have any mineral estate under them.

Although the remaining seven field office management areas have been inventoried to various amounts, presence of Ute ladies'-tresses has not been confirmed on BLM-administered land or nonfederal lands in these areas. However, Ute ladies'-tresses has been found on nonfederal surface lands in the Newcastle and Rawlins Field Office areas. As further surveys are conducted, previous and current factors affecting areas with Ute ladies'-tresses will be addressed on a case-by-case basis.

Because it may not flower or emerge every year, there may be unknown populations throughout the state. As identified in the *Final Statewide Programmatic Biological Assessment Ute Ladies'-tresses* (BLM 2007), the total number of individuals from known populations in the state is estimated to be approximately 3,000 to 4,000 plants in a total area of about 50 acres, although the population numbers may fluctuate from year to year. Populations range in size from small patches of 12 to 35 individuals to the largest population of 1,000 to 2,000 plants.

These activities may affect the Ute ladies'-tresses in the planning area.

- Subdivision development along rivers (especially along the Wind River near Dubois) that results in habitat fragmentation.
- Sand and gravel operations along river corridors.
- Nonfederal oil and gas and related energy development.
- Livestock grazing on private lands.
- Timber harvesting.

None of these activities occur within occupied Ute ladies'-tresses habitats on BLM-administered lands.

4.8.5 Threats

Ute ladies'-tresses, in general, are not common plants. Most are rare in their distribution. This makes it difficult to assess the stability of any given population. Furthermore, the naturally occurring low population numbers make the species susceptible to localized extinction caused by natural or human-made disasters. Historical accounts typically help realize the population trends, but populations in Wyoming were not discovered until 1993. Although no trend data are available, populations in Wyoming are considered stable. Continued presence/absence surveys and population studies will provide data necessary to quantify statewide trends in distribution and populations.

Changes in large ungulate populations may have affected the distribution of Ute ladies'-tresses. This species likely evolved according to the seasonal presence of large herbivores such as American bison, elk, deer, and bighorn sheep. Changes in these species' distribution could have adversely affected Ute ladies'-tresses populations by removing them during late winter and early spring, possibly leading to a buildup of live and dead vegetation. Additionally, cattle grazing may alter both plant communities and stream ecology. Depending on when a site is grazed, there is the possibility of removing flowering or fruiting stalks. With cattle introduction, there is the risk of invasive plants. Canada thistle, reed canarygrass, and leafy spurge pose threats because they compete with Ute ladies'-tresses.

Herbicides applied to control invasive plants and fertilizers from agricultural fields possibly affect Ute ladies'-tresses. Both direct applications to nearby agricultural fields and runoff from sites upstream have potentially harmful effects on Ute ladies'-tresses. Pesticides applied to nearby sites could affect bumblebee populations, which are the Ute ladies'-tresses primary pollinators.

Development in or near wetlands has had an effect on the distribution of Ute ladies'-tresses. Water diversion, channelization, and irrigation have all affected the species. All of these factors decrease the input of water into riparian systems or completely destroy habitat, thus eliminating potential habitat for this species. Conversely, some irrigated plots have proven to create habitat for Ute ladies'-tresses.

5.0 SPECIES WITH HABITAT DOWNSTREAM (PLATTE RIVER) THAT MAY BE AFFECTED BY WATER DEPLETION RESULTING FROM BLM-AUTHORIZED ACTIONS WITHIN THE PLANNING AREA

5.1 Introduction

Since 1978, the USFWS has taken the position that federal agency actions resulting in water depletions to the Platte River watershed may jeopardize the existence of one or more federally listed threatened or endangered species and adversely modify designated critical habitats (USFWS 2002a). Any federal agency action resulting in an average annual depletion greater than 25 acre-feet requires section 7 consultation.

Three bird, one fish, and one plant species, occurring as residents or migrants in the Platte River watershed (inclusive of major tributaries), have experienced substantial declines in abundance, distribution, and the availability of suitable habitats since the turn of the twentieth century. The primary reasons for these declines are water developments, including dam construction, diversion and consumptive use of water, changes in river flow and channel characteristics, and habitat loss and degradation.

The BLM has historically authorized several types of actions and associated infrastructure within the planning area that may result in water depletion to the Platte River watershed. These actions include the development of livestock watering facilities, reservoirs for recreational fisheries, habitat restoration projects, fire suppression, and oil and gas development. Water depletions are considered a long-term adverse effect because implementation of management actions projected to cause water depletion is anticipated to occur over the life of the plan.

5.2 Whooping Crane and Designated Critical Habitat

5.2.1 Status

The whooping crane is listed as endangered under the ESA of 1973. As of 2004, the North American population was estimated to be 468 individuals, including wild and captive birds. The USFWS designated the reach of the Central Platte River from Lexington to Shelton, Nebraska, as critical habitat for the whooping crane. There is no critical habitat designated in Wyoming.

In 2010, the USFWS initiated a 5 Year Status Review on the whooping crane to ensure that the USFWS classification of the species is accurate (75 FR 59). Information contained in this BA related to the life history, habitat requirements, distribution, and threats of the whooping crane, unless otherwise referenced, came from the *Whooping Crane Spotlight Species Action Plan* (USFWS 2009d) and *NatureServe Explorer: An Online Encyclopedia of Life* (NatureServe 2010).

5.2.2 Life History

Whooping cranes are large wading birds nearly five-feet tall. They are long-living, slow to mature, and do not breed until three to five years of age. The female lays one to three eggs in a slight depression on a mound of grasses and reeds, typically surrounded by water. Whooping cranes form long-term pair bonds, with both parents incubating and caring for the young. They are highly territorial during breeding, but also on the winter range. Breeding begins in early May and both sexes incubate 2,

sometimes 1 to 3, eggs for 33 to 34 days. Nestlings are precocial. Young are tended by both adults, fledge when no less than 10 weeks old (no earlier than mid-August), and remain with parents until following year (dissociate after arrival on breeding grounds). Whooping cranes are sexually mature at four to six years. The whooping crane diet is variable and includes crustaceans, fish, insects, berries, and grains.

5.2.3 Habitat Requirements

Whooping cranes require breeding areas that are largely undisturbed by humans. Whooping cranes typically inhabit marshland interspersed with potholes that have soft, marl bottoms. Strips of shrubs, spruce (*Picea* spp.), tamarack (*Larix laricina*), and willow often separate the pothole wetlands. Whooping cranes require sand or gravel bars in rivers of lakes for nightly roosting. During migration, cranes typically feed in grain fields during the day, and move to protected areas on reservoirs, lakes, and rivers to roost at night. Designated critical habitats are located along the Platte River in Nebraska, between Lexington and Denman, and thus may be affected by water depletions in the Platte River watershed. Habitat during migration and winter includes marshes, shallow lakes, lagoons, salt flats, grain and stubble fields, and barrier islands. Radio-marked migrants roosted primarily in palustrine wetlands, many of which were smaller than 1.24 acres. Migration habitat includes mainly sites with good horizontal visibility, water depth of 12 inches or less, and minimum wetland size of 0.1 acre for roosting.

5.2.4 Regional and Local Distribution

The only viable breeding population of whooping cranes is in and near Wood Buffalo National Park in Canada. The birds migrate south through the Great Plains to winter at the Aransas National Wildlife Refuge and the mid-coast region of Texas. Nonessential experimental populations have been designated in Colorado, Idaho, Indiana, Florida, New Mexico, Utah, and western Wyoming. Whooping cranes are accidental or occasional visitors to Wyoming, but have not been reported for the counties of the planning area.

5.2.5 Threats

Historically, the population decline of whooping cranes was due to habitat loss and shooting in the late 1800s. Although the whooping crane has shown great resilience coming back from a low of 15 birds in 1941 to 247 in 2009, the population continues to face growing threats. Human population growth will continue to reduce and degrade its suitable migration and winter habitat. Known threats are listed below.

- Present or threatened destruction, modification, or curtailment of habitat or range.
- Overutilization for commercial, recreational, scientific, or educational purposes.
- Disease and/or predation.
- The inadequacy of existing regulatory mechanisms.
- Other natural or human-made factors affecting continued existence.
- Extreme climate events, including drought and storms.
- Coastline development on their winter range.
- Human disturbance on the breeding grounds and accidental shooting.

5.3 Interior Least Tern

5.3.1 Status

The interior population of the least tern (*Sterna antillarum*) is listed as endangered under the ESA of 1973. No state conservation status for interior least tern in Wyoming is designated (NatureServe 2010). The USFWS signed a recovery plan for this species in 1990 (USFWS 1990).

Information contained in this BA related to the life history, habitat requirements, distribution, and threats of the interior least tern, unless otherwise referenced, came from the *Recovery Plan for the Interior Population of the Least Tern* (*Sterna antillarum*) (USFWS 1990) and *NatureServe Explorer: An Online Encyclopedia of Life* (NatureServe 2010).

5.3.2 Life History

The least tern is the smallest member in the tern family and is a colonial nester, with breeding colonies typically containing up to 20 nests. Courtship behavior includes chases, vocalizations, and sometimes presentation of a fish to the female by the male. The species lays eggs mostly in May–June (July–August nests probably are renests). Renesting may occur after egg loss associated with heavy rains and/or flooding. Clutch size usually is 2–3 rarely up to 4–5. Incubation usually lasts 20–25 days and is performed by both sexes, but mostly by the female. Hatching success varies greatly and is affected by factors such as weather, tides, predation, and human disturbance; hatching may be high under optimal conditions. Young are tended by both parents, leave nest after a few days, and are brooded for several days. Young fly at about 3 to 4 weeks and are dependent for a few weeks more. Least terns feed on fish, aquatic invertebrates, and crustaceans that they skim from water surfaces.

5.3.3 Habitat Requirements

Interior least terns require unvegetated alluvial sand or gravel bars or islands for nesting. Bare shorelines of saline lakes also are used for nesting. Interior least terns will nest on manmade sites, such as sand and gravel pits and dredge islands. This species eats mainly small fishes (generally less than 3.5 inches long), and sometimes crustaceans or insects, obtained by diving from air into shallow water usually less than 13 feet deep. Interior populations depend almost entirely on cyprinids. Feeding in newly plowed fields has been observed; apparently beetle larvae were being captured.

5.3.4 Regional and Local Distribution

Historically, the interior least tern bred along the river systems of the Colorado, Red, Rio Grande, Arkansas, Missouri (including the Platte River), Ohio, and Mississippi river basins. This region includes the states of Arkansas, Colorado, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, and Texas (USFWS 1985). The species still breeds in this region, but in few locations and in severely reduced numbers. Little is known about their winter range, but it likely extends from the Central American coast through northern South America. Interior least terns do not currently occur in Wyoming (NatureServe 2010).

5.3.5 Threats

The species began to decline at the turn of the century, when the birds' plumes were highly prized for the fashion industry. Current threats to the interior least tern are habitat loss and modification due to

water management for flood control, navigation, and irrigation. Changes in natural water regimes, including the creation of reservoirs, have resulted in the destruction of nesting sand bars and river islands. Stabilization of water levels and the loss of annual scouring flows have favored the development of woody shoreline vegetation, thereby creating unsuitable nesting habitats for the interior least tern. Human disturbance to nesting colonies is also a concern.

5.4 Piping Plover

5.4.1 Status

Piping plovers *(Charadrius melodus)* are divided into three breeding populations: the Northern Great Plains, Great Lakes, and Atlantic Coast populations. The Great Lakes population is listed as endangered under the ESA of 1973 (USFWS 2002b). The Northern Great Plains and Atlantic Coast populations are listed as threatened. Critical habitat is designated for the Northern Great Plains and Great Lakes populations. Observations of this species, part of the Northern Great Plains population, have occurred in Wyoming, but there was no evidence of nesting. Critical habitat for wintering piping plovers is designated.

Information contained in this BA related to the life history, habitat requirements, distribution, and threats of the piping plover, unless otherwise referenced, came from the *Plover Spotlight Species Action Plan* (USFWS 2009e) and *NatureServe Explorer: An Online Encyclopedia of Life* (NatureServe 2010).

5.4.2 Life History

Piping plovers are small shorebirds that are approximately 6- to 7-inches long. They arrive on their breeding grounds in late March to early April. Both sexes incubate the nest of three to five eggs and young are precocial. Migration to the wintering grounds begins in September. Piping plovers feed on marine worms, crustaceans, mollusks, and other invertebrates that they find at the water's edge.

5.4.3 Habitat Requirements

Piping plovers use coastal beaches; river, reservoir, and lake shorelines; and alkali wetlands. They prefer sparsely vegetated areas. In the Northern Great Plains, nesting habitat is typically on wide, protected sand and gravel bars in riverine systems, including islands, and on unvegetated shores of alkali wetland. Habitat occupancy and nest-site fidelity appear to be variable and dependent on hydrologic cycles. The quality of adjacent upland habitats also is also important for maintaining water quantity and quality and protection from disturbance and predators. Designated critical habitat is located along the Platte River in Nebraska, between the Lexington Bridge and the confluence with the Missouri River, and thus may be affected by water depletions in the Platte River watershed.

5.4.4 Regional and Local Distribution

The Northern Great Plains population is the largest and includes southern Alberta, Saskatchewan, Manitoba, eastern Montana, North Dakota, South Dakota, southeastern Colorado, Iowa, Nebraska, and north-central Minnesota. This population was estimated at 5,938 individuals in 2001. The majority of the birds within the United States nest in North Dakota, South Dakota, Nebraska, and Montana. The Atlantic Coast population extends from Newfoundland, southeastern Quebec, and New Brunswick to North Carolina, although the majority of the population nests in Massachusetts, New York, New Jersey, and Virginia. This population was estimated at less than 2,800 birds in 1999. The Great Lakes

population includes the north-central United States and south-central Canada, but currently the approximately 30 breeding pairs are restricted to northern Michigan and northern Wisconsin. All three populations winter on the Gulf of Mexico, the southern Atlantic Coast, and in the Caribbean. Piping plovers are considered accidental or occasional visitors to Wyoming.

5.4.5 Threats

Hunting was the primary cause of the species' decline in the late 1800s. Since the end of market hunting with the Migratory Bird Treaty Act (MBTA), the piping plover briefly recovered, then continued to decline due to habitat changes from human development. Populations are currently threatened by beach development and human disturbance on the Atlantic Coast, as well as along the shores of the Great Lakes and on their winter ranges. The Northern Great Plains population is threatened by habitat changes due to water management for flood control, navigation, and irrigation. Changes in natural water regimes have resulted in the destruction of nesting sand bars and river islands. Stabilization of water levels also favors the development of woody shoreline vegetation, thereby creating unsuitable nesting habitats for the piping plover.

5.5 Pallid Sturgeon

5.5.1 Status

The USFWS listed the pallid sturgeon (*Scaphirhynchus albus*) as endangered under the ESA on September 6, 1990 (55 FR 36641-36647). This species is a bottom-oriented, large rivers obligate inhabiting the Missouri and Mississippi Rivers from Montana to Louisiana and the Atchafalaya River.

Information contained in this BA related to the life history, habitat requirements, distribution, and threats of the pallid sturgeon, unless otherwise referenced, came from the USFWS's *Pallid Sturgeon (Scaphirhynchus albus) 5-Year Review Summary and Evaluation* (USFWS 2007b) and *NatureServe Explorer: An Online Encyclopedia of Life* (NatureServe 2010).

5.5.2 Life History

Within its range, the pallid sturgeon tends to select main channel habitats in the Mississippi River and main channel areas with islands or sand bars in the upper Missouri River. Food habits of this species range from aquatic insects to fish depending on life stage. The species can be long lived with females reaching sexual maturity later than males. Spawning appears to occur between June and August, and females may not spawn each year. Larval fish produced from the spawning event drift downstream from the hatching site and begin to settle from the lower portion of the water column 11 to 17 days post hatch.

5.5.3 Habitat Requirements

This species is a bottom dweller, usually found in areas of strong current and firm sand bottom in the main channel of large, turbid rivers such as the Missouri River. The Lower Platte Habitat Area (from the mouth of the Elkhorn River to the Platte's confluence with the Missouri River) requires the following components: (1) abundance of macro-bedforms in the river, such as sandbars, and (2) a significant springtime rise in the river that provides a spawning cue, nutrient cycling, and reproductive habitat for the pallid sturgeon food base.

5.5.4 Regional and Local Distribution

At the time the pallid sturgeon was listed under the ESA in 1990, the species was known from two small populations of large, old-aged sturgeon isolated by dams surviving in the upper Missouri River, and from various rare collection records from the lower Missouri River and the Mississippi River near Grafton, Illinois, at the mouth of the Illinois River.

The USFWS's *Recovery Plan for the Pallid Sturgeon (Scaphirhynchus albus)* (USFWS 1993b) identified six recovery priority management areas along the Missouri River for implementation of recovery tasks based on most recent pallid sturgeon records of occurrence and the potential of these areas for recovery of the species.

5.5.5 Threats

Historical hydrograph alterations and habitat fragmentation are the primary threats to pallid sturgeon existence, and man-made modifications including bank stabilization projects and water withdrawal projects are current threats to the pallid sturgeon (USFWS 1993b). More information is needed on the evolutionary dynamics of intermediate forms between pallid sturgeon and shovelnose sturgeon to understand if they are natural or if man-made modification has forced an overlap of breeding areas and thus a realized threat (USFWS 1993b). Commercial or recreational harvest of pallid sturgeon is a threat to the species and is prohibited by section 9 of the ESA and by state regulations throughout the range (USFWS 1993b).

5.6 Western Prairie Fringed Orchid

5.6.1 Status

The USFWS designated the western prairie fringed orchid (*Platanthera praeclara)* as threatened under the ESA on September 28, 1989 (54 FR 39857-39863). The western prairie fringed orchid's state conservation status is S1—critically imperiled—for Minnesota, Missouri, Kansas, Oklahoma, and Manitoba, Canada. It is considered imperiled (S2) in Indiana, Nebraska, and North Dakota, and possibly extirpated (SH) from South Dakota.

Since 1989, the USFWS has consistently taken the position in its section 7 consultations that federal agency actions resulting in water depletions to the Platte River watershed may affect the threatened western prairie fringed orchid. Although the western prairie fringed orchid is included by the USFWS as a threatened species that occurs in habitats downstream of the Platte River, it is not a target species for the Platte River Endangered Species Partnership. In addition, critical habitats have not been designated for this species; however, a recovery plan for the western prairie fringed orchid was approved in 1996. Information contained in this BA related to the life history, habitat requirements, distribution, and threats of the western prairie fringed orchid, unless otherwise referenced, came from the Western Prairie Fringed Orchid 5-year Review (USFWS 2006a), and *NatureServe Explorer: An Online Encyclopedia of Life* (NatureServe 2010).

5.6.2 Life History

The western prairie fringed orchid is an herbaceous perennial orchid arising from a fleshy tuber with large and showy inflorescences. Leaves are thickened and smooth, lance-shaped to slightly rounded, sheathing the stem and up to 2 inches wide and 10 inches long but progressively smaller toward the inflorescence. Inflorescences are large and showy with up to 20 or more flowers arranged on a spike

reaching up to 2.5 feet in height. Flowers are creamy white and hooded with the lower of the three petals being larger, three-lobed, and fringed. Plants are generally 15 to 17 inches tall and have thickened, smooth, lance-shaped to slightly rounded leaves with sheathing stems. The western prairie fringed orchid reproduces primarily by seed, with flowering generally commencing between mid-June and late July and seed dispersal (wind and water) occurring in mid-September. Fruit capsules are elongated-oval and about 1 inch in length; they remain green until the end of the growing season and persist on the stem in dried condition, developing vertical cracks from which seeds are dispersed. The species is self-compatible, but pollination is required for fruit and seed production. The western prairie fringed orchid is adapted to pollination by hawkmoths. Seedling establishment depends on mycorrhizae fungi.

5.6.3 Habitat Requirements

The western prairie fringed orchid is associated with sedge meadows, primarily within the tallgrass prairie biome (Nebraska and the Great Plains). Across its range, this species generally is found in fire- and grazing-adapted grassland communities, most often on unplowed calcareous prairies and sedge meadows. The species is most commonly on moist, calcareous or subsaline prairies and sedge meadows (many flooded for a period of 1–2 weeks during the year). The western prairie fringed orchid also has been documented in successional plant communities on disturbed sites. Maintenance of functional dynamic tallgrass prairie is key to survival of species.

5.6.4 Regional and Local Distribution

Historically, the western prairie fringed orchid was found in tallgrass prairies west of the Mississippi River from southern Canada to Oklahoma. The current distribution of this species includes locations in Minnesota, Iowa, Missouri, Nebraska, North Dakota, Oklahoma, and Manitoba, Canada. The western prairie fringed orchid is believed to be extirpated from South Dakota. There are 172 population sites remaining in seven states and one population complex in Manitoba, Canada. The largest populations occur in Manitoba and on the Sheyenne National Grassland in North Dakota. The western prairie fringed orchid does not occur within the planning area.

5.6.5 Threats

The major factor contributing to the decline of this species is the conversion of native prairie to croplands. Properly functioning downstream riparian systems provide conditions favorable for establishing and maintaining riparian-dependent species, such as the western prairie fringed orchid. Any activities that lower water tables below the root zone of the orchids could potentially reduce western prairie fringed orchid populations.

5.7 Impact Analysis and Effect Determination for Platte River Species

Given the rarity of Platte River species and the cumulative effects of water depletions from the Lander Field Office Proposed RMP and other projects, the USFWS has expressed concern about the effect of any water depletion, however small, on water level in the Platte River in Nebraska. Projected development of oil and gas wells and water impoundments, springs, and wells for livestock, fish, and wildlife are anticipated to deplete water in the North Platte watershed.

It is estimated that approximately 133 conventional oil and gas wells, 95 CBNG wells, 15 reservoirs and pits, 15 springs, and 25 water wells could be potentially developed in the Sweetwater watershed during the 20-year planning period. These actions would result in approximately 462 acre-feet of water being depleted under the Proposed RMP during the life of the plan that would affect downstream habitat in the Platte River. Acre-feet of water taken from waterbodies in the Platte River system for wildfire suppression is not possible to predict and depletion actions related to suppression activities would follow the USFWS emergency consultations procedure. Based on the projected water depletions, implementation of the Proposed RMP *may affect, and is likely to adversely affect (LAA)* the whooping crane, interior least tern, piping plover, pallid sturgeon, and western prairie fringed orchid, and designated critical habitats of the whooping crane and piping plover.

5.8 Conservation Measures

For actions projected to deplete water from the Platte River watershed, the BLM will initiate formal consultation with the USFWS prior to activity approval. The BLM will continue to participate in the Platte River Recovery Implementation Program (USBR and USFWS 2006) or current Platte River recovery process.

5.9 Best Management Practices

When developing or improving water sources in the North Platte River watershed, the BLM considers Best Management Practices (BMPs) such as development designs, including water wells and guzzlers, rather than surface impoundments, to minimize impacts on surface water hydrology.

6.0 METHODS AND CONTEXT OF THE ANALYSIS

The Proposed RMP was reviewed to identify projected actions with potential to affect listed species in the planning area. The USFWS and the BLM conferred for additional information on each species and actions occurring within the planning area. Much of the information used in the analyses for this BA was drawn from the BLM Wyoming Statewide Programmatic BAs. In some cases, the BLM, the USFWS, the WYNDD, the WGFD, and other consultants performed ground surveys and inventories as part of other planning documents or projects. Moreover, species recovery plans, action plans, critical habitat designation documents, and conservation plans were reviewed for further information on habitats, occurrences, life histories, and conservation measures.

6.1 Activity Description

Section 7.0 briefly describes each major resource program (e.g., air quality, cultural resources, livestock grazing) occurring on the public lands in the planning area where management actions are identified.

6.2 Impacts Analysis

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

For the purposes of impacts analysis under the ESA, *cumulative effects* are defined as impacts of future state, tribal, and private actions reasonably certain to occur. Future federal actions will be subject to the consultation requirements established in ESA Section 7 and, therefore, are *not* considered cumulative to the proposed action.

Factors considered when analyzing effects 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* on the species of concern. Although impacts on the subject species may be beneficial or detrimental in the long- or short-term, the effects determination of the assessment is based on and controlled by the likelihood of adversely affecting the species. In other words, for a BA, the impact analysis is not an averaging process.

6.3 Effects Determinations

Determinations for each resource program (e.g., air quality, cultural resources, livestock grazing management) are based on the impacts of the management actions, the proposed protections for these actions, and conservation measures committed to by the BLM (see Section 10). BMPs would provide an additional level of protection but are not considered in the effects determination.

Threatened and Endangered Species Determinations. Determination categories for this BA for federally listed threatened and endangered species are defined below.

No effect (NE). The appropriate conclusion when the BLM determines its proposed action will not affect listed species or critical habitats. The principle factors for this determination are that the species or suitable habitat does not exist in the analysis area, or the very nature of the action will not have any effect on an individual or its habitat. In this situation, no further contact with the USFWS is required.

May affect, but is not likely to adversely affect (NLAA-b, -i, -d). The appropriate conclusion when effects on a listed species or its critical habitats is expected to be completely beneficial (-b), insignificant (-i), or discountable (-d). Beneficial effects have contemporaneous beneficial effects without adverse effects to the species or its critical habitat. (For example, there cannot be "balancing," where the benefits of the action would outweigh the adverse effects.) Insignificant effects relate to the size of the impact and should not reach the scale where take occurs. Discountable effects are extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects (USFWS 1998). This type of effect requires informal Section 7 consultation with the USFWS and their concurrence with the determination.

May affect, is likely to adversely affect (LAA). The appropriate conclusion if any adverse effect to the listed species or its critical habitats 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. In the event the overall effect of the proposed action is beneficial to the listed species, but also is likely to cause some adverse effects to even just one individual plant or animal, then the proper effect determination for the proposed action would be *is likely to adversely affect (LAA)*. An *is likely to adversely affect* determination requires formal Section 7 consultation with the USFWS.

Proposed Species (Includes Nonessential Experimental Populations). Determination categories for this BA for proposed species are defined below.

Is not likely to jeopardize 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 species. If this determination were reached, informal conference with the USFWS would be conducted on a case-by-case basis.

Is likely to jeopardize 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 species. If this determination is reached, formal conference with the USFWS is required.

Candidate Species. The ESA Section 7 consultation process is not required for candidate species. However, because the greater sage-grouse has been identified as candidate species, it may eventually become proposed or listed, and there are advantages to addressing candidate species as though they were already proposed for listing. Early technical coordination with the USFWS will also yield some collaborative management advantages. For these reasons, the greater sage-grouse is included in this BA and will be analyzed as appropriate. Determination categories for this BA for federal candidate species are defined below. For the purposes of requesting technical assistance from the USFWS for the proposed action, the following language for candidate species effects determinations will apply.

No Impact (NI). The appropriate conclusion when the BLM determines its proposed action will not impact candidate species or their essential habitat. This is based on the fact that the species habitat is not present and/or the impact would be so minimal that the species would not be affected. If this determination is reached, no coordination with the USFWS is likely.

May impact, but not likely to contribute to the need for federal listing (MI). The appropriate conclusion when the BLM identifies situations in which the proposed action is likely to have an impact on individuals but will not likely impact the continued existence of the candidate species, either local or rangewide populations, and would not contribute to the need for the species to become listed under the ESA. If this conclusion is reached, coordination with the USFWS may be appropriate.

BLM staff reviewed potential actions associated with the Proposed RMP and potential impacts on individual species to identify potential impact to the species if the actions were to occur within suitable habitat for the species.

This BA describes in detail potential actions that may affect listed species. Other potential actions that have been determined to have no effect on a species are not further discussed in detail. Projects and/or activities that have a no effect determination have been found to not occur within species' habitat. In addition, projects and/or activities that will not impact candidate species or their essential habitat are not discussed. Programs that do not have actions located within the habitat of a listed species have been identified as having no effect on that species.

6.4 Coordination and Conservation Measures

Section 7(a)(1) of the ESA requires the federal agency (in this case, the BLM) to utilize all of its authorities in furthering the purposes of the ESA by implementing programs for the conservation of threatened and endangered species. To meet the requirements of section 7(a)(1), the BLM needs to consider conservation programs for the management of threatened and endangered species separate from any consultation requirements for actions affecting other special status species (e.g., BLM-sensitive species or state or federal species of concern). Those conservation programs that are adopted need to be incorporated into the approved RMP. Conservation recommendations serve several purposes, including (1) presenting ways the BLM can assist species conservation in furtherance of statutory responsibilities, (2) minimizing or avoiding the adverse impacts of a proposed action on threatened or endangered species, and (3) identifying and recommending studies aimed at improving the understanding of a species' biology or ecology.

Management of listed threatened and endangered species is addressed by the BLM in four primary ways.

- Through conservation measures, reasonable and prudent measures, and BMPs identified as part of a species listing package recommended in the BO from the USFWS in response to a BA, and through species protection measures determined through collaborative interagency and multidiscipline efforts.
- BLM Wyoming field offices incorporate the *Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities*. These guidelines state that before performing activities in known or suspected habitats, the lessee or permittee is required to perform inventories or studies in accordance with BLM and/or USFWS guidelines to verify the presence or absence of federally listed threatened and endangered species. If 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 include seasonal or activity limitations, or other surface management and occupancy constraints.
- The BLM incorporates *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming* (BLM 1998) (Wyoming Standards for Healthy Rangelands). As stated, the "standards apply to all resource

uses on public lands," while the "guidelines apply specifically to livestock grazing management practices on the 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 federally listed threatened and endangered species. These fundamental goals are achieved through inventory of 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.

- *Special Status Species Management, BLM Manual 6840*, directs field office managers to implement special status species programs within their area of jurisdiction by (1) conducting and maintaining current inventories, including surveys for occupancy of special status species on public lands; (2) providing for the conservation of special status species in the preparation and implementation of recovery plans (with which the 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 if special status species objectives are being met; (6) ensuring all actions authorized, funded, or carried out by the BLM follow the interagency consultation procedures as outlined in 50 CFR Part 402; and (7) ensuring results of formal section 7 consultations including terms and conditions in incidental take statements are implemented. Implementation will ensure that actions authorized by the BLM do not contribute to the need for a species to become listed.

The conservation measures described below in Section 6.5 are intended to minimize adverse impacts likely to result from implementation of the management actions provided in the Proposed RMP. Conservation measures can take three forms as follows: the existing conservation measures in the Proposed RMP (Proposed Protections); BLM-implementation of additional conservation measures that would reduce impacts on listed species; and, an additional group of measures that the BLM will consider implementing that include any appropriate BMPs to further protect the species and its habitats. 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 results in more appropriate management prescriptions.

6.5 Conservation Measures Common to All Species

The following general conservation measures for all listed threatened and endangered species will be applied under all resource programs and are not repeated in this BA under each management program. Conservation measures specific to species are identified in Section 10.0, *Summary of Species-Specific Coordination and Conservation Measures*.

(1) The *Wyoming BLM 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 onsite. 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.

(2) Grazing management will consider threatened and endangered species and their habitats. Grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of federally threatened and endangered species or the conservation of Wyoming BLM designated special status species. Grazing management practices will maintain existing habitats or facilitate vegetation change toward desired habitats by considering the hydrology, physical attributes, and potential for the watershed and the ecological site.

(3) When project proposals are received, the BLM shall initiate coordination with the USFWS at the earliest possible date so the USFWS can advise on project design. This will minimize the need to redesign projects at a later date to include conservation measures determined appropriate by the USFWS.

(4) The BLM will manage all public lands in the planning area to conserve and/or improve the habitats of special status species. The objectives are to prevent the need for listing of species under the ESA and to maintain or improve conservation of special status species habitats.

(5) Water developments and placement of salt and mineral supplements will not be allowed within ½-mile from riparian-wetland areas, within 0.6 mile of the perimeter of greater sage-grouse leks, and on areas being reclaimed.

(6) Proposed habitat expansion, introductions, reintroductions, and translocations of native (including special status species) and nonnative fish and wildlife species would be considered on a case-by-case basis.

(7) Wetland and riparian habitats will be maintained, enhanced, or preserved to provide wildlife habitat, improve water quality, and enhance forage conditions. When planting or seeding vegetation in areas identified as threatened and endangered or special status species habitat, only native species will be selected. There may be occasional authorized use of nonnative species, primarily in the form of a sterile cover crop to facilitate reclamation in DDAs. Refer to Appendix D of the Proposed RMP and Final EIS.

(8) Develop site-specific measures for BLM-authorized activities to protect threatened, endangered, and sensitive species. The BLM will reduce the footprint of development and facilities to protect special status species and their habitats.

(9) Develop and implement protective measures for federally listed species in coordination with the USFWS.

(10) BLM-administered public lands that contain identified habitat for threatened and endangered species will not be exchanged or sold, unless it benefits the species.

(11) The statewide programmatic BAs and BOs authorized for each species, including all reasonable and prudent measures and terms and conditions, will be implemented for the planning area.

(12) Upon designation of special status species, identify distribution, key habitat areas, and special management needs to be used in developing activity plans.

7.0 ANALYSIS OF PROPOSED MANAGEMENT ACTIONS AND EFFECTS

The program analyses discussed below follow a linear process that starts with the resource activity description and concludes with a listing of effect determinations. For the purposes of this BA, this section is divided into a discussion of each major functional resource activity occurring on the public lands in the planning area. For each major activity, a brief description of the resource activity, its interrelated and interdependent actions, and its general occurrence in the planning area is provided. Acres identified throughout this section are calculated using the best available data. The accuracy of numbers directly correlates to how and when data was collected, the completeness of the dataset, and the technology used to collect the data. Numbers presented should be viewed as approximate and impacts related to these numbers as relative.

Following the resource activity description are conservation strategies. These conservation strategies are divided into two categories, as follows: proposed protections identified for the Proposed RMP and BMPs. The proposed protections identified in the Proposed RMP are those protections for the resource that will benefit threatened and endangered species. The BMPs include standard BLM BMPs that could further protect that resource. Determinations for each resource program (e.g., air quality, cultural resources, livestock grazing management) are based on the impacts of the management actions, the proposed protections for these actions, and conservation measures committed to by the BLM (see Section 10).

7.1 Air Quality

The BLM's air quality program includes monitoring efforts in cooperation with the USFS, Wyoming Department of Environmental Quality (DEQ), and the U.S. Environmental Protection Agency (USEPA), and evaluating and restricting surface development. Monitoring for air quality components (i.e., carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, particulate matter, visibility, and atmospheric deposition) is conducted from various facilities around Wyoming. Regional air quality is influenced by the interaction of several factors, including meteorology, climate, the magnitude and spatial distribution of local and regional air pollutant sources, as well as the chemical properties of emitted air pollutants. Air quality management actions typically are associated with limiting, reducing, and monitoring pollutant levels and dust during other BLM-authorized actions.

There are four monitors in the planning area (Lander, South Pass, South Pass City, and Sinks Canyon). The Lander Proposed RMP lists the available air quality monitoring sites in the planning area and in other nearby planning areas. The Wyoming DEQ operates a $PM_{2.5}$ (particulate matter [PM] of 2.5 microns or less) monitor as part of the State and Local Monitoring Site (SLAMS) network in Lander. The SLAMS monitor at South Pass measures ozone, nitrous oxides, PM_{10}, and sulfur dioxide.

The climate in the planning area is designated as a combination of Intermountain Semi-Desert and Southern Rocky Mountain Steppe. Summers are generally short and hot and winters long and cold. Precipitation has historically been low, though greater at higher elevations, and distributed across the year, with the exception of the drier summer months. Wind speeds are variable but strong, helping to disperse air-borne pollutants.

The examination of recent data sets indicates that the current air quality for criteria pollutants in the planning area is considered good overall. Based on measurements within the area, visibility in the planning area is considered excellent. However, the data sets are limited to properly characterize air

quality in the planning area, and it would be prudent to establish additional monitoring sites throughout the planning area. A new air quality monitoring station has been established in the Frenchie Creek area by an oil and gas operator but the Wyoming DEQ has no administrative oversight of the station.

As additional resource development scenarios are considered for the planning area, it would be important to evaluate the impacts that emissions from development sources will have on criteria pollutants, visibility, and atmospheric deposition. The BLM expects to work cooperatively with the Wyoming DEQ, the USEPA, and other federal agencies such as the National Park Service and USFS to address these issues.

7.1.1 Proposed Actions for Air Quality in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for air quality that benefit threatened and endangered species:

- Require dust abatement measures for all BLM-authorized activities. Mandate dust abatement control techniques in identified problem areas.
- Require that all BLM-authorized activities minimize adverse impacts on air quality. Allow air quality impacts up to applicable standards and guidelines.

7.1.2 Best Management Practices

No specific BMPs apply to air quality management.

7.1.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Potentially suitable black-footed ferret habitat exists in the planning area where white-tailed prairie dogs complexes are present. Approximately 98 percent of the planning area has received block-clearance for black-footed ferret surveys within black-tailed and white-tailed prairie dog towns due to the negligible likelihood of a wild population of ferrets occurring. Actions related to air quality management may result in temporary indirect impacts on the black-footed ferret if present. The construction and maintenance of air quality monitoring stations could conceivably cause a direct mortality to individuals if they were above ground during the action and if the operators were negligent and unaware in the conduct of their actions. It is also conceivable the air monitoring equipment could provide a perch for avian predators of the ferret. Requiring dust abatement measures for all BLM-authorized activities, air quality modeling for project level EISs and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS), and use of BMPs to meet air quality goals will benefit this species. Implementing air quality management actions *may affect, but is not likely to adversely affect the black-footed ferret due to insignificant effects (NLAA-i)*. This determination is based on a commitment to implement conservation measures and appropriate BMPs, which minimize and mitigate adverse impacts on the black-footed ferret.

Canada Lynx. Suitable habitat exists for the Canada lynx in the planning area and an LAU is located around the town of Dubois. There is critical habitat for Canada lynx in the planning area; however, the critical habitat is on USFS-managed land, not BLM-administered land. Actions related to air quality management will result in no impacts on lynx behavior, denning habitat, or foraging habitat. Requiring dust abatement measures for all BLM-authorized activities, air quality modeling for project level EISs

and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS), and use of BMPs to meet air quality goals will benefit this species. In addition, closing the entire Dubois area to oil and gas leasing would prevent air quality issues generated from exploration and development activities, benefitting the Canada lynx. Implementation of air quality management actions will have *no effect (NE)* on the Canada lynx. This determination is based on the closure of the Dubois area to oil and gas leasing and the conservation measures in place to protect this species.

Gray Wolf. Requiring dust abatement measures for all BLM-authorized activities, air quality modeling for project level EISs and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS), and use of BMPs to meet air quality goals will benefit this species. In addition, closing the entire Dubois area to oil and gas leasing would prevent air quality issues generated from exploration and development activities, benefitting the gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Suitable sage-grouse habitat, including the Core Area, and lek sites exist in the planning area. The construction and maintenance of air quality monitoring stations could conceivably cause indirect effects to individuals or direct mortality if sage-grouse were present during the action and if operators were negligent and unaware in the conduct of their actions. However, due to the localized nature of this action, the impacts to the overall greater sage-grouse population would be minor. Requiring dust abatement measures for all BLM-authorized activities, air quality modeling for project level EISs and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS), and use of BMPs to meet air quality goals will benefit this species. Implementing air quality management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the lack of impacts due to air quality management actions, the requirements for dust abatement and air quality modeling, and a commitment to implement conservation measures and appropriate BMPs, which minimize and mitigate adverse impacts.

Grizzly Bear. Actions related to air quality management will result in no impacts on grizzly bear behavior, denning habitat, or foraging habitat. Requiring dust abatement measures for all BLM-authorized activities, air quality modeling for project level EISs and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS), and use of BMPs to meet air quality goals will benefit this species. In addition, closing the entire Dubois area to oil and gas leasing would prevent air quality issues generated from exploration and development activities, benefitting the grizzly bear. The construction and maintenance of air quality monitoring stations could conceivably cause indirect impacts on grizzly bears if they were present during the action. Implementation of air quality management actions will have *no effect (NE)* on the grizzly bear. This determination is based on the lack of impacts due to management actions not occurring in grizzly bear habitat, the closure of the Dubois area to oil and gas leasing, and the conservation measures in place to protect this species.

Blowout Penstemon. No blowout penstemon populations have been identified in the planning area; however, potentially suitable habitat exists south of Green Mountain. Blowout penstemon is found primarily on the rim and lee slopes of blowouts and associated steep slopes deposited at the base of foothills. Certain actions associated with air quality management such as dust abatement are unlikely to occur in blowout penstemon habitat. The use of BMPs and air modeling to meet air quality goals could

benefit this species. Implementation of air quality management actions will have *no effect (NE)* on the blowout penstemon. This determination is based on no blowout penstemon populations documented in the planning area and the lack of impacts due to air quality management activities in blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead is currently known from two populations in Fremont County, the original identified population that is over an area of 50 acres and the Cedar Rim population that covers an area of less than 1 acre and is approximately 5 miles northeast of the original population. The USFWS has designated critical habitat within the planning area 5 miles north of where the Sweetwater River crosses U.S. 287. Designated critical habitat overlaps the original population but does not overlap the Cedar Rim population. Conservation measures have been developed as part of the Desert Yellowhead Statewide BA, and the USFWS is planning to begin work on a recovery plan for the species. The designated critical habitat area is closed to vehicle traffic and withdrawn from locatable mineral exploration and development; therefore, air quality impacts from dust generated from motorized vehicles or mining activity will not occur in desert yellowhead habitat. The closest DDA (Beaver Creek) is approximately 6 miles north of the desert yellowhead critical habitat, which could impact air quality in this area. Implementation of air quality management actions *may affect, but is not likely to adversely affect,* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the distance of the Beaver Creek DDA from designated critical habitat and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Typically air quality monitoring stations are not located in riparian habitat. No air quality monitoring stations are anticipated to be constructed near Ute ladies'-tresses potential habitat. Requiring that all BLM-authorized activities minimize adverse impacts to air quality and requiring air quality modeling for project level EISs and EAs in accordance with the Lander Air Resources Management Plan (see Appendix F of the Proposed RMP and Final EIS) could benefit this species. Implementing air quality management actions will result in *no effect (NE)* to the Ute ladies'-tresses. This determination is based on the absence of an air quality monitoring station in riparian habitat, the lack of plans to construct an air quality monitoring station near Ute ladies'-tresses potential habitats, and the current lack of identified populations of this species in the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Actions authorized by the BLM on BLM-administered lands that may affect air quality are anticipated to also occur on state, tribal, or private lands in the planning area. Increased emissions anticipated in the planning area from non-BLM actions are not expected to adversely impact threatened and endangered species in the planning area because the additive effects of these emissions are not anticipated to cause the exceedance of national or state ambient air quality standards.

7.2 Geologic Resources

Several geologic features in the planning area are of special interest because of their unusual characteristics. Selected features are described below.

- The Red Canyon Area about 24 miles south of Lander on Highway 28 offers one of the most accessible and dramatic examples of Laramide-age range-front structures in the Rocky Mountains. The canyon is an erosional feature, sited on the flank of the Wind River Range, which were uplifted during the Laramide Orogeny between 90 and 50 million years ago. Subsequent exposure beginning primarily in the Neogene (about 23 million years ago) and continuing to the present has created the landscape as viewed today.

- The Beaver Rim is a scenic feature that is also geologically important because it represents an unusually complete sequence of Tertiary deposits that are exposed along the slopes of the rim. This sequence includes representative exposures of virtually complete Early Eocene Epoch (approximately 53 million years ago) through Middle Miocene Epoch (approximately 10 million years ago) stratigraphy. This nearly complete sequence is rarely exposed as a unit and is important to the understanding of Wyoming Tertiary geology. Its significance is increased by its proximity to U.S. Highway 287, where travels can easily view the most intact section, which occurs near Green Cove.
- The Dubois Badlands area consists of approximately 4,903 acres of BLM-administered surface with badlands characterized by extensive erosion patterns and colorful soil banding, starting two miles north of Dubois and extending to the east.

7.2.1 Proposed Actions for Geologic Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes no protections for geologic resources that benefit threatened and endangered species.

7.2.2 Best Management Practices

No specific BMPs apply to geologic resource management.

7.2.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the black-footed ferret.

Canada Lynx. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the Canada lynx.

Gray Wolf. The Proposed RMP does not propose management prescriptions for geologic resources. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no impact (NI)* is anticipated on the greater sage-grouse.

Grizzly Bear. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the grizzly bear.

Blowout Penstemon. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the blowout penstemon.

Desert Yellowhead. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the desert yellowhead or designated critical habitat.

Ute Ladies'-tresses. The Proposed RMP does not propose management prescriptions for geologic resources; therefore, *no effect (NE)* is anticipated on the Ute ladies'-tresses.

7.3 Soil

Soils in the planning area are highly variable. Soil characteristics can differ over relatively short distances, reflecting differences in parent material, position on the landscape, elevation, aspect, and local variation in precipitation and temperature.

Reconnaissance level soil surveys cover most of the planning area. These soil surveys include the USDA Natural Resources Conservation Service (NRCS) Cooperative Soil Surveys of Fremont County East and the Dubois Area Soil Survey of 1993; Natrona County Soil Survey of 1997; and Lander Area Soil Survey of 1981, which is in the process of being updated. There is no NRCS soil survey coverage for those portions of the planning area in Sweetwater and Carbon Counties. The planning area includes soils typical of cold, mountainous continental areas with arid, semi-arid, and sub-humid climates.

Soils in the arid, cold desert portions of the planning area can be found in the lowest parts of the Wind River Basin and in a second area known as the Great Divide Basin, most of which is in the Sweetwater County portion of the planning area. Soils in the semi-arid portions of the planning area most commonly formed in mixed alluvium, primarily derived from sedimentary rock.

The existing condition of soil resources in the planning area varies greatly. There are still relatively undisturbed areas. These are typically areas livestock lightly use because of slope steepness or distance from water. Many of the soils types in the planning area are in good condition and capable of producing forage for wildlife and livestock, maintaining watershed integrity, and recovering from impacts associated with surface-disturbing activities. However, historic livestock management, drought, extensive soil erosion, mineral development activities, ROWs, OHV use and other recreational activities, timber harvesting, rangeland improvements, and other activities have affected localized areas in the planning area. Soil compaction resulting from surface-disturbing activities and associated development can reduce infiltration, increase runoff, and hamper reclamation. Reclamation of areas affected by surface disturbance can ensure that the standards for healthy rangelands are met.

Activities associated with soil resources may include assessing erosion rates and soil stability; conducting soil surveys; evaluating erosion condition of soils in the planning area; preventing soil erosion from disturbed areas; establishing successful reclamation or rehabilitation on disturbed areas; closing or reclaiming roads and trails; managing to maintain long-term soil stability; and monitoring, evaluating, and adapting management actions. Under the Proposed RMP, approximately 53,894 acres of short-term disturbance are anticipated to occur from BLM actions, with approximately 42,441 acres being reclaimed, for a total long-term disturbance of 11,453 acres from BLM actions.

7.3.1 Proposed Actions for Soil in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for soil that benefit threatened and endangered species:

- Pursue and support the completion of Order 3 soil surveys and identify areas with low reclamation potential (LRP).
- Develop/adopt a soil interpretation for soil rehabilitation potential. Consider soil suitability for proposed use and soil rehabilitation at the planning and design phase of all BLM-authorized activities.

- Prohibit surface-disturbing activities during periods when soil material is frozen, saturated, or times when watershed damage is likely to occur.
- Require a very detailed site analysis and reclamation plan before development if soil in LRP areas will be disturbed.
- Prohibit surface-disturbing activities on slopes greater than 25 percent. Mineral and realty actions in these areas are subject to CSU stipulations.
- Require that surface-disturbing activities minimize the surface disturbance footprint to the maximum extent possible to limit the areas requiring reclamation. Limit disturbance of desirable vegetative communities established during interim reclamation when implementing final reclamation.
- Consider wildlife habitat objectives in all final reclamation objectives.
- Require that a site-specific interim and final reclamation plan be developed in accordance with national and Wyoming reclamation policies and meeting Reclamation Standards (Appendix D of the Lander Proposed RMP and Final EIS) and approved prior to any BLM-authorized surface-disturbing activity to limit erosion and to facilitate re-establishments of healthy diverse vegetative communities. The type and detail of the reclamation plan will be commensurate with the extent and duration of soil disturbance. For extensive disturbance such as a full-field oil and gas development, a detailed, multi-phase plan such as the CDC plan attached as Appendix G (of the Lander Proposed RMP and Final EIS) will be required.
- Require that during and following reclamation activities, the operator is responsible for monitoring and protecting the reclaimed landscape until final Reclamation Standards have been met. Require follow-up seeding and/or other corrective or remedial erosion-control measures on areas of surface disturbance.
- Require soil stabilization and sediment control in compliance with Wyoming Stormwater Discharge requirements and current BLM Wyoming reclamation policy as given in Instruction Memorandum (IM) WY-2009-022.
- Identify areas with soil disturbance that were not successfully reclaimed. Priorities are determined on a case-by-case basis. Require reclamation in accordance with the Reclamation Standards (Appendix D of the Lander Proposed RMP and Final EIS).

7.3.2 Best Management Practices

No specific BMPs apply to soils management.

7.3.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Soil resource program actions are not likely to affect black-footed ferrets due to the localized nature of soil testing, minimal impacts, and the short duration of time spent doing soil sampling. Some disturbance may result if a soil trench were dug in potential black-footed ferret habitat. Reclamation and rehabilitation will result in short-term disturbance and human activity, but reclamation requirements will result in improved habitat quality in the long term. Long-term surface disturbance from BLM actions would occur on approximately 11,453 acres of BLM-administered surface (less than 1 percent of the planning area). Conservation measures include coordinating with the USFWS for project proposals if potential habitat is present in an area that still requires black-footed ferret surveys. This

may reduce surface disturbance and benefit black-footed ferrets. Approximately 98 percent of the Lander Field Office has been block-cleared by the USFWS for black-footed ferret surveys. Implementing soil-management actions *may affect, but is not likely to adversely affect,* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the localized nature, duration, and minimal impacts of soil management and reclamation, and on existing conservation measures.

Canada Lynx. Actions related to soil management will result in no impacts on lynx behavior, denning habitat, or foraging habitat. Activities associated with soil mapping and sampling may include disturbances that are usually localized and of short duration so as not to disturb lynx. These soil resource related activities in the planning area are mainly in support of other programs. Avoiding soil-disturbing activities in areas with LRP, requiring a site analysis and reclamation plan prior to development in areas with LRP, prohibiting surface disturbance on slopes greater than 25 percent, and managing slopes between 15 and 24 percent with Category 2 restrictions will beneficially impact Canada lynx by maintaining or improving the condition of some habitats for this species. Management actions close the Dubois area, including the ACECs and WSAs, to most soil-disturbing activities, thereby limiting the number of acres of surface-disturbing activities in Canada lynx habitat. These limitations would provide direct benefits to Canada lynx. In addition, short-term surface disturbance from BLM actions would occur on approximately 2 percent of BLM-administered surface, and there would be less than one percent of long-term surface disturbance following reclamation of these actions. Existing conservation measures limit disturbance in each LAU to 30 percent of suitable habitat within the LAU, thereby reducing soil disturbance and adverse effects on lynx. Implementing soil resource management actions *may affect, but is not likely to adversely affect,* the lynx due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts on lynx habitat.

Gray Wolf. Avoiding soil-disturbing activities in areas with LRP, requiring a site analysis and reclamation plan prior to development in areas with LRP, prohibiting surface disturbance on slopes greater than 25 percent, and managing slopes between 15 and 24 percent with Category 2 restrictions will beneficially impact gray wolf by maintaining or improving the condition of some habitats for this species. Management actions close the Dubois area, including the ACECs and WSAs, to most soil-disturbing activities, thereby limiting the number of acres of surface-disturbing activities in gray wolf habitat. These limitations would provide direct benefits to gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Suitable sage-grouse habitat and lek sites exist in the planning area. Actions to alleviate and/or avoid soil erosion may beneficially impact the greater sage-grouse, by limiting alteration of sage-grouse habitat and maintaining the bunchgrasses that provide taller nesting cover. Soil resource program actions are not likely to affect sage-grouse due to the localized nature, short duration, and minimal impacts of soil sampling. Some disturbance may result if a soil trench were dug in or near sage-grouse habitat. Reclamation and rehabilitation will result in short-term disturbance and human activity. Reclamation will result in disturbance due to the length of time it takes to establish sagebrush, but reclamation requirements will result in improved habitat quality in the long term. Avoiding soil-disturbing activities in areas with LRP, requiring a site analysis and reclamation plan prior to development in areas with LRP will benefit greater sage-grouse in those areas, and prohibiting surface-disturbing activities when soil material is frozen or saturated will also benefit greater sage-grouse. The Proposed RMP requires site-specific interim and final reclamation plans be developed in accordance

with Reclamation standards benefitting greater sage-grouse habitat, which covers most of the planning area. In addition, short-term surface disturbance from BLM actions would occur on approximately 2 percent of BLM-administered surface, and there would be less than one percent of long-term surface disturbance following reclamation of these actions. Priority would be given to areas in greater sage-grouse Core Area identified as not meeting the reclamation standards. Implementing soil-management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the localized nature, duration, and minimal impacts of soil sampling and reclamation, limitations on activities in areas with LRP, prohibitions of surface-disturbing activities on frozen or saturated soils material, and on existing conservation measures.

Grizzly Bear. Actions related to soil management will result in no impacts on grizzly bear behavior, denning habitat, or foraging habitat. The actions associated with soil management are relatively small in scope, of short duration, and unlikely to occur in grizzly bear habitat. The construction and maintenance of soil management activities could conceivably cause indirect impacts on grizzly bears if they were present during the action, but the actions associated with soil management are relatively small in scope and of short duration. Avoiding soil-disturbing activities in areas with LRP, requiring a site analysis and reclamation plan prior to development in areas with LRP, prohibiting surface disturbance on slopes greater than 25 percent, and managing slopes between 15 and 24 percent with Category 2 restrictions will beneficially impact grizzly bear by maintaining or improving the condition of some habitats for this species. Management actions close the Dubois area, including the ACECs and WSAs, to most soil-disturbing activities, thereby limiting the number of acres of surface-disturbing activities in grizzly bear habitat. These limitations would provide direct benefits to grizzly bear. Existing conservation measures that require revegetation of existing roads, drilling pads, and other areas with vegetation removed due to authorized activities in occupied grizzly bear habitat would reduce impacts to soils and benefit grizzly bears. Implementing soil management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the limitations on activities in areas with LRP, prohibitions of surface-disturbing activities on frozen or saturated soils material, and on existing conservation measures.

Blowout Penstemon. Activities associated with soil resources are not expected to impact the blowout penstemon in an adverse way. Soil mapping or sampling actions, including soil testing, may result in minimal impacts on blowout penstemon potential habitat due to the short duration of time spent sampling and the reclamation of the disturbance. Management actions that improve habitats through revegetation, reseeding, and other rehabilitation actions may benefit the blowout penstemon habitat; however, it is unlikely that surface-disturbing activities would be allowed in blowout penstemon habitat due to its protection under the ESA. Conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. Implementing soil management actions *may affect, but is not likely to adversely affect*, the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the localized, infrequent occurrence and relatively small scale of these actions, potential benefits, and existing conservation measures in place to protect this species.

Desert Yellowhead. Activities associated with soil resources are not expected to impact the desert yellowhead in an adverse way. Soil mapping or sampling actions, including soil testing, could result in minimal impacts on desert yellowhead habitat if those management actions occurred in the area, but impacts would be minimized due to the short duration of time spent sampling and the reclamation of

the disturbance. Management of mineral and realty actions is classified as Category 5 which generally prohibits surface disturbance in the original population. Conservation measures also prohibit surface-disturbing activities in the original population minimizing impacts to this species in this area. Surface-disturbing activities are prohibited and an NSO to mineral leasing activities is applied in the Cedar Rim population of desert yellowhead which would benefit the species in this area. Implementing soil management actions *may affect, but is not likely to adversely affect*, the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the localized, infrequent occurrence and relatively small scale of these actions, the minimal potential for these management actions to occur, potential benefits, and existing conservation measures in place to protect the species and habitat. The current locatable mineral withdrawal for desert yellowhead critical habitat will remain in place, and mineral and realty actions are managed with Category 5 restrictions in the original population, thereby limiting surface disturbance in the areas where this species occurs. In addition, surface-disturbing activities are prohibited and mineral leasing activities are subject to an NSO restriction within the Cedar Rim population of desert yellowhead.

Ute Ladies'-tresses. Activities associated with soil resources are not expected to impact the Ute ladies'-tresses in an adverse way and may even lead to beneficial impacts. Soil mapping or sampling actions, including soil testing, may result in minimal impacts on Ute ladies'-tresses potential habitat due to the short duration of time spent sampling and the reclamation of the disturbance. Management actions that improve habitats through revegetation, reseeding, and other rehabilitation actions may benefit the Ute ladies'-tresses habitat; however, it is unlikely that surface-disturbing activities would be allowed in Ute ladies'-tresses habitat due to its protection under the ESA. Reductions in sedimentation and erosion within the drainages and waterways also will benefit the Ute ladies'-tresses habitat. Requiring sediment control and soil stabilization may benefit Ute ladies'-tresses habitat. Soil-damaging actions are prohibited on moist soils, where the Ute ladies'-tresses typically is found. An existing conservation measure states that within the potential of the ecological site (soil type, land form, climate, geology), the BLM will ensure that the soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff, which will benefit Ute ladies'-tresses. Implementing soil management actions *may affect, but is not likely to adversely affect*, the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the localized, infrequent occurrence and relatively small scale of these actions, potential benefits, existing conservation measures in place to protect this species, and the current lack of identified populations of the species from the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Actions that disturb or compact soil, disrupt soil stability, or reduce soil productivity could adversely impact threatened, endangered, or candidate species on nonfederal lands. Actions that stabilize soils or increase soil productivity may benefit these species. As these types of actions occur on nonfederal lands, the adverse or beneficial impacts may influence the habitats of threatened, endangered, or candidate species.

7.4 Water Resources

There are two major hydrologic basins and one minor basin in the planning area. The largest hydrologic basin in the planning area is the Wind River Basin, a subdivision of the Yellowstone River Basin, which is a subdivision of the Missouri River Basin. The second largest hydrologic basin is the North Platte River, of which the Sweetwater River is a tributary. This watershed covers most of the area on top of the Beaver Rim escarpment; it flows east to Pathfinder Reservoir on the North Platte River. A minor area in Natrona County drains directly to the North Platte River, which ultimately flows east to the Missouri River. The Great Divide Basin is a smaller hydrologic basin in the southern part of the planning area.

This is a hydrologically closed basin in Wyoming's Red Desert region that does not drain to either the Pacific or the Atlantic Ocean. In addition, a half-mile stretch of Wallace Creek in the Rattlesnake Hills drains to the Powder River, a tributary to the Yellowstone River, which flows to the Missouri River. Also, near Dubois, Fish Creek drains approximately 30 square miles of non-BLM-administered lands in the planning area to the west. Fish Creek flows to the Gros Ventre River, which meets the Snake River near Jackson; the Snake River flows to the Columbia River and into the Pacific Ocean.

The BLM's Watershed and Water Resources Program conducts data collection, resource monitoring, and analysis in support of other management actions, such as range management, forest management, and mineral extraction. Watershed management actions include evaluating proposed projects, applying soil management practices, applying seasonal closures, monitoring public drinking water, and completing groundwater studies. Some of these field actions involve the use of heavy machinery and hand tools. Field actions can involve developing riparian exclosures and constructing stream crossings. Other actions can involve imposing restrictions on actions such as mineral exploration and development, pipelines, powerlines, roads, recreational sites, fences, and wells.

Through water resource management the 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 to minimize harmful consequences of erosion and surface runoff. Water resources are also to be protected or enhanced through site-specific mitigation guidelines.

During watershed management actions, the BLM develops pollution prevention plans, ensures rights to water-related projects are filed, delineates no chemical use buffer zones, designs actions to promote reduction of channel erosion, and restores damaged wetlands or riparian areas. The BLM also provides technical expertise on other actions such as livestock ponds and water quality monitoring actions, and it provides impact analyses of oil and gas development or any surface-disturbing projects.

Surface-disturbing and other activities associated with the Watershed and Water Resources Program include the following: (1) allow for surface discharges of produced water; (2) restrict surface disturbance near water resources and sensitive soils; (3) close areas, including roads, where accelerated erosion is occurring; (4) install stream crossings for appropriate sediment and flow passage (e.g., culverts and bridges); (5) develop riparian/wetland exclosures; (6) restore channels using heavy equipment; and (7) cut, plant, and seed to restore function in riparian or wetland areas.

7.4.1 Proposed Actions for Water Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for water that benefit threatened and endangered species:

- Control nonpoint source pollution by improving riparian health and by controlling dust, accelerated erosion, and other surface disturbances.
- Require the use of BMPs and mitigation to reduce point and nonpoint source pollution.
- Participate in the development, implementation, and monitoring of watershed management plans and/or Total Maximum Daily Loads with interested stakeholders including the Wyoming DEQ to improve water quality.
- Control sources of pollution to Class 1 waters. Collaborate with the Wyoming DEQ to prevent water quality degradation of Class 1 waters.

- Prioritize management to improve water quality of waters listed on the current CWA 303(d) list or which do not meet Standards 2 or 5 of the *Wyoming Standards for Healthy Rangelands.*
- Avoid the authorization of activities likely to cause accelerated channel erosion and adverse adjustments in channel geometry (dimension, pattern, or profile).
- Integrate soil, groundwater, and surface water management to maintain or improve groundwater and surface water quality.
- Manage BLM-administered lands to support in-stream flow designations.
- Inventory reservoirs and assess condition. Identify functionally compromised reservoirs and partner with interested entities to rehabilitate or reclaim compromised reservoirs. Prioritize reservoirs in consideration of potential for failure, impacts to water quality, and importance for wild horses, wildlife, and livestock grazing. Utilize prioritization when identifying opportunities for offsite mitigations.
- Enforce measures to limit degradation of water quality such as avoiding disturbance of soils with high erosion potential, implementing zero runoff programs on large-scale surface-disturbing activities, requiring bonding for site reclamation, and reclaiming abandoned surface disturbances.
- In cooperation with stakeholders, implement management actions to prevent degradation of ground and surface water quality on a case-by-case basis, utilizing existing watershed plans where possible.
- Permanent facilities including roads in floodplains (where mapped) and riparian-wetland areas are managed with no surface disturbance restrictions, except to benefit watershed health or vegetation. Linear watercourse crossings are considered on a case-by-case basis.

7.4.2 Best Management Practices

The following BMPs listed in Appendix H of the Lander Proposed RMP and Final EIS apply to water resources management:

- **U.S. Environmental Protection Agency**
  - *Healthy Watersheds:* This resource provides conservation approaches and tools designed to ensure healthy watersheds remain intact. The website provides example approaches that are generally site-specific, and watershed managers are encouraged to use the examples as guidance in developing local conservation strategies. The website also supplies outreach strategies to encourage stakeholder engagement in conservation and protection of healthy watersheds. http://www.epa.gov/owow/nps/
  - *Stormwater BMPs:* This online menu provides BMPs designed to meet the minimum requirements for six control measures specified by the USEPA's Phase II Stormwater Program. The control measures include public education, public involvement, illicit discharge detection and elimination, construction, post-construction, and pollution prevention/good housekeeping. The menu also provides case studies assessing the performance of various stormwater BMPs. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm

7.4.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. The Proposed RMP proposes a variety of activities to preserve and protect water resources including: monitoring water quality, controlling soil erosion and water runoff, and restricting mineral exploration and development. Water resource management generally does not occur in potential black-footed ferret habitat. Prairie dogs, the black-footed ferret's primary prey, inhabit shortgrass prairie and semi-desert shrublands without much slope, and are not typically in riparian areas. Implementing watershed and water resources management *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the lack of water resource management actions in potential black-footed ferret habitat.

Canada Lynx. Water management actions such as installing stream crossings, developing riparian/wetland exclosures, and cutting, planting, and seeding to restore function in riparian or wetland areas may occur in a small portion of Canada lynx habitat and be short term in nature. Access for these activities would be primarily by vehicle (e.g., pickup truck). Some disturbance to streams or rivers during construction and occasional maintenance of monitoring equipment may occur. Riparian habitat restoration to reduce erosion and sediment movement along watercourses would be disruptive to resident lynx but beneficial to the species and its prey in the long term. Fencing of riparian/wetland habitat to meet resource objectives would also benefit Canada lynx in protecting this habitat. Conservation measures that maintain riparian areas and willow patches to provide cover for prey species and conduct weed assessments and weed control to optimize habitat for snow shoe hares would benefit Canada lynx. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Implementing water-resource management actions *may affect, but is not likely to adversely affect* the lynx due to *discountable effects (NLAA-d*). This determination is based on the conservation measures in place that will preclude adverse effects to the lynx and its habitat and the small portion of lynx habitat in which water management actions may occur.

Gray Wolf. Disturbance related to water management actions such as installing stream crossings, developing riparian/wetland exclosures, and cutting, planting, and seeding to restore function in riparian or wetland areas could result in a short-term impact to the gray wolf, primarily due to minor surface disturbance and an increase in human activity. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Suitable sage-grouse habitat, the Core Area, and lek sites exist in the planning area. Water resource management does not generally occur in winter, breeding, nesting, or early brood-rearing sage-grouse habitat, but does occur in late brood-rearing habitat. As summer progresses and food plants mature and dry, sage-grouse move to areas still supporting succulent herbaceous vegetation such as wet meadows, springs, riparian areas, and irrigation fields. From mid- to late summer, these wet areas are the primary sites for forb and insect production. Water management actions designed to protect aquatic and riparian-wetland habitats would benefit greater sage-grouse by maintaining or improving late brood-rearing habitat. Water management actions that reduce sedimentation of riparian-wetland areas adversely impacted by BLM-authorized activities may beneficially impact greater sage-grouse habitat. The Proposed RMP manages riparian-wetland areas to meet PFC and limits surface disturbance within 500 feet of riparian-wetland areas, except to benefit

watershed health or vegetation. Therefore, implementing watershed and water resources management *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the beneficial water resource management actions that may occur in greater sage-grouse habitat and the implementation of the Proposed RMP management actions.

Grizzly Bear. Water management actions such as installing stream crossings, developing riparian/wetland exclosures, and cutting, planting, and seeding to restore function in riparian or wetland areas may occur in a portion of grizzly bear habitat and be short term in nature. Access for these activities would be primarily by vehicle (e.g., pickup truck). Some disturbance to streams or rivers during construction and occasional maintenance of monitoring equipment may occur. Riparian habitat restoration to reduce erosion and sediment movement along watercourses would be disruptive to resident grizzly bears but beneficial to the species and foraging habitat in the long term. The activities associated with this management action would be infrequent and small in scale. In addition, much of the riparian and wetland habitat in the Dubois area is privately owned, therefore BLM water management actions and impacts to grizzly bear would be limited. Conservation measures require that the PFC of existing aquatic systems and riparian zones in occupied grizzly bear habitat be maintained for all BLM-administered public lands. If these areas are polluted or damaged from activities rehabilitation and restoration of these areas would be required. Implementing water resource management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d*). This determination is based on the small portion of grizzly bear habitat in which water management actions may occur and the implementation of existing conservation measures.

Blowout Penstemon. Water resource management generally does not occur in potential blowout penstemon habitat. The blowout penstemon occurs in blowouts, or sparsely vegetated depressions in actively shifting sand dunes created by wind erosion, and is not found in stream, wetlands, or riparian areas. Implementing watershed and water resources management will have *no effect (NE)* on the blowout penstemon. This determination is based on the lack of water resource management actions in potential blowout penstemon habitat.

Desert Yellowhead. Water resource management would not occur in identified desert yellowhead populations or designated critical habitat. The desert yellowhead is restricted to shallow deflation hollows in outcrops of sandstones and limestones with wind-excavated hollows sparse with vegetation, and it is not typically in stream, wetlands, or riparian areas. There is no identified riparian/wetland habitat located with desert yellowhead critical habitat. Implementing watershed and water resources management will have *no effect (NE)* the desert yellowhead or designated critical habitat. This determination is based on the lack of water resource management actions in desert yellowhead habitat.

Ute Ladies'-tresses. Management actions associated with water resources are infrequent and typically small in scale. Overall, these types of management actions may benefit the species and its habitat by maintaining or improving riparian habitat condition. Improving conditions of riparian-wetland areas adversely impacted by BLM-authorized activities would improve these important habitats for Ute ladies'-tresses. Water management actions that reduce sedimentation may beneficially impact potential Ute ladies'-tresses habitat. Conservation measures prohibit surface disturbance within 500 feet of surface water or riparian areas and require BLM to manage stream habitats to retain re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. In addition, the BLM will evaluate and redesign projects that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem and cause direct ground disturbance to ensure adverse impacts to Ute ladies'-tresses do not occur. Implementing water resource management actions *may affect, but is not likely to adversely affect*, the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on no identified populations of Ute ladies'-tresses occurring in the planning area and the

incorporation of conservation measures. If water resource management actions are conducted in potential Ute ladies'-tresses habitat, this species could incur beneficial effects of habitat improvement. Secondary beneficial effects may be realized for the Ute ladies'-tresses through habitat maintenance and improvements.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Protection and enhancement of water resources in the planning area on nonfederal lands will improve habitat for threatened, endangered, and candidate species. Surface disturbance and other actions could increase sedimentation of waterways and may potentially impact threatened, endangered, and candidate species. Water developments on nonfederal lands can result in the loss, degradation, or fragmentation of habitat for threatened and endangered species.

7.5 Cave and Karst Resources

No significant caves have been identified in the planning area; however, there has been no formal inventory of cave and karst resources. Limestone geology in the planning area is conducive to cave and karst resources, and inventories may identify additional cave and karst resources. Known locations of natural caves in the planning area include Sinks Canyon, Baldwin Creek Canyon, Popo Agie Canyon, North Fork Canyon, Sawmill Canyon, and portions of the Beaver Creek drainage.

The "sink" in Sinks Canyon State Park (adjacent to and downstream of BLM-administered land) is one of the best known sinks in the area. Typical of a karst river, the Popo Agie disappears in the Sinks as it flows into a cave formation in Madison Limestone and then rises again into a pool one-half mile down canyon. Other karst formations are known to exist in the planning area, such as the sinkholes on Auer Ranch on Beaver Creek and south of the hot spring, and in Dubois near the airport.

BLM policy and guidance for managing cave resources is to protect sensitive, fragile, biological, ecological, hydrological, geological, scientific, recreational, cultural, and other cave values from damage and to ensure they are maintained for public use, both now and in the future (BLM 2008a). Actions associated with cave and karst management include timing restrictions to protect cave resources, closing cave and karst areas for safety reasons or to protect resources, allowing scientific research and recreational use of caves, and installing gates as necessary to protect resources.

7.5.1 Proposed Actions for Cave and Karst Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP does not propose management actions for cave and karst resources that benefit threatened and endangered species.

7.5.2 Best Management Practices

No specific BMPs apply to cave and karst resource management.

7.5.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. There are no direct or indirect effects anticipated for the black-footed ferret, as this species does not use caves. Implementing management actions associated with cave and karst

resources would have *no effect (NE)* on the black-footed ferret. This determination is based on the habitat use of the black-footed ferret.

Canada Lynx. Actions associated with cave and karst management that might impact Canada lynx include installing gates as necessary to protect resources. If an individual lynx were passing through the area, it may be disturbed temporarily and flee from the area. There are no direct effects anticipated for the Canada lynx. Implementing management actions associated with cave and karst resources *may affect, but is not likely to adversely affect* the Canada lynx due to *discountable effects (NLAA-d)*.

Gray Wolf. Actions associated with cave and karst management are unlikely to directly impact the gray wolf. The installation of gates around a cave entrance could impact gray wolves if the action occurred near a den, but this event is unlikely given the lack of significant cave resources identified in the planning area. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. There are no direct or indirect effects anticipated for the greater sage-grouse, as this species does not use caves. Implementing management actions associated with cave and karst resources would have *no impact (NI)* on the greater sage-grouse. This determination is based on the habitat use of the greater sage-grouse.

Grizzly Bear. Actions associated with cave and karst management that might impact the grizzly bear include installing gates as necessary to protect resources. If an individual grizzly bear were passing through the area, it may be disturbed temporarily and flee from the area. There are no direct effects anticipated for the grizzly bear. Implementing management actions associated with cave and karst resources *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*.

Blowout Penstemon. There are no direct or indirect effects anticipated for the blowout penstemon, as no blowout penstemon populations have been identified in the planning area, and this species does not use caves. Implementing management actions associated with cave and karst resources would have *no effect (NE)* on the blowout penstemon. This determination is based on the habitat use of the blowout penstemon.

Desert Yellowhead. There are no direct or indirect effects anticipated for the desert yellowhead, as this species does not occur in caves. Implementing management actions associated with cave and karst resources would have *no effect (NE)* on the desert yellowhead or designated critical habitat. This determination is based on the habitat use of the desert yellowhead.

Ute Ladies'-tresses. There are no direct or indirect effects anticipated for the Ute ladies'-tresses, as this species does not occur in caves. Implementing management actions associated with cave and karst resources would have *no effect (NE)* on the Ute ladies'-tresses. This determination is based on the habitat use of the Ute ladies'-tresses.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Recreational use of caves on nonfederal lands could occur, but is anticipated to be minimal, and cumulative impacts from use of caves on nonfederal lands would also be minimal.

7.6 Lands with Wilderness Characteristics

There are approximately 4,954 acres of BLM-administered land identified as containing wilderness characteristics in the planning area, or approximately 0.02 percent of total BLM-administered land in the planning area.

The *BLM Land Use Planning Handbook* (H-1601-1) states that the BLM must consider the management of lands with wilderness characteristics during the land use planning process. The criteria used to identify non-WSA lands with wilderness characteristics are essentially the same criteria used for determining wilderness characteristics for WSAs. However, the authority set forth in Section 603(a) of FLPMA to complete the three-part wilderness review process (inventory, study, and report to Congress) expired on October 21, 1993; therefore, FLPMA does not apply to new WSA proposals, and consideration of new WSA proposals on BLM-administered public lands is no longer valid. The BLM is still required to inventory lands to determine whether they possess wilderness characteristics.

The BLM review for non-WSA lands with wilderness characteristics generally reaffirmed results of an original 1979/1980 inventory. In parts of the United States with more precipitation and rapid vegetation growth, conditions can change dramatically over several decades. The semi-arid conditions and slower vegetation growth in the planning area mean that conditions change more slowly. For example, reclaimed or abandoned roads are often visible as roads for many decades (e.g., the NHT used during the westward pioneer migration) and might never return to a primitive condition. In addition, the physical trend seems to indicate that management actions associated with resource uses are not increasing the size or creating new areas with wilderness character.

7.6.1 Proposed Actions for Lands with Wilderness Characteristics in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for lands with wilderness characteristics that benefit threatened and endangered species:

- Manage the Little Red Creek Complex including Red Creek and portions of Torrey Rim (4,954 acres) as non-WSA lands with wilderness characteristics.
- Close the Little Red Creek Complex to motorized travel and limit mechanized travel to designated routes.
- Manage recreational use in the Little Red Creek Complex to maintain wilderness characteristics.

7.6.2 Best Management Practices

No specific BMPs apply to lands with wilderness characteristics.

7.6.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Suitable black-footed ferret habitat with prairie dog towns is not found in the Little Red Creek Complex area; therefore, *no effect (NE)* is anticipated to the black-footed ferret.

Canada Lynx. The Proposed RMP would sustain and enhance the wilderness character of the Little Red Creek complex and complement ACEC management in the area. Resource protections for lands with wilderness characteristics include closing the area to motorized travel and limiting mechanized travel to

designated routes, reducing human disturbance, thereby benefitting Canada lynx; therefore, *no effect (NE)* is anticipated to the Canada lynx.

Gray Wolf. The Proposed RMP would sustain and enhance the wilderness character of the Little Red Creek complex and complement ACEC management in the area. Resource protections for lands with wilderness characteristics include closing the area to motorized travel and limiting mechanized travel to designated routes, reducing human disturbance, thereby benefitting gray wolves.

At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Limited suitable sage-grouse habitat exists in the Little Red Creek Complex area and no known leks or winter areas have been identified. Retaining the character of the area will benefit greater sage-grouse by limiting activities that could cause habitat loss. Therefore, *no impact (NI)* is anticipated to the greater sage-grouse.

Grizzly Bear. The Proposed RMP would sustain and enhance the wilderness character of the Little Red Creek complex and complement ACEC management in the area; therefore, implementing management actions associated with non-WSA lands with wilderness characteristics *may affect, but is not likely to adversely affect* the grizzly bear due to *beneficial effects (NLAA-b)*. Resource protections for lands with wilderness characteristics include closing the area to motorized travel and limiting mechanized travel to designated routes, reducing human disturbance, thereby benefitting grizzly bears.

Blowout Penstemon. Suitable blowout penstemon habitat is not found in the Little Red Creek Complex area; therefore, *no effect (NE)* is anticipated to the blowout penstemon.

Desert Yellowhead. Suitable desert yellowhead habitat is not found in the Little Red Creek Complex area; therefore, *no effect (NE)* is anticipated to the desert yellowhead or designated critical habitat.

Ute Ladies'-tresses. The Proposed RMP would sustain and enhance the wilderness character of the Little Red Creek complex and complement ACEC management in the area. The riparian habitat in this area is above 7,000 feet, the elevation limit of suitable habitat in Wyoming. Protecting riparian habitat and implementing management actions *may affect, but is not likely to adversely affect*, the Ute ladies'-tresses due to *beneficial effects (NLAA-b)*. This determination is based on no identified populations of Ute ladies'-tresses occurring in the planning area, greater than 7,000 foot elevations in the Little Red Creek complex, and the beneficial effects of habitat protection.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Development of lands with wilderness characteristics may have adverse impacts on threatened or endangered species if actions take place in occupied habitats. Development may degrade, remove, or fragment habitat and may result in sediment loading of waterways.

7.7 Mineral Resources—Locatable

All public lands are open to exploration for locatable minerals, except for those withdrawn to protect other resource values and uses or those lands with acquired mineral status. Locatable minerals (metallic and nonmetallic) are those open to mining claim location under the General Mining Law of 1872, as amended (30 USC 22-54 and 611-615). The BLM locatable mineral program addresses authorization and permitting of locatable mineral exploration, mining, and reclamation activities on BLM-administered land, and is mandated by section 302(b) of the FLPMA (43 USC 1732[b] and 603[c], 43 CFR 3802, and 43

CFR 3809). All locatable mineral exploration and development activities that disturb the surface of the mining claim (site) require prior BLM acceptance (for a notice) or authorization (for a Plan of Operations). Operations obtain necessary authorizations and permits through the BLM field office responsible for administering the land in which the minerals are located. Although locatable mineral exploration is subject to the ESA, candidate species not protected under the ESA (e.g., greater sage-grouse) could likely be impacted. In addition, some conservation measures may not be applied due to the BLM's non-discretionary application of the General Mining Law of 1872. The staking of mining claims on federal locatable minerals does not require approval since the Mining Law itself, as amended, authorizes such staking on open federal lands. Approval of a plan of operations is essentially a non-discretionary action for the BLM unless the mining claims are found to be invalid, proposed operations would violate the ESA, or if the proposed operation would cause unnecessary or undue degradation of public lands or otherwise not meet the requirements of applicable regulations at 43 CFR 3809 or 43 CFR 3802.

Under the Proposed RMP, 2,348,028 acres are available for locatable mineral entry and 461,073 acres are withdrawn from locatable mineral entry. Acres withdrawn reflects approximately 429,306 acres of new withdrawal, 23,133 acres that are currently under 20-year withdrawals of which extensions would be pursued, and 8,634 acres that are withdrawn in pre-FLPMA actions and would continue indefinitely. In the planning area, approximately 2,170 acres of short-term surface disturbance and approximately 1,900 acres of long-term surface disturbance are anticipated from locatable mineral development over the life of the plan.

Locatable minerals known to occur in the planning area include uranium; bentonite; gold (both lode and placer deposits); silver; gypsum; copper; tungsten; tantalum; zeolites; iron; and gemstones (precious and semi-precious) such as agate, opal, jade, sapphire, beryl, and garnet. Most of the commercial locatable mineral activity in the planning area focuses on uranium, bentonite, and gold exploration. There are currently no operating uranium mines and one BLM permitted but inactive bentonite mine in the planning area. Additionally, gold panning is a popular activity in the South Pass/Atlantic City area.

Opal and agate collecting attracts hobbyists to the planning area. In 2005, a large deposit of opal was discovered near Cedar Rim, north of Sweetwater Station. This discovery was publicized by the Wyoming State Geological Survey, and in a span of two months more than 1,000 mining claims were registered at the Fremont County Courthouse (BLM 2009a). Opal and agate collecting has substantially abated over the last few years and only a few mining claims remain.

Activities associated with locatable minerals include surface disturbance for exploration and mining, reclamation, and construction of access roads, buildings, and utility lines. All lands must be reclaimed after completion of mining.

7.7.1 Proposed Actions for Locatable Minerals in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protection for locatable minerals that benefit threatened and endangered species:

- Approximately 461,073 acres are pursued for withdrawal from locatable mineral entry (429,306 acres of new withdrawals, 23,133 acres of withdrawal extensions, and 8,634 acres of non-expiring withdrawals).

7.7.2 Best Management Practices

No specific BMPs apply to management of locatable minerals.

7.7.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. If black-footed ferrets were present they could be displaced by mining operations. Their habitat could be destroyed by extraction operations, development of roads, and development of ancillary facilities, or mortality could occur due to vehicular traffic associated with mining. Although approximately 2,348,028 acres are available for locatable mineral entry, the activities associated with mining operations are unlikely to impact the black-footed ferret due to the implementation of BLM's conservation measures. These conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. If black-footed ferrets or their sign are found on public lands outside of the non-essential experimental population areas, all previously authorized surface-disturbing activities will temporarily cease until further direction is developed. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing management actions associated with locatable minerals *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the implementation of conservation measures for black-footed ferrets.

Canada Lynx. Although approximately 2,348,028 acres are available for locatable mineral entry in the Planning Area, portions of the LAUs in the planning area are withdrawn from locatable mineral activities and the Proposed RMP would withdraw additional acreage within the LAUs. In the Dubois area, 25,520 acres are currently withdrawn from locatable mineral entry and 14,444 acres would be pursued for withdrawal under the Proposed RMP. The 14,444 acres of new withdrawal occurs in LAUs therefore would benefit Canada lynx. Maintaining connectivity within and between LAUs and avoiding activity near denning habitat during the breeding season will help minimize the adverse effects of mineral development on Canada lynx. Conservation measures limiting the disturbance in each LAU to 30 percent of the suitable habitat within the LAU and not changing more than 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period would minimize adverse impacts to Canada lynx. The BLM is also committed to ensuring key linkage areas are identified and habitat connectivity within and between LAUs is maintained. Implementing locatable mineral management actions *may affect, but is not likely to adversely affect* the Canada lynx due to *discountable effects (NLAA-d)*. This determination is based on the incorporation of existing conservation measures for Canada lynx and withdrawing approximately 39,964 acres of potential Canada lynx habitat to locatable mineral exploration and development.

Gray Wolf. Although approximately 2,348,028 acres are available for locatable mineral entry in the Planning Area, the Proposed RMP would withdraw additional acreage in the Dubois area, where potential gray wolf habitat occurs, which will be beneficial to this species in this area. In the Dubois area, 25,520 acres are currently withdrawn from locatable mineral entry and 14,444 acres are proposed for withdrawal under the Proposed RMP. BLM conservation measures that do not allow project actions within 100 meters (330 feet) of den sites between April 1 and June 30 and protecting from disturbance the area within 0.8 kilometer (0.5 mile) of a den site would minimize adverse impacts to this species. At

the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The greatest impacts on greater sage-grouse habitat may occur from mineral development that can remove large areas of sagebrush and increase the spread of invasive species. As a candidate species, the greater sage-grouse is not protected under the provisions of the ESA and could therefore be impacted by locatable mineral exploration and development. In addition, locatable mineral exploration and development is not subject to the disturbance thresholds identified for greater sage-grouse Core Area which makes up 70 percent of the Lander Field Office. Approximately 2,348,028 acres are available for locatable mineral entry in the planning area. Of the 2,348,028 acres, 1,357,954 acres are open to locatable mineral entry within the Core Area, 4,104 acres are currently withdrawn, and 368,979 acres are proposed for withdrawal under the Proposed RMP. The proposed acres include withdrawing lands containing federal mineral estate in the 306,360-acre WRSW LWG-nominated management area which will benefit the important greater sage-grouse habitat identified in this area.

Impacts to greater sage-grouse habitats can occur with mineral exploration activities as claimants can disturb up to 5 acres under a Notice of Intent (NOI) without developing a Plan of Operations unless it causes unnecessary or undue degradation. In the Proposed RMP, surface disturbance or disruption proposed under a NOI in Core Area is considered unnecessary degradation unless the proponent establishes that the activity is not based on site-specific information, allowing BLM to apply seasonal protections in greater sage-grouse nesting/early brood-rearing habitat. Acreage disturbance over 5 acres is subject to a Plan of Operations at which time the BLM can apply seasonal and avoidance stipulations to mitigate impacts from mining activities. Implementing management actions associated with locatable mineral resources *may impact, but is not likely to contribute to the need for federal listing* of the greater sage-grouse (MI). This determination is based on the proposed protection measures under the Proposed RMP.

Grizzly Bear. Human activities and development of roads associated with locatable mineral exploration and development could affect grizzly bears. Although there are approximately 2,348,028 acres available for locatable mineral entry in the planning area, there is little overlap of grizzly bear habitat and known bentonite or gypsum-bearing strata or uranium resources. In addition, portions of the grizzly bear habitat in the planning area are withdrawn from locatable mineral entry and the Proposed RMP would withdraw additional acreage within suitable grizzly bear habitat. In the Dubois area where grizzly bears are predominantly found, 25,508 acres are currently withdrawn from locatable mineral entry and 14,444 acres are proposed for withdrawal under the Proposed RMP.

If mining development occurs, the BLM would apply additional stipulations, developed through consultation with USFWS, to minimize human- bear conflicts. The BLM-committed conservation measure requiring disturbed lands be revegetated and reclaimed in consideration of grizzly bear needs would minimize adverse impacts to this species. Implementing management actions associated with locatable mineral resources *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that locatable mineral entry will take place in known grizzly bear habitat and the incorporation of existing conservation measures.

Blowout Penstemon. No blowout penstemon populations have been identified in the planning area; however, there is potentially suitable habitat south of Green Mountain. Blowout penstemon habitat could be damaged or destroyed by surface-disturbing activities associated mining operations; however, this type of disturbance is anticipated to be localized. Surveys for the species would be required before

authorizing locatable mineral development in suitable habitat. Conservation measures require that projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS or during the growing season (April 15 to September 15) which will reduce impacts to this species. Implementation of locatable minerals management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the incorporation of existing conservation measures for the blowout penstemon.

Desert Yellowhead. Desert yellowhead is currently known from two populations of plants in Fremont County. The original identified population is approximately 5 miles north of where the Sweetwater River crosses U.S. Highway 287 and is widely scattered over an area of 50 acres. The second population (Cedar Rim population) is approximately 5 miles northeast of the original population and covers approximately 1 acre. The USFWS has designated 360 acres of critical habitat for this species that encompasses the original identified population but does not encompass the Cedar Rim population. Desert yellowhead designated critical habitat is withdrawn from locatable mineral activities; therefore, locatable mineral management actions will not take place in desert yellowhead critical habitat nor impact the original identified population.

The small Cedar Rim population will be open to locatable mineral activities with exploration activities having the greatest potential to impact the species. Claim staking and surface exploration using hand tools are not permitted activities and can take place without contact with the BLM, therefore impacts to desert yellowhead plants could occur. However due to the location of the subpopulations on the crest of hills, it is unlikely this type of minor exploration would occur in these subpopulations. The proponent is required to submit a NOI to notify BLM of exploration activities using heavy equipment. These activities are subject to ESA protections and BLM would not allow this activity to take place within occupied habitat, minimize the potential for impacts to the population. Development activities are a permitted action and Plans of Development must be completed which will allow BLM to prohibit mining within the population. Implementation of locatable mineral management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on designated critical habitat being withdrawn from locatable mineral activity, exploration activities being subject to ESA, and the requirement of a mineral development plan to be completed within the Cedar Rim population of desert yellowhead.

Ute Ladies'-tresses. No Ute ladies'-tresses have been identified in the planning area; however, there is potential habitat for this species. Although approximately 2,348,028 acres are available for locatable mineral entry in the planning area, the potential for direct effects will be minimized by the prohibition of surface-disturbing activities within 500 feet of riparian-wetland areas. BLM-committed conservation measures that would conduct inventories or studies to verify the presence or absence of this species, prior to conducting any onsite activities, would minimize impacts to the species. If an occurrence is identified, operational plans would be modified to include the protection requirements of this species and its habitat. In addition, projects will not be authorized closer than 0.25 mile from any known Ute ladies'-tresses populations without concurrence of the USFWS and the BLM Authorized Officer. No ground disturbing construction activities will be authorized within 0.25 mile of any known Ute ladies'-tresses populations during the essential growing season time period (from July to September). Implementation of locatable minerals management actions *may affect, but is unlikely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of locatable mineral entry taking place in potential habitats for Ute ladies'-tresses, existing conservation measures, and the lack of identified populations of this species in the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Additional surface disturbance from locatable mineral actions on nonfederal lands could adversely impact threatened, endangered, and candidate species by removing habitat, further fragmenting habitats, increasing road densities, spreading of invasive species, increased sedimentation, and degrading habitats for these species.

7.8 Mineral Resources—Leasable Coal

At present, there is no coal leasing in the planning area and no anticipated development of coal resources during the planning cycle. Future coal leasing and development in the planning area would require an RMP amendment.

7.8.1 Proposed Actions for Coal in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes no management actions for leasable coal resources.

7.8.2 Best Management Practices

No specific BMPs apply to leasable coal management.

7.8.3 Impact Analysis and Effects Determinations

Threatened, Endangered, Candidate, and Proposed Species. There are no exploration licenses or leases issued for federally administered coal in the planning area, and the BLM does not anticipate reasonable foreseeable coal exploration, leasing, or development during the planning cycle. Therefore, coal leasing management actions at this time will have *no effect (NE)* on any threatened or endangered species, *is not likely to jeopardize proposed species (NJ)*, and will have *no impact (NI)* on candidate species in the planning area. If interest in coal leasing on BLM-administered lands does occur, an environmental assessment or EIS will be prepared.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Coal mine operations occur on both state and private lands. These mines potentially remove habitats for threatened and endangered and candidate species further fragment habitats, increase road densities, spread invasive species, increase sedimentation, and degrade habitats for these species. Associated infrastructure may affect riparian habitats for Ute ladies'-tresses and greater sage-grouse during late brood rearing.

7.9 Mineral Resources—Leasable Geothermal

The oldest and most widespread geothermal resource is water in hot springs, where groundwater migrates downward through the rock, becomes warm, and returns to the surface in springs before it can release its heat to the cooler rocks near the surface. The water may return to the surface as steam where the rocks are particularly hot, such as in volcanic areas. Using this naturally generated hot water or steam is considered a direct use of the resource.

Geothermal energy in the form of hot water is often utilized by drilling a well to an aquifer containing hot water and bringing this water to the surface for use. Another way to harness geothermal energy is to pump liquid, usually water, down a well, let the warmer rock heat the water, and then pump the heated water to the surface for use. This use of low temperature geothermal resources is most common in traditional warm-water heating systems in homes and businesses. Although not yet

widespread, low temperature geothermal use is increasing as prices for other types of energy increase. Geothermal resources found on federal lands are considered leasable minerals. As such, the same laws and regulations governing other leasable minerals cover exploration and development of these resources.

There are geothermal resources in many places in the planning area, as evidenced by flowing springs with elevated groundwater temperatures. There are several areas where measured temperature gradients in groundwater wells indicate the potential for low- or medium-grade geothermal energy. These areas include north of the Gas Hills, the Diamond Springs area, Big Sand Draw, and the Copper Mountain area. The most likely potential for utilization of geothermal resources in the planning area is for co-generation, such as with oil and gas development. Low potential geothermal resources are more viable if a developer is already drilling to reach differentially heated material. Coupled with new low temperature equipment, electrical power to operate facilities could be generated without carbon dioxide (CO_2) or other emissions. Direct heat application could be used to warm gas lines and other facilities associated with minerals development. As clean energy initiatives increase and oil and gas operators look at ways to reduce the emissions impacts of their projects (and potentially to make projects more affordable), utilization of direct use geothermal systems on public land in the planning area might increase.

Additional information on Geothermal Resources and potential development in the planning area can be found in the *Reasonable Foreseeable Future Development Scenario for Geothermal for the Lander Field Office Planning Area* (BLM 2009b).

7.9.1 Proposed Actions for Geothermal in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for leasable geothermal resources that benefit threatened and endangered species:

- Areas within the National Lands Conservation System (NLCS) are closed to geothermal energy development. These areas include:
  - WSAs (55,338 acres)
  - CDNST (no buffer is identified)
  - NHTs
  - Eligible waterway segments proposed for inclusion in the NWSRS (6,153 acres)
- Encourage geophysical operators to share scientific information in order to minimize surface impacts.
- Constraints applied for oil and gas leasing also apply to geothermal leasing.
- In areas that are closed to mineral leasing, do not reoffer existing leases when they expire. If drainage occurs in an area closed to oil and gas leasing, authorize leasing on a case-by-case basis with the following restrictions:
  - Oil and gas leasing is subject to NSO stipulations
  - Closed to phosphate leasing
  - Closed to mineral materials disposal
  - Wind energy, major utility systems, and other ROWs are excluded

7.9.2 Best Management Practices

The following BMPs listed in Appendix H of the Proposed RMP and Final EIS apply to geothermal resource management:

- *Record of Decision (ROD) for the Geothermal Resource Leasing Programmatic Environmental Impact Statement:* Appendix H of the Lander Proposed RMP and Final EIS provides a list of sample BMPs that have been collected from various BLM and USFS documents addressing geothermal and fluid mineral leasing and development, including RMPs, forest plans, and environmental reports for geothermal leasing and development. The purpose of this appendix is to provide a list of recommended BMPs that would be incorporated as appropriate into the permit application by the lessee or would be included in the approved use authorization by the BLM as Conditions of Approval (COA).

7.9.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened, Endangered, and Candidate Species. There is low potential for federal geothermal leases in the planning area. The geothermal reasonable foreseeable development did not identify any geothermal resources within the planning area with sufficiently high temperatures to generate electricity (BLM 2009b). Therefore, geothermal leasing management actions will have *no effect (NE)* on any threatened or endangered species and will have *no impact (NI)* on candidate species in the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Due to the lack of suitable geothermal resources in the planning area, no cumulative effects from geothermal management on nonfederal lands are anticipated for threatened or endangered species.

7.10 Mineral Resources—Leasable Oil and Gas

The Mineral Leasing Act of 1920 provides that all public lands are open to oil and gas leasing unless specifically designated by public law. Under the Proposed RMP, 44,945 acres of federal mineral estate are open to oil and gas leasing consideration with standard constraints; 1,260,715 acres are open with moderate constraints; 1,336,867 acres are open with major constraints; and 166,574 acres are closed to oil and gas leasing for the life of the plan.

Oil and gas occurs in the planning area in numerous geologic formations, and members of formations that range in age from the oldest producing formation (Flathead Sandstone of Cambrian age) upward to the Wind River Formation of Tertiary age. The two oil and gas basins in the planning area are the Wind River Basin and a small portion of the northern part of the Great Divide Basin. In addition, CBNG being produced in the planning area originates from coals in the Mesaverde Formation.

Up until 2004, evidence for CBNG potential within the planning area has been limited to perhaps five exploration targets, generally in the Mesaverde Formation, with less than 5,000 feet of overburden (DeBruin et al. 2001). Steeply dipping Lance and Meeteetse coalbeds in the Waltman area of the Wind River Coal Field might present additional targets for CBNG development. The Fort Union Coals are targets for CBNG development in the Great Divide Basin portion of the planning area.

At the end of 2007, there were 1,566 active wells and 1,628 inactive wells in the planning area (BLM 2009c). Almost all planning area drilling activity (exploratory and development) has been occurring in the eastern Wind River Basin and eastern portions of the WRIR, with additional exploratory activity in the Great Divide Basin portion of the planning area. New wells drilled in the last 10 years are concentrated in the northeast part of the planning area (mainly at the Madden, Frenchie Draw, Fuller Reservoir, and Beaver Creek fields) and in the southeastern part of the WRIR (at the Muddy Ridge, Pavilion, and Riverton Dome fields), with a few new oil wells drilled in the northwest and occasional new wells scattered across the south. Of the 719 development wells completed in the last 10 years, 93.7 percent were successful.

In the planning area as of June 2009, there were approximately 994,123 acres of leased federal oil and gas mineral estate and approximately 1,814,978 acres of unleased federal oil and gas mineral estate (BLM 2009d). Federal oil and gas leases are incorporated into 35 active unit agreements that lie within or partly within the planning area. A total of 21 companies operate the 35 units. Unique rules apply to unitized leases, which are exempt from state spacing rules. The oldest active unit is the Big Sand Draw Gas unit established in 1934 (BLM 2009c). Under the Proposed RMP, the entire Dubois area is closed to oil and gas leasing and geophysical exploration.

Surface-disturbing and other activities associated with oil and gas exploration and development include constructing and reclaiming well pads, access roads, and reserve pits; applying dust-control measures; controlling or limiting emissions; constructing reservoirs associated with water disposal; constructing compressor stations, product enhancements, and disposal facilities; building pipelines associated with leases or units; installing powerlines associated with leases or units; and conducting geophysical exploration.

7.10.1 Proposed Actions for Oil and Gas in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for leasable oil and gas resources that benefit threatened and endangered species:

- All oil and gas and other mineral leases are subject to standard lease stipulations; additional stipulations may apply in some areas.
- Close 166,574 acres to oil and gas leasing.
- Encourage geophysical operators to share scientific information in order to minimize surface impacts.
- BMPs that are to be part of the authorization will be applied as COAs.
- Apply a Master Leasing Plan (MLP) to 144,265 acres in the Beaver Rim area. Within the MLP area, apply NSO (30,241 acres) and CSU (114,026 acres) restrictions and manage to protect resource values in conflict with oil and gas development. In areas that are closed to mineral leasing, do not reoffer existing leases when they expire. If drainage occurs in an area closed to oil and gas leasing, authorize leasing on a case-by-case basis with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to mineral materials disposal
    - Wind energy, major utility systems, and other ROWs are excluded

7.10.2 Best Management Practices

The following BMPs listed in Appendix H of the Lander Proposed RMP and Final EIS apply to oil and gas resource management:

- *General Information for Oil and Gas BMPs:* This resource provides general information regarding BLM BMPs for oil and gas development. Sample BMPs are provided with a brief description of types of BMPs and terminology. http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/general_information.html
- *Oil and Gas Exploration – The Gold Book:* The publication *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (commonly referred to as The Gold Book) was developed to assist operators by providing information on the requirements for obtaining permit approval and conducting environmentally responsible oil and gas operations on federal lands and on private surface over federal minerals (split-estate). Split-estate surface owners will also find the Gold Book to be a useful reference guide. In 2007, the Gold Book was updated to incorporate changes resulting from the new Onshore Oil and Gas Order No. 1 regulations. (http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html)

7.10.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Prairie dogs and black-footed ferrets could be displaced or their habitats degraded or destroyed in oil and gas development areas by the extraction of these resources. Vehicular traffic associated with oil and gas development could cause direct mortality, although the chances of this event are minimized due to black-footed ferrets being nocturnal. Over the life of the plan, short-term surface disturbance from oil and gas is anticipated to be approximately 14,473 acres and long-term surface disturbance is anticipated to be approximately 7,495 acres. In addition, if prairie dog colonies and/or complexes are determined to be suitable for black-footed ferret reintroduction, NSO restrictions would be applied in these areas. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. If black-footed ferrets or their sign are found on public lands outside of the non-essential experimental population areas, all previously authorized surface-disturbing activities will temporarily cease until further direction is developed. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing management actions associated with oil and gas development *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of oil and gas development occurring in prairie dog habitats suitable for black-footed ferrets and the conservation measures associated with lease stipulations in suitable black-footed ferret habitat.

Canada Lynx. Human activity associated with oil and gas development activity can cause Canada lynx to avoid or abandon habitats. In addition, construction of roads, pads, or other facilities may alter or destroy existing suitable foraging habitat or habitat linkages between suitable habitats. Increases in

vehicular collisions with Canada lynx could occur due to increase in vehicular traffic associated with oil and gas exploration and development activities. Under the Proposed RMP, the entire Dubois area, where potential Canada lynx habitat occurs, is closed to oil and gas leasing and geophysical exploration. There is one oil and gas unit north of the town of Dubois, which is located in the LAU, but it has been there prior to development of the Proposed RMP. No other areas in the planning area have been identified as suitable habitat for Canada lynx. Conservation measures ensure that limitations on the timing of activities and surface use and occupancy are developed at the leasing and Notice of Staking/Application for Permit to Drill (APD) stages to protect Canada lynx. Implementing management actions associated with oil and gas development *may affect, but is not likely to adversely affect* Canada lynx due to *insignificant effects (NLAA-i)*. This determination is based on the minimal amount (7,495 acres or less than 1 percent of BLM-administered surface in the planning area) of long-term surface disturbance anticipated from BLM oil and gas development activities, the closure of the entire Dubois area to oil and gas leasing, and the conservation measures in place to limit the timing of activities and surface use in Canada lynx habitat.

Gray Wolf. Under the Proposed RMP, the entire Dubois area, where the majority of gray wolf habitat occurs, is closed to oil and gas leasing and geophysical exploration which will be beneficial to this species in this area. There is currently one small oil field operating in the Dubois area and an undeveloped lease adjacent to the Shoshone National Forest. The gray wolf occurs in other parts of the planning area and is likely to expand its range, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to geophysical exploration and have NSO stipulations for oil and gas leasing. These restrictions in the Lander Slope and Red Canyon ACECs would benefit the gray wolf by limiting disturbance to this species. Gray wolves establishing populations in areas open to oil and gas would likely be impacted by human disturbance, loss or change in prey base, and habitat alteration as a result of development activities. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The greatest impacts on greater sage-grouse habitat may occur from oil and gas development that removes large areas of sagebrush, increases the spread of invasive species, and fragments habitat. The development potential for CBNG inside the greater sage-grouse Core Area ranges from none to moderate, with most of the Core Area having no potential for CBNG. The development potential for conventional oil and gas inside the greater sage-grouse Core Area also ranges from none to moderate, with most of the area ranging from none to low potential. Lek buffers inside the Core Area are larger than lek buffers outside the Core Area, beneficially impacting greater sage-grouse more inside the Core Area which is 70 percent of the planning area. The NSO for the WRSW LWG-nominated management area will minimize disturbance from oil and gas development to greater sage-grouse in this approximately 306,360-acre area inside Core Area. Similarly, the NSO and CSU areas in the Beaver Rim MLP area overlap portions of the Core Area and will limit disturbance that would impact greater sage-grouse habitat. The Core area limits on the density of disturbances per 640 acres and surface disturbance caps would beneficially impact greater sage-grouse in Core Area by limiting habitat fragmentation and loss.

Timing limitation stipulations will protect greater sage-grouse from disturbance during the breeding and nesting periods and on winter concentration areas both inside and outside of Core Area. The Proposed RMP will require the footprint of development and facilities be reduced to the smallest practical to protect special status species and will apply seasonal protections to surface-disturbing and disruptive

activities for oil and gas maintenance and operation actions determined to be detrimental which will benefit greater sage-grouse in all occupied habitat outside of DDAs. The establishment of DDAs, which are outside of Core area and where more intensive mineral development is allowed, could adversely impact greater sage-grouse habitat. Implementing management actions associated with oil and gas development *may impact, but is not likely to contribute to the need for federal listing (MI)* of the greater sage-grouse. This determination is based on the minimal amount (7,495 acres or less than 1 percent of BLM-administered surface in the planning area) of long-term surface disturbance from BLM oil and gas development activities anticipated in the planning area, the protective buffers around leks, the implementation of NSO stipulations, and the implementation of conservation measures for the greater sage-grouse.

Grizzly Bear. Human activity associated with oil and gas development activity can cause grizzly bear to avoid or abandon habitats. In addition, construction of roads, pads, or other facilities may alter or destroy existing suitable foraging habitat or habitat linkages between suitable habitats. Under the Proposed RMP, the entire Dubois area where current occupied grizzly bear habitat occurs is closed to oil and gas leasing and geophysical exploration, benefitting this species. There is currently one small oil field operating in the Dubois area and an undeveloped lease adjacent to the Shoshone National Forest. Upon expiration, leases would not be re-offered. Based on population increases, grizzly bear range could expand in the planning area, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to geophysical exploration and have NSO stipulations for oil and gas leasing. These restrictions in the Lander Slope and Red Canyon ACECs would benefit grizzly bears moving into this area by limiting disturbance to this species. The conservation measure requiring areas with vegetation removed due to authorized activities in occupied grizzly bear habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing management actions associated with oil and gas development *may affect, but is not likely to adversely affect* grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of these activities taking place in potential grizzly bear habitat due to closing the Dubois area to leasing and not re-issuing expired leases, the minimal amount of long-term surface disturbance (7,495 acres or less than 1 percent of BLM-administered surface in the planning area outside the Dubois area) that is anticipated from BLM oil and gas development activities, and the implementation of grizzly bear protection measures.

Blowout Penstemon. No blowout penstemon populations have been identified in the planning area; however, there is potentially suitable habitat south of Green Mountain. Surveys for the species would be required before authorizing activities in suitable habitat. Conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. Implementing management actions associated with oil and gas development *may affect, but is not likely to adversely affect* the blowout penstemon due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of oil and gas development occurring suitable blowout penstemon habitat as the oil and gas potential ranges from none to very low, and the conservation measures in place to protect the blowout penstemon.

Desert Yellowhead. Both the original identified and Cedar Rim populations of desert yellowhead and designated critical habitat are open to mineral leasing subject to an NSO stipulation. Authorized APDs would require that drilling be conducted offsite to protect the plant populations. NSO stipulations for oil and gas development would negate impacts from surface disturbance associated with drilling or access roads and above ground facilities. Implementation of oil and gas management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the NSO stipulation applied to oil and gas development activities and the BLM-committed conservation measures developed to protect the species and its habitat as part of the Desert Yellowhead Statewide BA.

Ute Ladies'-tresses. No Ute ladies'-tresses populations are known to occur in the planning area. Oil and gas development in or near wetland/riparian areas may impact potential habitat for Ute ladies'-tresses through water diversion and channelization, soil erosion, stream bank degradation, and the spread of invasive species. However, prohibiting surface-disturbing activities within 500 feet of surface water, riparian-wetland areas, and playas (unless activities are determined to be necessary and when impacts can be mitigated) would reduce these effects. Surveys for the species would be required before authorizing activities in suitable habitat. Within DDAs more intensive mineral development is allowed, and a buffer of less than 500 feet of riparian areas would be allowed if the lesser distance is shown to provide equivalent protection of riparian areas. However, inventories for Ute ladies'-tresses plants and populations would be conducted prior to authorizing surface-disturbing activities even in the DDAs. In the event that an occurrence is identified, the lessee 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). This conservation measure will reduce potential adverse impacts to Ute ladies'-tresses. Within the Beaver Rim MLP area, the BLM may apply a greater riparian-wetland setback if NEPA analysis determines that a larger area is needed to protect riparian-wetland resources. The MLP also requires that surface disturbance be avoided in unique plant communities, providing further protection for Ute ladies'-tresses potential habitat. Implementing oil and gas development management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the current lack of identified populations of the Ute ladies'-tresses from the planning area, the minimal surface disturbance anticipated from oil and gas development activities (14,473 acres from BLM actions in the short term and 7,495 acres from BLM actions in the long term), the unlikely event that oil and gas development would occur in or near potential Ute ladies'-tresses habitat, and the conservation measures in place to protect this species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Oil and gas development on private lands is expected to continue, and there are opportunities for this activity on state and private mineral estate, potentially impacting threatened, endangered, and candidate species. Permanent facilities such as roads and well pads may compromise habitat of threatened and endangered species. Construction of pipelines also contributes to the fragmentation, loss, and degradation of threatened and endangered species habitat. These activities may contribute to short and long-term losses in vegetation and increased sedimentation.

7.11 Mineral Resources—Leasable Oil Shale

At present, there is no development of oil shale in the planning area. There are low-quality oil shale deposits in the southern part of the planning area; however, there is little potential for commercial development of these resources. Based on these resource values, the existing Lander RMP was not

amended for oil shale leasing under the Programmatic EIS for oil shale and tar sands resources (BLM 2008b). Oil shale development in the planning area would require an RMP amendment.

7.11.1 Proposed Actions for Oil Shale in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for leasable oil shale resources that benefit threatened and endangered species:

- Process oil shale leasing on a case-by-case basis. Approval of oil shale leasing would require a Land Use Plan amendment.
- Encourage geophysical operators to share scientific information in order to minimize surface impacts.
- All oil and gas and other mineral leases are subject to standard lease stipulations; additional stipulations may apply in some areas.
- In areas that are closed to mineral leasing, do not reoffer existing leases when they expire. If drainage occurs in an area closed to oil and gas leasing, authorize leasing on a case-by-case basis with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to mineral materials disposal
    - Wind energy, major utility systems, and other ROWs are excluded

7.11.2 Best Management Practices

No specific BMPs apply to oil shale management.

7.11.3 Impact Analysis and Effects Determinations

In addition to the management actions above, the conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened, Endangered, and Candidate Species. There are no exploration licenses or leases issued for federally administered oil shale in the planning area and the BLM does not anticipate reasonable foreseeable oil shale exploration, leasing, or development during the planning cycle. Therefore, oil shale leasing management actions will have *no effect (NE)* on any threatened or endangered species and will have *no impact (NI)* on candidate species in the planning area. If interest in oil shale leasing on BLM-administered lands does occur, an environmental assessment or EIS will be prepared.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Oil shale operations occur on both state and private lands. These mines potentially remove habitats for threatened, endangered, and candidate species. Associated infrastructure may affect riparian habitats for Ute ladies'-tresses and sage-grouse during late brood rearing.

7.12 Mineral Resources—Other Solid Leasables

Other solid leasable minerals (non-coal) present within the planning area include phosphate and potential tar sands (VerPloeg 1986). Access to BLM-administered leasable minerals is at the BLM's discretion. The largest and most well-known occurrence is on the northwest flank of the Wind River Range, particularly in the area known as the Lander Front or Lander Slope. The rock along the Lander Front can be traced south from the Dubois area to the Sweetwater River. The other occurrences of phosphate-bearing sedimentary rocks are Crooks Mountain, Lysite Mountain, and the Conant Creek Anticline southeast of Riverton (BLM 2009e).

Until very recently, there had been little interest in phosphate except for one proposal in which planning area phosphate deposits were seriously considered for development during the 1960s through 1980s. During this period, a mining company extensively surveyed, mapped, drilled, trenched, and sampled phosphate deposits. Eventually, eight federal leases totaling 12,628 acres were issued and held by this company until 1985 (BLM 2009e). Although the mining company performed exploration activities under prospecting permits before it was issued leases, the company never performed mining operations under the leases.

At present, there are no phosphate lands under lease in the planning area, but in 2008 two proposals were submitted for phosphate prospecting and leasing, neither of which the BLM will consider until the RMP revision is finalized and a ROD is issued. There are currently no tar sand leases in the planning area.

7.12.1 Proposed Actions for Other Solid Leasables in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for other solid leasable mineral resources that benefit threatened and endangered species:

- 1,539,655 acres of federal mineral estate are open to phosphate leasing subject to standard lease stipulation. 1,269,446 acres of federal mineral estate are closed to phosphate leasing.
- Encourage geophysical operators to share scientific information in order to minimize surface impacts.
- All oil and gas and other mineral leases are subject to standard lease stipulations; additional stipulations may apply in some areas.
- BMPs that are to be part of the authorization will be applied as COAs.
- In areas that are closed to mineral leasing, do not reoffer existing leases when they expire. If drainage occurs in an area closed to oil and gas leasing, authorize leasing on a case-by-case basis with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to mineral materials disposal
    - Wind energy, major utility systems, and other ROWs are excluded

7.12.2 Best Management Practices

No specific BMPs apply to other solid leasables management.

7.12.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Prairie dogs and black-footed ferrets could be displaced or their habitats degraded or destroyed in other solid leasable mineral development areas by the extraction of these resources. Vehicular traffic associated with other solid leasable mineral development could cause direct mortality, although the chances of this event are minimized due to black-footed ferrets being nocturnal. If prairie dog colonies and/or complexes are determined to be suitable for black-footed ferret reintroduction, NSO restrictions would be applied in these areas. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing management actions associated with other solid leasable mineral development *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of other solid leasable mineral development occurring in prairie dog habitats suitable for black-footed ferrets and the conservation measures (e.g., NSOs) associated with lease stipulations in suitable prairie dog towns.

Canada Lynx. Human activity associated with other solid leasable mineral development activity can cause Canada lynx to avoid or abandon habitats. In addition, construction of roads or other facilities may alter or destroy existing suitable foraging habitat or habitat linkages between suitable habitats. Increases in vehicular collisions with Canada lynx could occur due to increase in vehicular traffic associated with other solid leasable mineral exploration and development activities; however, under the Proposed RMP, the entire Dubois area where potential Canada lynx habitat occurs, is closed to phosphate leasing which will benefit this species. There are no existing phosphate leases in the Dubois area. Implementing management actions associated with other solid leasable mineral development will have *no effect (NE)* on Canada lynx. This determination is based on no other solid leasable mineral leases currently authorized in potential Canada lynx habitat and all identified potential habitat being closed to other solid leasable mineral leasing.

Gray Wolf. Under the Proposed RMP, the entire Dubois area, where the majority of gray wolf habitat occurs, is closed to phosphate leasing which will benefit this species. There are no existing phosphate leases in the Dubois area. The gray wolf occurs in other parts of the planning area and is likely to expand its range, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to phosphate leasing which would benefit the gray wolf by limiting disturbance to this species. Impacts from the development of phosphate leases could occur to potential gray wolf habitat in areas outside of Dubois and greater sage-grouse Core Area, which also closed to phosphate leasing, in the form of habitat alteration and changes in the prey base. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Impacts on greater sage-grouse habitat may occur from other solid leasable mineral development that removes large areas of sagebrush, increases the spread of invasive species, and fragments habitat. Of the 58,035 acres of high phosphate potential in the planning area, 40,290

acres are within the greater sage-grouse Core Area, which represents approximately 2 percent of the Core Area on BLM-administered lands in the planning area. Of the 2,262 acres of moderate phosphate potential in the planning area, 1,913 acres are within the greater sage-grouse Core Area, which represents less than 1 percent of the Core Area on BLM-administered lands in the planning area. All suitable greater sage-grouse nesting and early brood-rearing habitat would be subject to seasonal protection; however, this type of protection would not protect greater sage-grouse habitat from being lost during the rest of the year. The Proposed RMP closes all lands in Core Area identified has having phosphate potential (42,203 acres) to phosphate leasing, benefitting greater sage-grouse in Core Area. This closure applies to the WRSW LWG-nominated management area, which will conserve habitat in this area. Impacts of habitat fragmentation and loss could occur on approximately 18,000 acres of greater sage-grouse habitat outside of Core Area as a result of phosphate lease development. No phosphate potential has been identified within DDA boundaries, therefore greater sage-grouse occupying habitats in these areas should not be impacted by other solid mineral activities. The Proposed RMP would prohibit surface-disturbing activities or surface occupancy on or within a 0.6-mile radius of the perimeter of occupied greater sage-grouse leks in Core Area and on or within ½-mile radius of the perimeter of occupied greater sage-grouse leks outside Core Area. In addition, the density of disturbances would be limited to an average of one disturbance location per 640 acres and the one location and cumulative value of existing disturbances will not exceed 5 percent of the sagebrush habitat within those same 640 acres. Implementing management actions associated with other solid leasable mineral development *may impact, but is not likely to contribute to the need for federal listing (MI)* of the greater sage-grouse. This determination is based on the minimal amount of impacts to greater sage-grouse habitat outside of Core Area anticipated in the planning area and the proposed protections under the Proposed RMP for the greater sage-grouse.

Grizzly Bear. Human activity associated with other solid leasable mineral development activity can cause grizzly bear to avoid or abandon habitats. In addition, construction of roads, pads, or other facilities may alter or destroy existing suitable foraging habitat or habitat linkages between suitable habitats; however, under the Proposed RMP, the entire Dubois area, where the majority of grizzly bear habitat occurs, is closed to phosphate leasing which will benefit this species. There are no existing phosphate leases in the Dubois area. The grizzly bear occurs in other parts of the planning area and is likely to expand its range, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to phosphate leasing which would benefit the grizzly bear by limiting disturbance to this species. The conservation measure requiring areas with vegetation removed due to authorized activities in occupied grizzly bear habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing management actions associated with other solid leasable mineral development *may affect, but is not likely to adversely affect* grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the minimal amount of disturbance anticipated from other solid leasable mineral development activities, the implementation of grizzly bear protection measures, and the unlikely event of these activities taking place in potential grizzly bear habitat.

Blowout Penstemon. Actions associated with other solid leasable mineral management are unlikely to occur in blowout penstemon habitat as areas of high and moderate phosphate potential do not overlap potentially suitable habitat for the blowout penstemon. Conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation

with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. Implementing management actions associated with other solid leasable mineral development *may affect, but is not likely to adversely affect* the blowout penstemon due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of other solid leasable mineral development occurring in suitable blowout penstemon habitat and the conservation measures in place to protect the blowout penstemon.

Desert Yellowhead. Designated critical habitat is closed to other solid leasable minerals, therefore critical habitat and the original identified population of desert yellowhead would not be impacted other solid leasables activities. Since leasing other solid minerals is a discretionary action within the BLM and subject to provisions of the ESA and the Conservation Measures in the Desert Yellowhead Statewide BA, leasing would not be authorized in the Cedar Rim population. Implementation of other solid leasable mineral management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on designated critical habitat and the original identified population being closed to other solid leasables, the discretionary nature of leasing for other solid leasables in the Cedar Rim population, and the BLM-committed conservation measures developed to protect the species and its habitat as part of the Desert Yellowhead Statewide BA.

Ute Ladies'-tresses. No Ute ladies'-tresses populations are known to occur in the planning area. Other solid leasable mineral development in or near wetland/riparian areas may impact potential habitat for Ute ladies'-tresses through water diversion and channelization, soil erosion, stream bank degradation, and the spread of invasive species. Prohibiting surface-disturbing activities within 500 feet of surface water, riparian-wetland areas, and playas (unless activities are determined to be necessary and when impacts can be mitigated) would reduce these effects. Management within DDAs, where more intensive mineral development is allowed, could result in adverse impacts to Ute ladies'-tresses' habitat by allowing a buffer of less than 500 feet if the lesser distance is shown to provide equivalent protection of riparian areas. Surveys for the species would be required before authorizing activities in suitable habitat. Of the 42,291 acres with phosphate development potential, the Proposed RMP closes 42,164 acres to development, leaving only 127 acres of phosphate development potential open for development. Implementing other solid leasable mineral development management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the current lack of identified populations of the Ute ladies'-tresses from the planning area, the minimal surface disturbance anticipated from other solid leasable mineral development activities, and the unlikely event that other solid leasable mineral development would occur in or near potential Ute ladies'-tresses habitat.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Other solid leasable mineral development on private lands is expected to continue and there are opportunities for this activity on state and private mineral estate, potentially impacting threatened, endangered, and candidate species. Associated infrastructure, such as roads, may affect species habitat through fragmentation, increased human presence and surface disturbance.

7.13 Mineral Resources—Salable

Salable mineral materials disposal is authorized under the Materials Act of 1947, as amended, and, as such, are discretionary actions. Salable minerals known to be present in the planning area include sand and gravel (aggregates), common-variety (non-metallurgical-grade) limestone, granite, shale, and moss

rock (lichen stone). Sand and gravel are the most common type of mineral materials found in the planning area. Sand and gravel are typically used for road base, oil and gas drill pads, and various building-construction projects. Most of the limestone in the planning area is considered common variety and therefore salable. Crushed limestone can be used for rip rap or for road base in place of sand and gravel. Granite and moss rock are used for building or decorative stone. Shale has been recently used for cap material in Abandoned Mine Land (AML) reclamation projects, due to its low permeability. Refer to the *Mineral Occurrence and Development Potential Final Report* (BLM 2009a) for additional information on salable minerals. Sand and gravel are found on old terrace benches along former and existing major drainages and pediment surfaces adjacent to range fronts. Formations for the potential exploitation of limestone resources include the Alcova Limestone member of the Chugwater Group, and the Madison Limestone. Large quantities of granitic mineral material are available at various places in the planning area, most abundantly in the Sweetwater Rocks and the Granite Mountains area. Shale is commonly obtained from exposures of Cody Shale.

Before issuing contracts for free use permits for salable minerals, the BLM conducts appropriate environmental assessments. These may include special studies or inventories of cultural values, threatened or endangered 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 common variety minerals. Reclamation includes removing all artificial debris, recontouring, reducing steep slopes, replacing topsoil, and seeding and planting vegetation. Under the Proposed RMP, 956,011 acres are closed to mineral materials disposal and 1,853,090 acres are open to mineral materials disposal. In the planning area, approximately 3,660 acres of short-term and 0 acres of long-term disturbance from salable mineral development are anticipated over the life of the plan.

7.13.1 Proposed Actions for Salable Mineral Materials in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for salable minerals that benefit threatened and endangered species:

- Approximately 1,853,090 acres with Category 1 or 2 restrictions are open for mineral materials disposal on a demand basis.
- 956,011 acres with Category 3-6 restrictions are closed to mineral materials disposal.

7.13.2 Best Management Practices

No specific BMPs apply to salable mineral resource management.

7.13.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Salable mineral materials disposal actions, including surface disturbance and development of roads and ancillary facilities could occur in occupied prairie dog habitats, resulting in habitat loss and degradation. However, limited salable mineral materials disposal actions are anticipated in the planning area and impacts will be localized in nature. Short-term disturbance from mineral materials disposal is anticipated on approximately 3,660 acres during the life of the plan, with all

of these acres being reclaimed. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing management actions for salable minerals *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event salable mineral materials disposal actions will take place in suitable habitat for black-footed ferrets, and the application of stipulations and conservation measures associated with surface-disturbing activities.

Canada Lynx. If allowed to occur, human activity associated with saleable mineral disposals could cause Canada lynx to avoid or abandon habitats. In addition, construction of roads or other facilities could alter or destroy existing suitable foraging habitat or habitat linkages between suitable habitats. Increases in vehicular collisions with Canada lynx could occur due to increase in vehicular traffic associated with salable mineral development. Conservation measures limiting the disturbance in each LAU to 30 percent of the suitable habitat within the LAU and not changing more than 15 percent of lynx habitat within an LAU to an unsuitable condition within a 10-year period would minimize adverse impacts to Canada lynx. Other BLM conservation measures that would minimize adverse impacts are ensuring key linkage areas are identified and habitat connectivity within and between LAUs is maintained. However, under the Proposed RMP, the entire Dubois area, where potential Canada lynx habitat occurs, is closed to new mineral materials disposal. There are approximately 60 acres of existing disturbance from mineral material sales in the Dubois area within potential Canada lynx habitat and one site that is currently authorized will remain open for sand and gravel operations. This site is adjacent to Highway 287 and just west of the Town of Dubois, therefore Canada lynx should not be adversely impacted as lynx will likely avoid the area due to large levels of human and vehicle activity. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect* Canada lynx due to *insignificant effects (NLAA-i)*. This determination is based on the Dubois area being closed to new mineral materials disposal and the conservation measures in place to limit the timing of activities and surface use in Canada lynx habitat.

Gray Wolf. Under the Proposed RMP, the entire Dubois area is closed to new mineral materials disposal which will benefit this species in this area. The gray wolf occurs in other parts of the planning area and is likely to expand its range, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to mineral materials disposal which would benefit the gray wolf by limiting disturbance to this species. Limited salable mineral materials disposal actions are anticipated in the planning area and impacts will be localized in nature. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Impacts on greater sage-grouse habitat may occur from management actions that can remove large areas of sagebrush and increase the spread of invasive species. All suitable greater sage-grouse nesting and early brood-rearing habitat would be subject to seasonal protections; however, this type of protection would not protect greater sage-grouse habitat from being lost during the rest of the year. Of the 2,785,346 acres of mineral estate in the planning area, 956,011 acres (approximately 45 percent) are closed to mineral materials disposal, much of which is in the greater sage-grouse Core Area. This closure would help to conserve greater sage-grouse habitat. In addition, closing the WRSW LWG-

nominated management area to new mineral materials disposal would conserve habitat in this area. The Proposed RMP would prohibit surface-disturbing activities or surface occupancy on or within a 0.6-mile radius of the perimeter of occupied greater sage-grouse leks in Core Area and on or within ½-mile radius of the perimeter of occupied greater sage-grouse leks outside Core Area. In addition, the density of disturbances would be limited to an average of one disturbance location per 640 acres and the one location and cumulative value of existing disturbances will not exceed 5 percent of the sagebrush habitat within those same 640 acres. The establishment of DDAs, where more intensive mineral development is allowed, could adversely impact greater sage-grouse habitat in these areas, however since mineral material sales are a discretionary action within the BLM, sales are typically authorized within existing disturbance and outside important habitats such as those for greater sage-grouse. Implementing management actions associated with salable mineral resources *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the conservation measures in place to protect the sage-grouse and the unlikelihood of BLM authorizing a discretionary mineral materials disposal that would adversely impact greater sage-grouse habitat inside or outside of Core Area.

Grizzly Bear. Under the Proposed RMP, the entire Dubois area that has the majority of potential grizzly bear habitat and known grizzly bear occurrence is closed to new mineral materials disposal. There are approximately 60 acres of existing disturbance from mineral material sales in the Dubois area within potential grizzly bear habitat and one site that is currently authorized will remain open for sand and gravel operations. This site is adjacent to Highway 287 and just west of the Town of Dubois, therefore grizzly bears should not be adversely impacted as bears will likely avoid the area due to large levels of human and vehicle activity. The grizzly bear occurs in other parts of the planning area and is likely to expand its range, primarily south and west of Lander in the foothills of the Wind River Mountains. The Lander Slope and Red Canyon ACECs in this area are closed to mineral materials disposal which would benefit the grizzly bear by limiting disturbance to this species. The conservation measure requiring areas with vegetation removed due to authorized activities in occupied grizzly bear habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect* grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the Dubois area being closed to mineral materials disposal, the implementation of grizzly bear protection measures, and the unlikely event of these activities taking place in potential grizzly bear habitat.

Blowout Penstemon. Blowout penstemon is found on sand dunes which is a saleable mineral material. Due to the discretionary nature of saleable mineral materials disposals, it is unlikely that disposals would be authorized in habitat supporting an ESA protected plant. BLM-committed conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. Implementation of salable mineral materials disposal management actions *may affect, but is not likely to adversely affect* the blowout penstemon *due to discountable affects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the limited potential of salable mineral management activities being authorized in blowout penstemon potential habitat due to existing conservation measures.

Desert Yellowhead. Designated critical habitat is closed to salable mineral material disposals, therefore critical habitat and the original identified population of desert yellowhead would not be impacted from activities associated with these types of sales. Since salable mineral material disposals are a discretionary action within the BLM and subject to provisions of the ESA and the Conservation Measures in the Desert Yellowhead Statewide BA, sales would not be authorized in the Cedar Rim population. Implementation of salable mineral materials disposal management actions *may affect, but are not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on designated critical habitat and the original identified population being closed to mineral materials disposal, the discretionary nature of mineral material disposals in the Cedar Rim population, and the BLM-committed conservation measures developed to protect the species and its habitat as part of the Desert Yellowhead Statewide BA.

Ute Ladies'-tresses. No known populations of Ute ladies'-tresses occur in the planning area, and no direct effects to this species are anticipated. Indirect effects to potential habitat may occur, including spread of invasive species, increased human use in the area, and elevated dust levels. However, all federal actions and authorizations for potential impacts on special status plant species will be reviewed and avoidance and mitigation measure implemented. Surveys for the species would be required before authorizing activities in suitable habitat. Conservation measures include prohibiting the disposal of salable minerals within 0.25 mile-buffer area of known populations of Ute ladies'-tresses and In addition, conservation measures prohibit surface disturbance within 500 feet of surface water or riparian areas. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the lack of identified populations of Ute ladies'-tresses in the planning area. Conservation measures for riparian/wetland areas would help to protect yet-to-be discovered populations.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Cumulative effects from salable resource operations along major river corridors or adjacent to other potential habitat for federally listed species on nonfederal lands could occur, which may impact these federally listed species, in particular the Ute ladies'-tresses which occurs in riparian/wetland habitats.

7.14 Fire and Fuels Management—Unplanned/Wildfire

The BLM coordinates its fire management program with the USFS, Wyoming State Forestry Division, County Fire Departments, and local fire protection districts. The BLM fire management program focuses on two categories of fires: unplanned (or wildfire) and planned (or prescribed fire).

Unplanned/wildfires are fires caused by an act of nature (e.g., lightning) or by human accident or intent. Wildfires include burning in areas where fire is specifically excluded or fires that exhibit burning characteristics (intensity, frequency, and seasonality) outside prescribed ranges. There have been numerous large fires in the planning area from 1988 to 2008 at a scale and quantity that exceeds the area burned in the previous 20-year period. Whether this trend is part of the natural fire cycle or because of past fire and vegetation management (which may have resulted in flammable conditions) is not precisely understood. Regardless, it appears that the planning area lies within a region where more frequent, larger fires are occurring. Much of the forest, shrublands, and grasslands are vulnerable to wildfires, but under existing conditions the areas that have the greatest potential for large wildfires are within the 15- to 19-inch and 20+-inch precipitation zones where natural fuel loading is greater. Almost all fires larger than 100 acres in the planning area have been within these precipitation zones.

The locations of human-caused fires have been widespread in the planning area, with heavier concentrations of ignitions in the Green Mountain, Lander Slope, and Sweetwater Valley Fire Management Units (FMUs). Historically, wildfires have occurred in camping and woodcutting areas from accidental ignition caused by fireworks, campfires, and machinery. Wildfires not caused by humans have been widespread, with natural fires occurring in areas of intense lightning activity in the Lander Slope and Rattlesnake Hills FMUs.

Both fire suppression activities and fire management actions depend on fire severity and size and the resources endangered by the fire. Fire management practices range from full fire suppression, to limited fire suppression, to designation of areas for prescribed fires. Ground crews—arriving onsite by road, trail, or cross-country either by foot or vehicle—evaluate the fire and estimate suppression requirements. Small fires may require hand and power tools (e.g., pulaskis, shovels, and chainsaws) and water from a pumper unit or backpack pumps. Larger fires may require additional personnel and equipment, including cutting trees, using mechanized equipment (e.g., bulldozers) to construct wider fire lines, filling water pumper trucks from waterbodies, water drops from helicopter buckets, or air tanker drops of water or chemical retardant. A camp for personnel may be established in a safe location away from the fire and will be large enough to accommodate cooking facilities and equipment and supply areas. Following containment and control of the fire, the BLM may use rehabilitation techniques to stabilize the disturbed or burned area.

7.14.1 Proposed Actions for Wildfire in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following wildfire management actions that benefit threatened and endangered species:

- Use chemical, biological, and mechanical treatments to reduce the risk of catastrophic wildfire within priority areas, alter fuel loading and improve ecological condition of vegetation communities. Management objectives are met based on acreage thresholds and areas found in an approved fire management plan (FMP) for the planning area.
- Update FMPs to incorporate new sagebrush habitat information as well as fire suppression priorities in sagebrush habitats. Objectives for the management of sagebrush ecosystems should be incorporated into FMPs and provided to initial attack personnel at the beginning of each fire season.
- Monitor burned areas for sufficient time after a fire event in order to detect weed infestations and accelerated soil erosion. Utilize all available rehabilitation tools to control weed infestation and accelerated soil erosion.
- Cooperate with other agencies and landowners to conduct landscape level treatments resulting in enhanced fuels management and/or restoration of fire-adapted ecosystems.
- Establish fuels treatment projects at strategic locations to minimize size of wildfires and limit further loss of greater sage-grouse habitat.
- Do not aerially apply fire retardants during suppression activities within 300 feet of any waterbody. Do not apply fire retardants within 500 feet of waterways that support Yellowstone cutthroat trout, burbot, and sauger unless values at risk require the use of retardants within 500 feet from identified waterways.

7.14.2 Best Management Practices

No specific BMPs apply to wildfire management.

7.14.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. If black-footed ferrets were present, wildfire in suitable occupied habitats (e.g., prairie dog towns), may impact black-footed ferrets. Wildfires could result in a direct loss of habitat; however, wildfires in prairie dog towns may not occur due to the limited vegetation and fuels to support a fire. Prairie dog towns could be impacted by wildfire that moves over the town and burns the adjacent vegetation filter that protects the town. Depending on the severity of the fire, the long-term effects could improve habitat for the black-footed ferret. The use of heavy machinery to suppress a wildfire could destroy habitat and burrows, but this is unlikely due to wildfires being rare events in prairie dog towns. Implementing wildfire management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of wildfire in prairie dog towns and no known occurrences of black-footed ferrets in the planning area.

Canada Lynx. Wildfire management actions have the potential to occur in habitats occupied by lynx. Management activities that reduce habitat for snowshoe hares and/or red squirrels will adversely affect lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators of and competitors with lynx. In addition, loss of mature timber stands could result in long-term adverse impacts on Canada lynx. Conservation measures are in place for protection of travel corridors, habitat linkages, and connectivity. In addition, the BLM will ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and will ensure revegetation of those that are necessary. Construction on ridges and saddles would be avoided if possible. The measures and protections presented in the Proposed RMP will provide protection for lynx and their habitat. Implementing wildfire management actions *may affect, but are not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i).* This determination is based on the appropriate management response to wildland fire being based, in part, on the likely consequences to natural resources and the values to be protected. In addition, the USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitats are affected by wildfire management.

Gray Wolf. Wildfire management actions, especially those associated with suppression activities, have the potential to occur in habitats occupied by gray wolf. Road construction associated with fire suppression can lead to increased access into gray wolf habitat by humans which could be a source of increased mortality for wolves by shooting, snaring, and trapping. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Wildfire in suitable occupied habitats may impact the greater sage-grouse. Wildfire could result in a direct loss of greater sage-grouse habitat and in the spread of invasive species. Under ideal conditions, large, landscape-scale wildfires could improve greater sage-grouse habitat and populations; however, many wildfires can lead to long-term loss and conversion of habitat. BLM

guidance is to emphasize wildfire control in greater sage-grouse habitat (BLM 2010). Implementing wildfire management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the BLM emphasizing wildfire control in greater sage-grouse habitat.

Grizzly Bear. Wildfire management actions have the potential to occur in habitats occupied by the grizzly bear. Road construction associated with fire suppression can lead to increased access into grizzly bear habitat by humans as well as generalist predators, and this can cause disturbance to individual grizzly bears. Surface disturbance can also temporarily affect grizzly bear foraging. Conservation measures in place that benefit the grizzly bear include ensuring that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and ensuring revegetation as necessary. These measures and protections presented in the Proposed RMP will provide protection for grizzly bear and their habitat. Implementing wildfire management actions *may affect, but are not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i).* This determination is based on the appropriate management response to wildland fire being based, in part, on the likely consequences to natural resources and the values to be protected.

Blowout Penstemon. Blowout penstemon is only found in sandy locations with little to no vegetation present, and wildfires typically do not occur in such locations. Wildfire could spread over blowout penstemon habitat or habitat could be impacted by suppression activities. Implementation of wildfire management actions *may affect, but is not likely to adversely affect* blowout penstemon *due to discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the lack of overlap of wildfire management activities and blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead is found in areas with sparse vegetation, consisting primarily of low cushion plants, and wildfires typically do not occur in such locations. Because of the large amount of bare ground and small low growing plants within and surrounding the original identified and the Cedar Rim populations, it is unlikely that enough vegetative fuel is present to carry a wildfire. Because of the plant's status under the ESA, protecting critical habitat from the impacts of wildfire will take priority during wildfire suppression. Designated critical habitat is closed to motorized travel, however access may be granted if required for wildfire suppression activities. The BLM will provide information to fire personnel to prevent suppression vehicles from staging in or driving over plant populations. Implementation of wildfire management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the low probability of wildfire occurring in the sparsely vegetated desert yellowhead populations, the motorized vehicle closure in designated critical habitat, and the BLM-committed conservation measures developed to protect the species and its habitat as part of the Desert Yellowhead Statewide BA.

Ute Ladies'-tresses. Wildfire is not common in Ute ladies'-tresses habitats due to the presence of surface and subsurface water and the lack of substantial vegetative fuel in these areas. Actions associated with wildfire suppression could destroy habitats; however, this type of impact is unlikely due to the rare occurrence of wildfire in these areas. Implementing wildfire management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of wildfire occurring in Ute ladies'-tresses habitat.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Buildup of hazardous fuels on private lands could increase the risk of wildland fire in the planning area, potentially directly and indirectly impacting threatened and endangered species and their habitats. Individuals may be displaced or killed and suitable habitats may

be altered due to suppression activities. Indirect effects include the potential for wildland fire to improve some habitats for threatened and endangered species. Wildfire will likely occur across the state regardless of land ownership and this may compromise habitat of threatened and endangered species.

7.15 Fire and Fuels Management—Planned/Prescribed Fire

Prescribed, or planned, fires (as well as some wildland fires) are used to maintain or increase age-class diversity within vegetative types (e.g., big sagebrush/grassland); rejuvenate fire-dependent vegetative types (e.g., true mountain mahogany/ponderosa pine); maintain or increase vegetation productivity, nutrient content, and palatability; and maintain or improve wildlife habitats, rangeland, and watershed conditions. Fire also is considered a management tool for disposal of timber slash, preparation of seedbed, reduction of hazardous fuel, control of disease or insects, grazing management, thinning, or plant species manipulation.

From 1985 to 2008, prescribed fires were used to treat 6,162 acres (BLM 2009e). Results included improved herbaceous production, rejuvenated crown sprouting, and robust seed production among shrub species such as true mountain mahogany, antelope bitterbrush, snowberry, and mountain sagebrush. Areas that are of primary interest for the use of prescribed fires are listed below:

- Vegetation communities within the 15- to 19-inch precipitation zones, especially large-scale prescribed fire treatments in the Rattlesnake Hills and Green Mountain FMUs and smaller prescribed burn treatments in the Dubois, Lander Slope, Sweetwater Valley, and Copper Mountain FMUs.
- Areas that have shown a beneficial response from such treatments, namely those dominated by mountain shrub, grass and juniper, and limber pine woodlands.
- Areas that are identified within Condition Class 2 or 3 and Fire Regime Group IV.

Activities associated with prescribed fires include preparing the site for the burn by constructing firebreaks, reducing fuel loads, and piling the fuel to be burned. The BLM conducts the burn under strict guidelines of temperature conditions, humidity, and wind speed and direction to minimize the chance of the fire escaping.

7.15.1 Proposed Actions for Prescribed Fire in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for prescribed wildfire that benefit threatened and endangered species:

- Partner with the University of Wyoming and other research entities to complete necessary research on the ecology and historic disturbance regime of sagebrush steppe, woodland, and forested vegetation communities found within the planning area. Use this information to develop a regionally specific scientific foundation to vegetation management activities.
- Inventory the FRCC of the vegetative communities found within the FMUs. In coordination with partners, prioritize areas requiring treatment and utilize appropriate vegetation treatment techniques and the use of wildland fire to improve the condition class across a landscape.
- Emphasize the reintroduction of fire into its natural role in the ecosystem. Where possible, use wildland fire and prescribed fire to achieve management objectives including reducing hazardous fuel loading, restoring vegetation communities, improving wildlife habitat, protecting

sage-grouse habitat, enhancing forage production and addressing forest and woodland health issues such as pine beetle outbreaks.

7.15.2 Best Management Practices

No specific BMPs apply to prescribed fire management.

7.15.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Prescribed fire, if planned in suitable occupied habitats (e.g., prairie dog towns), may impact black-footed ferrets. It is unlikely prescribed fire will be implemented in these areas, as prairie dog towns may not have the vegetation and fuels to support a fire. Prairie dog towns may be intermingled in areas that may have prescribed fire in which there could be impacts but, authorizing prescribed fire in potential habitat for black-footed ferrets or potential reintroduction sites would be unlikely. Depending on the severity of the fire, the long-term effects could improve habitat for the black-footed ferret. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing prescribed fire management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of prescribed fire in prairie dog towns and no known occurrences of black-footed ferrets in the planning area.

Canada Lynx. Fire management actions, particularly actions associated with prescribed fire, have the potential to occur in habitats occupied by lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators, such as coyotes, wolves, and bobcats. These species can be predators of and competitors with lynx. Conservation measures are in place to protect travel corridors, habitat linkages and connectivity. In addition, the BLM will ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and will ensure revegetation of those that are necessary. Construction on ridges and saddles would be avoided if possible. The measures and protections presented in the Proposed RMP will provide protection for lynx and their habitat and *may affect, but are not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i).* This determination is based on the protective measures in place to minimize impacts on the lynx.

Gray Wolf. Prescribed fire management actions have the potential to occur in habitats occupied by gray wolf. Burns that open up forests and enhance development of mixed shrubs, thereby promoting elk and other big game foraging areas, would be beneficial to wolves. Preparation for prescribed burns, including road development and increased human presence, could have an adverse impact to this species. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Prescribed fire in suitable occupied habitats may have adverse and beneficial impacts to the greater sage-grouse. Reduction of fuels in sagebrush habitats through prescribed fire could limit the severity and minimize the size and adverse impacts of wildfires to greater sage-grouse. Fire can improve the age class diversity of sagebrush plants and increase the density and species

composition of the herbaceous plant understory which may benefit greater sage-grouse habitat. Establishing fuels treatment projects at strategic locations to minimize size of wildfires and limit further loss of greater sage-grouse habitat will also reduce impacts on the sage-grouse. Some researchers indicate prescribed fire may benefit greater sage-grouse by enhancing nesting and brood-rearing habitats through maintaining a balance of shrubs, forbs, and grasses; however, while increases in forb production have been documented following fires, these results were not related to greater sage-grouse population characteristics (Connelly et al. 2004). Other studies have documented declines in breeding populations following prescribed fires and avoidance of areas with burns that were less than 20 years old (Connelly et al. 2004). Recovery of burned shrubland is a function of size of the fire, fire frequency, and availability of seed sources and decisions to use prescribed fire in greater sage-grouse habitat would need to be made on a site-by-site basis. Sagebrush communities treated with prescribed fire in areas receiving little annual precipitation can take many years to recover, resulting in the long-term loss of suitable greater sage-grouse habitat. Under the Proposed RMP, prescribed fire would be severely limited in areas receiving less than 12 inches of annual precipitation and only allowed after determining that treatment is necessary and exploring all other treatment methods. These low precipitation areas make up the majority of the planning area.

Updating FMPs to incorporate new sagebrush habitat information as well as fire suppression priorities in sagebrush habitats will reduce impacts on the sage-grouse. Objectives for the management of sagebrush ecosystems should be incorporated into FMPs and provided to initial attack personnel at the beginning of each fire season. BLM guidance is to design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit greater sage-grouse habitat (BLM 2010). Implementing prescribed fire management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on BLM guidance to protect existing sagebrush ecosystems when designing prescribed fire and fuels treatment objectives and not authorizing prescribed fire in areas receiving less than 12 inches of annual precipitation unless all other treatment methods have been explored and determined to not be feasible.

Grizzly Bear. Prescribed fire management actions have the potential to occur in habitats occupied by the grizzly bear. Activities associated with prescribed fire include preparing the site for the burn by constructing firebreaks, reducing fuel loads, and piling the fuels to be burned. These activities can lead to disturbances to grizzly bear by humans as well as generalist predators. Surface disturbance can also temporarily affect grizzly bear foraging. Conservation measures in place that benefits the grizzly bear include conducting the burn under strict guidelines of temperature conditions, humidity, and wind speed and direction to minimize the chance of the fire escaping. Because of its status under the ESA, prescribed fire would be subject to consultation with the USFWS. The conservation measures and protections presented in the Proposed RMP as well as additional measures and mitigation developed through the consultation process will provide protection for grizzly bear and their habitat. Prescribed fire management actions *may affect, but are not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i).* This determination is based on the protective measures in place to minimize impacts on the grizzly bear.

Blowout Penstemon. Blowout penstemon is only found in sandy locations with little to no vegetation present, and such locations are not typically where prescribed fires occur. Surveys for the species would be required before authorizing activities in suitable habitat. Prescribed fire occurring on adjacent lands may adversely impact blowout penstemon if it results in landscape changes that alter wind, water, and insect pollinator conditions. Implementation of prescribed fire management actions *may affect, but are not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This

determination is based on no blowout penstemon populations documented in the planning area and the lack of prescribed fire management activities taking place in blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead is found in areas with sparse vegetation, consisting primarily of low cushion plants. Habitat within and immediately surrounding the 2 populations has a large amount of bare ground and small low growing plants that typically does not sustain prescribed fire due to the lack of vegetative fuel. Desert yellowhead occurs in habitat receiving less than 12 inches of annual precipitation; therefore the use of prescribed fire to treat sagebrush in these areas would be restricted. Because of the plant's status under the ESA, the discretionary nature of prescribed fire would not be authorized in desert yellowhead populations or designated critical habitat. In addition, critical habitat is closed to motorized vehicle use, which would prevent fire vehicles from accessing the area. Implementation of prescribed fire management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the ESA protections for the plant and critical habitat that would preclude the discretionary action of authorizing a prescribed fire in the area and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Prescribed fire is not commonly used in Ute ladies'-tresses habitat due to the presence of surface and subsurface water and the lack of fuel in these areas. Actions associated with fire suppression could destroy habitats; however, this type of impact is unlikely due to the rare use of prescribed fire in these areas. It is highly unlikely that the BLM would consider authorizing prescribed fire in an area containing habitat for an ESA-listed species. Surveys for the species would be required before authorizing activities in suitable habitat. Implementing prescribed fire management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of prescribed fire use in Ute ladies'-tresses habitat.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Prescribed fire on nonfederal lands could reduce hazardous fuel loads and thus the risk of catastrophic wildland fire; it could also improve habitat for threatened, endangered, or candidate species. Such impacts are anticipated to be minimal.

7.16 Fire and Fuels Management—Stabilization and Rehabilitation

The BLM implements long-term rehabilitation measures to repair land damaged by wildfire that is unlikely to recover naturally. The BLM will implement rehabilitation measures for reasons such as preventing impacts on crucial fisheries habitat from erosion and sediment, preventing mass wasting onto private property, preventing the spread of invasive plants, and restoring a municipal watershed.

The Burned Area Emergency Stabilization and Rehabilitation (ES&R) Plan is an interdisciplinary response to protecting natural resources and threats to human health and safety. The guidelines for development of this plan are outlined in BLM Handbook H-1742-1, *Burned Area Emergency Stabilization and Rehabilitation*.

Fires throughout the West have become much larger, have threatened the natural integrity of the burnt ecosystem, and have become a threat to human health and safety. The recovery of burned landscapes—especially from large, landscape-level fires—sometimes requires actions to maintain the integrity of the natural resources and the safety of adjacent communities. The need to stabilize and rehabilitate burnt areas has become increasingly important. Some areas do not successfully recover with native vegetation and become dominated by invasive plant species. Many communities adjacent

to wildfires are threatened by erosion of bare soil, loss of public infrastructure, and contamination of water resources.

All wildfires are analyzed for the need to implement an ES&R plan after the fire is contained. Indicators of the need for an ES&R plan are areas of high-severity burns, steep terrain, high probability of proliferation of invasive plant species after the burn, and threats to human health and safety or loss of infrastructure. Relatively few fires in the planning area require a plan.

7.16.1 Proposed Actions for Stabilization and Rehabilitation in the Lander Proposed RMP and Final EIS

The Proposed RMP does not propose stabilization and rehabilitation management actions that benefit threatened and endangered species.

7.16.2 Best Management Practices

No specific BMPs apply to fire stabilization and rehabilitation management.

7.16.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Stabilization and rehabilitation in suitable occupied ferret habitats (e.g., prairie dog towns) may impact black-footed ferrets. It is unlikely that fire stabilization and rehabilitation occur in these habitats, however, because prairie dog towns typically do not have the necessary fuel loading to successfully carry a fire and therefore typically do not require stabilization and rehabilitation actions. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing stabilization and rehabilitation management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of stabilization and rehabilitation activities in prairie dog towns.

Canada Lynx. Stabilization and rehabilitation actions can occur in all forest types, including the aspen and coniferous habitats used by lynx. The BLM portions of the LAUs in the Dubois area are considered urban interface because of the proximity to Dubois itself. BLM-administered lands in the Dubois area have little, if any, denning habitat. Emergency stabilization and burned area rehabilitation are part of a holistic approach to addressing post-wildland fire issues, and this also includes repairing damage from suppression activities. Stabilization and rehabilitation management actions have the potential to disturb lynx through development and use of roads and by increasing human presence in areas that might be frequented by Canada lynx. Post-disturbance assessments are required prior to salvage to determine potential for denning and foraging habitat, and the minimization of roads and fire lines. Revegetation of roads and firelines after suppression activities will reduce impacts to Canada lynx. These measures will provide protection for lynx and their habitat. Conservation measures are in place to protect travel corridors, habitat linkages and connectivity and include that no activities that adversely impact threatened or endangered species would be allowed applies to stabilization and rehabilitation of fires. These measures will provide protection for lynx and their habitats. Implementing stabilization and rehabilitation actions *may affect, but is not likely to adversely affect*, the lynx due to *insignificant effects (NLAA-i)*. This determination is based on the protection provided by conservation measures and the limited amount of denning habitat on BLM-administered lands in the Dubois area.

Gray Wolf. Stabilization and rehabilitation activities could impact the gray wolf through development and use of roads and by increasing human presence in areas that might be frequented by wolves. Activities that stabilize post-burn sites would benefit the gray wolf in the long term, by reducing erosion and improving vegetative conditions. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. There is a possibility wildfire would occur in greater sage-grouse habitats. Stabilization and rehabilitation after fire would be a priority in Core Area and in occupied greater sage-grouse habitat outside of Core Area to prevent weed infestations, reduce soil erosion, and begin restoring habitat. If there were a fire in greater sage-grouse habitat, implementing stabilization and rehabilitation management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the long-term beneficial impacts of rehabilitating areas that greater sage-grouse use in which fire has occurred.

Grizzly Bear. Stabilization and rehabilitation actions can occur in all forest types and habitats used by grizzly bear. Emergency stabilization and burned-area rehabilitation are part of a holistic approach to addressing post-wildland fire issues that also includes repairing damage from suppression activities. Stabilization and rehabilitation management actions can reduce habitat quality and quantity for the grizzly bear, eliminate vegetative cover, or cause disturbance. Conservation measures in place will provide protection for the grizzly bear and their habitats, including restricting the timing of activities and spatial considerations for grizzly bears to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area. Authorized activities planned to occur in occupied grizzly bear habitat will be analyzed and planned with active grizzly bear protection measures. Implementing stabilization and rehabilitation management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the conservation measures in place to plan activities such that significant disruptions to grizzly bear behavior are avoided or prevented.

Blowout Penstemon. Blowout penstemon is only found in sandy locations with little to no vegetation present, and only if a wildfire spread over these areas would fire stabilization and rehabilitation management actions occur in these areas. The actions associated with fire stabilization and rehabilitation management are unlikely to occur in blowout penstemon habitat. If wildfire spread over blowout penstemon habitat, habitat could be impacted by suppression activities. Implementation of stabilization and rehabilitation management actions *may affect, but are not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the low potential of fire stabilization and rehabilitation management activities occurring in blowout penstemon potential habitat.

Desert Yellowhead. As described under section 7.14.3 (Unplanned/Wildfire), it is unlikely that wildfire will occur in desert yellowhead populations and critical habitat due to the lack of vegetative fuel required to carry a fire, therefore reducing the potential for fire stabilization and rehabilitation activities. If wildfire occurs in desert yellowhead population or designated critical habitat, stabilization and rehabilitation will take place in coordination with the USFWS to identify appropriate rehabilitation methods, seed mixes, and mitigation measures. Implementation of fire stabilization and rehabilitation management actions *may affect, but are not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the low

potential for fire stabilization and rehabilitation management activities and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Stabilization and rehabilitation activities are not common in Ute ladies'-tresses habitat due to the presence of surface and subsurface water and the lack of substantial fuel in these areas to carry fires. Actions associated with stabilization and rehabilitation could disturb habitats and individual Ute ladies'-tresses plants; however, this type of impact is unlikely due to the rare occurrence of fire in these areas. Implementing stabilization and rehabilitation management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of fires occurring in Ute ladies'-tresses habitat and thus the lack of stabilization and rehabilitation actions in these areas.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Fire stabilization and rehabilitation on nonfederal lands could improve habitat for threatened, endangered, or candidate species. Such impacts are anticipated to be minimal.

7.17 Forest, Woodlands, and Aspen Communities

Approximately 61,861 acres, or 2.6 percent, of BLM-administered surface in the planning area consists of forest and woodland communities (including juniper/limber pine, aspen woodlands, and conifer forests). Forest communities comprise approximately 19,058 acres of BLM-administered surface, or less than 1 percent of the planning area. Forest communities in the planning area are dominated by lodgepole pine with some confined Douglas-fir and Engelmann spruce stands, and these communities are primarily found north of Dubois and Lander and in the South Pass and Green Mountain areas.

Overall, forest and woodland health throughout the West is declining. Drought conditions, hotter summers and fewer deep winter freezes have stressed forest and woodland communities and made them more susceptible to insect and disease outbreaks. Related to changing climatic conditions, 100 years of fire suppression has altered the ecology of the existing landscape. Evidence of the combination of these factors includes juniper encroachment, conifer stands decimated by pest infestation, and the decline of aspen stands. Loss of aspen stands have been reported throughout the West, with the highest mortality occurring in areas where aspen is a mid-seral species (Bartos and Campbell 1998).

Age-class distribution, diversity, fire return intervals, as well as pine beetle and other infestations, are key indicators of forest and woodland health. Aspen, because of its importance as a vegetative resource for wildlife habitat, serves as an overall indicator species for forest and woodland health.

7.17.1 Proposed Actions for Forests, Woodlands, and Aspen Communities in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for forests, woodlands, and aspen communities that benefit threatened and endangered species:

- Manage to improve stand diversity, sustainability, and consideration of other resources and resource uses in forest and woodland management.
- Identify areas in which the use of wildland fire could be implemented as a management tool to enhance forest and woodland health.
- Actively promote aspen regeneration throughout the Lander Field Office using a variety of treatment methods to enhance wildlife habitat and improve overall ecological health.

- Manage old growth and rare forest and woodland communities to maintain the ecological characteristics unique to the site(s).
- Manage forests and woodlands in response to conditions on the ground, including forest health, wildlife habitat, and demand for forest products.
- Implement forest replanting after sale, vegetative treatment, or fire on a case-by-case basis if natural regeneration does not occur within a timeframe appropriate for vegetative type.
- Authorize the full range of silvicultural techniques such as thinning and selective cuts and prescribed fire to maintain forest and woodland health and to reduce the risk of mortality by insects, disease, and wildfire.
- Manage the Lander Slope and Red Canyon as one area. Prohibit commercial forest product sales in this area unless necessary because of human health and safety issues (Wildland Urban Interface) or to improve wildlife habitat and overall forest health.

7.17.2 Best Management Practices

No specific BMPs apply to management of forests, woodlands, and aspen communities.

7.17.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Actions associated with forests, woodlands, and aspen communities generally occur on forested lands. Black-footed ferrets and prairie dogs occur on lower-elevation short-grass prairie and semi-desert shrublands and thus will not be disturbed by actions associated with forest, woodland, and aspen communities' resource management. Implementing forest, woodland, and aspen communities' management actions would have *no effect (NE)* on the black-footed ferret. This determination is based on the absence of the species in forested areas.

Canada Lynx. Forest management actions occur in all forest types, including the aspen and coniferous habitats used by lynx. Forest management can reduce habitat quality and quantity for lynx and their prey, and may reduce large woody debris, thereby reducing potential denning sites, reducing kitten survival rates. Pre-commercial thinning has a direct adverse effect on hare habitats, at least in the short term. Clear-cutting, logging operations, road and landing construction, shearing, helicopter logging, and disease-treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitats and cover, or by causing heavy disturbance in habitats used by lynx and their prey. Conservation measures in place include restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitats. Implementing forest management actions *may affect, but is not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i)*. This determination is based on the conservation measures in place to protect this species.

Gray Wolf. Forest management actions occur in habitat used by the gray wolf. There could be an impact to wolves if specific forest management actions occur at or near a den or rendezvous site, causing the wolves to abandon that site. New roads associated with forest management could adversely impact gray wolves by fragmenting habitat and increasing the presence of humans in habitat occupied by gray wolf. Clear-cutting, logging operations, road and landing construction, shearing, helicopter logging, and disease-treatment sprayings all have the potential to disturb gray wolf by eliminating habitat and cover. However, forest management actions that improve the habitat of gray

wolf prey including big game, would benefit this species. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Vegetation treatments in forests and aspen communities would not impact the greater sage-grouse as this species typically does not use these areas. The removal or thinning of limber pine or juniper woodland plants that have encroached into greater sage-grouse habitat thereby reducing its suitability as seasonal habitat, would benefit the species by increasing the amount of usable habitat. In addition, actions in greater sage-grouse nesting and early brood-rearing habitat would be subject to seasonal protection, which would benefit the species. Implementing forest, woodland, and aspen communities' management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the benefits of removing limber pine and juniper that have encroached into sage-grouse habitat and the protective measures in place to protect greater sage-grouse.

Grizzly Bear. Forest management actions occur in all forest types used by the grizzly bear. Forest management can reduce habitat quality and quantity for grizzly bear. Pre-commercial thinning may disturb grizzly bear foraging in the short term. Clear-cutting, logging operations, road and landing construction, shearing, helicopter logging, and disease-treatment sprayings all have the potential to disturb the grizzly bear by eliminating habitat and cover. Conservation measures in place include the BLM not approving commercial cutting or other removal of whitebark pine in occupied or potential grizzly bear habitat, and requiring areas with vegetation removed due to authorized activities in occupied grizzly bear habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restricts the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. The BLM will provide a packet of educational materials to authorized timber operators in grizzly bear habitat. These measures will provide protection for grizzly bear and their habitats. Implementing forest management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the conservation measures in place to protect this species.

Blowout Penstemon. Blowout penstemon is only found in sandy locations with little to no vegetation present, which is not where management activities for forests, woodlands, and aspen communities occur. The actions associated with forests, woodlands, and aspen communities are unlikely to occur in blowout penstemon habitat. Implementation of forests, woodlands, and aspen communities' management actions will have *no effect (NE)* on the blowout penstemon. This determination is based on no blowout penstemon populations documented in the planning area and the lack of overlap of forests, woodlands, and aspen communities' management activities and blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead is found in areas with sparse vegetation, consisting primarily of low cushion plants. Habitats do not contain conifer or deciduous trees, therefore management activities for forests, woodlands, and aspen communities would not occur in occupied habitat or within designated critical habitat. Implementation of forests, woodlands, and aspen communities' management actions will have *no effect (NE)* on the desert yellowhead or designated critical habitat. This determination is based on desert yellowhead habitat not occurring in forests, woodlands, or aspen communities.

Ute Ladies'-tresses. The Ute ladies'-tresses is associated with riparian areas, which are not areas targeted for forest management. Potential Ute ladies'-tresses habitats are not expected to experience any effects from forest management actions. Implementing forest management actions has *no effect (NE)* on the Ute ladies'-tresses. This determination is based on the absence of forest management actions occurring in Ute ladies'-tresses potential habitats.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Forest management on nonfederal lands could affect Canada lynx, grizzly bear, and their habitats. These actions could contribute to short- and long-term losses of vegetation and increased sedimentation as well as fragmentation of habitat. Increased human presence may also adversely impact threatened and endangered species in the areas where forest management actions take place. Road building in riparian areas may affect Ute ladies'-tresses potential habitats. Vegetation treatments on state and private lands contribute to short- and long-term losses of vegetation and increased sedimentation.

7.18 Grassland and Shrubland Communities

The sagebrush biome—which consists of grassland, sagebrush, mountain shrub, and desert shrub and saltbush-greasewood flats vegetative types—comprises 2,249,573 acres, or 94 percent of the BLM-administered surface in the planning area. The sagebrush biome has become increasingly important as it is lost throughout the western United States to development, urbanization, and fragmentation. For decades, the objective was to convert sagebrush steppe to crops or grassland, whenever it could be done in a cost-effective manner. In the Great Basin, altered fire regimes from cheatgrass infestation have removed approximately half of the sagebrush in the last few decades. The importance of sagebrush is especially important in relation to greater sage-grouse, which is declining in population and distribution across much of its range. Sagebrush in the planning area remains largely intact.

Standard 3 of the Wyoming Standards for Healthy Rangelands states that upland vegetation on each ecological site should consist of plant communities appropriate to the site that are resilient, diverse, and able to recover from natural and human disturbance. Indicators used to assess upland vegetation health include vegetative cover, plant composition and diversity, bare ground and litter, erosion, water infiltration rates, and invasive species.

The BLM manages grassland and shrubland communities in accordance with the Wyoming Standards for Healthy Rangelands. BLM actions associated with managing grassland and shrubland communities include using mechanical, chemical, biological methods, and livestock grazing to achieve objectives; conducting rangeland health evaluations; managing for sustainable levels of forage for livestock and habitat for wildlife; implementing guidelines on allotments that do not meet rangeland health standards; and conducting vegetation treatments.

7.18.1 Proposed Actions for Grassland and Shrubland Communities in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for grassland and shrubland communities that benefit threatened and endangered species:

- Manage for specific species and vegetative attributes (plant density, composition, cover, and diversity) using ecologically sustainable practices.
- Identify unique plant communities and manage to protect, preserve, or enhance these communities.

- Manage vegetative communities to the attributes described in the NRCS Ecological Site Description to benefit the biological diversity of the site, except in the energy development areas.

7.18.2 Best Management Practices

No specific BMPs apply to grassland and shrubland communities management.

7.18.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Grassland and shrubland management actions that occur within active prairie dog colonies may be implemented to reduce invasive species and improve forage for prairie dogs. The long-term goal of these programs would be to improve habitat quality. BLM-committed conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing grassland and shrubland management actions *may affect, but is not likely to adversely affect* the black-footed ferret, due to *beneficial effects (NLAA-b)*. This determination is based on no known black-footed ferret is identified in the planning area, the potential for improvement to prairie dog and ferret habitat from invasive grass reduction, and the existing conservation measures.

Canada Lynx. Grassland and shrubland communities are not the preferred habitat for the Canada lynx; therefore treatments that may occur in these habitats are not anticipated to impact lynx. In addition, conservation measures limit the amount of disturbance in each LAU to protect the LAUs from changing to an unsuitable condition. Areas where grassland and shrubland management actions are implemented would be localized; therefore, they may only affect a portion of the LAU in the planning area. Implementing grassland and shrubland management actions *may affect, but is not likely to adversely affect* the lynx due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event grassland and shrubland management actions will take place in potential lynx habitats and the existing conservation measures in place to protect the species.

Gray Wolf. Gray wolves primarily inhabit forested areas; however, wolves are habitat generalists and will make use of any habitat type that contains prey, including elk, moose, and deer. Grassland and shrubland management actions that improve their prey's habitat and forage would beneficially impact the gray wolf. Similarly, management actions that preserve large intact portions of habitat would beneficially impact the gray wolf which depends on large areas of habitat for their life history requirements. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Management actions that remove large areas of sagebrush and increase the spread of invasive species, such as mechanical or chemical treatments, can adversely impact the greater sage-grouse. However, actions designed specifically to improve greater sage-grouse habitat or treat

invasive plants would benefit the species. To protect and improve sage-grouse habitat, special status wildlife species management actions include following recommendations from the BLM's National Sage-grouse Habitat Conservation Strategy Guidance for the Management of Sagebrush Plant Communities for Sage-grouse (BLM 2004c) and other more recent guidance. The long-term goal is to improve habitat quality. Actions occurring in suitable greater sage-grouse nesting, early brood-rearing, and winter habitats would be subject to seasonal protection; however, seasonal protections may be waived if the action is localized and success is dependent on appropriate timing, such as for cheatgrass treatments. The Proposed RMP would prohibit surface-disturbing activities or surface occupancy on or within a 0.6-mile radius of the perimeter of occupied greater sage-grouse leks in Core Area and on or within ½-mile radius of the perimeter of occupied greater sage-grouse leks outside Core Area. In addition, the density of disturbances would be limited to an average of one disturbance location per 640 acres and the one location and cumulative value of existing disturbances, including those from sagebrush or grassland management activities, will not exceed 5 percent of the sagebrush habitat within those same 640 acres. Implementing grassland and shrubland management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the possibility of grassland and shrubland management actions that could affect sage-grouse habitat, both beneficially and adversely, and the protections under the Proposed RMP for the species and its habitat.

Grizzly Bear. Grassland and shrubland communities are not the preferred habitat for the grizzly bear. Areas where grassland and shrubland management actions are implemented will be localized; therefore, they may only affect a portion of the large territory occupied by the grizzly bear. The conservation measure requiring areas in occupied grizzly bear habitat having vegetation removed due to authorized activities be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing grassland and shrubland management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that grassland and shrubland management actions will take place in occupied grizzly bear habitats and the existing conservation measures in place to protect the species.

Blowout Penstemon. Blowout penstemon is only found in sandy locations with little to no vegetation present. The actions associated with grassland and shrubland management are not anticipated to impact blowout penstemon habitat, but treatment of invasive plants adjacent to a blowout penstemon population may benefit the population. Surveys for the species would be required before authorizing activities in suitable habitat. Because blowout penstemon is an ESA protected species, the BLM would not authorize grassland and shrubland management actions that would adversely impact the species. Implementation of grassland and shrubland management actions *may affect, but is not likely to adversely affect* on the blowout penstemon due to *beneficial effects (NLAA-b).* This determination is based on no blowout penstemon populations having been documented in the planning area and that management actions may benefit potential blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead is found in areas with sparse vegetation, consisting primarily of low cushion plants. The actions associated with grassland and shrubland management may improve suitability of desert yellowhead habitat in the longer term by protecting grassland and shrubland habitats. Surveys for the species would be required before authorizing activities in suitable habitat. Because of the plant's status under the ESA, protecting individual plants, populations, and critical habitat will be a priority. Implementation of grassland and shrubland management actions *may affect,*

but is not likely to adversely affect the desert yellowhead or designated critical habitat due to *beneficial effects (NLAA-b).* This determination is based on the potential benefits to desert yellowhead habitat and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Management actions of shrubland communities are not expected to adversely impact the Ute ladies'-tresses as this species does not occur in shrublands. Management actions to improve grassland communities could benefit Ute ladies'-tresses by reducing invasive species and improving these habitats. Surveys for the species would be required before authorizing activities in suitable habitat. Conservation measures include the BLM ensuring that 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, maintaining or enhancing habitats that support or could support threatened and endangered species. If revegetation projects are conducted within 0.25 mile of known habitat for the orchid, only native species will be selected. This conservation measure will reduce the possibility of introduction of non-native species. Implementing grassland management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *beneficial effects (NLAA-b)*. This determination is based on the existing conservation measures in place to protect individual plants and habitats and the potential benefits to improving habitat for the Ute ladies'-tresses.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Management on nonfederal lands may add to disturbance of threatened and endangered species. Depending on the time of year actions are conducted, increased human presence and use of machinery may cause detrimental impacts on threatened and endangered species. If actions on BLM-administered and nonfederal lands occur during the same time period and in nearby locations, habitat for threatened and endangered species could be limited. Vegetation treatments on state and private lands contribute to short- and long-term losses of vegetation and increased sedimentation.

7.19 Invasive Species and Pest Management

An invasive species is defined as a species whose introduction causes or is likely to cause economic or environmental health or harm to human health. Invasive species are an increasing problem in the planning area and are affecting water and other resources. Pest infestations in the planning area primarily include grasshopper and Mormon cricket outbreaks. The Fish and Wildlife sections of this BA address impacts from aquatic invasive species.

Invasive species are placed on the Wyoming designated noxious weed list by the procedure described in the Wyoming Weed and Pest Control Act of 1973. The State of Wyoming designates 6 animal species and 25 plant species as pests and noxious weeds. This list is dynamic, and additions to it are made as necessary by the Wyoming Board of Agriculture and the Wyoming Weed and Pest Council. Declaring a plant, insect, or rodent to be an invasive weed or pest allows for joint funding for control and assistance through the established state statute. Most of the weeds found on this list are capable of producing monotypic stands as they may process a competitive advantage in establishing on disturbed soils; also, some are allelopathic, producing or accumulating toxins to keep the seeds of other species from germinating. Typically, these weeds are perennial or biennial, difficult to control, and usually interfere with agriculture. There are 30 additional plant species listed by adjoining states as noxious weeds, bringing the total list to 55 plants that are weedy in Wyoming or bordering states. A number of other species are of concern for the community.

The Lander Field Office controls invasive species on the public lands through cooperative agreements with the Fremont and Natrona Weed and Pest Control Districts. In addition to these county weed

districts, the Lander Field Office works in cooperation with the WGFD, State Lands Division, State Parks, local NRCS offices, and private landowners.

The Lander Field Office also participates in the Popo Agie Weed Management Area and the Dubois-Crowheart Weed Management Area, and will soon be a participant in the newly formed Lower Wind River Weed Management Area. The Dubois area experiences extensive recreation use and is a scenic area on a thoroughfare for Grand Teton National Park and YNP. The Dubois-Crowheart Weed Management Area was created to prevent new infestations of invasive species, educate the public about invasive species and the problems they cause, and to combat invasive species in this area.

7.19.1 Proposed Actions for Invasive Species and Pest Management in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for invasive species and pest management that benefit threatened and endangered species:

- Cooperate with other federal and state agencies, counties, conservation districts, Weed Management Areas, and other entities to control weed infestation.
- Integrated pest management is consistent with *Partners Against Weeds*. Use fire and mechanical/chemical treatments to control weeds. Reseed or replant as necessary to promote vegetative growth.
- Require the use of certified noxious-weed free forage, mulch, and other land-applied products by BLM-authorized activities on BLM-administered lands.
- On a case-by-case basis, require that all equipment and vehicles used for BLM-authorized activities be cleaned for seeds of noxious weeds and INNS before moving onto BLM-administered lands. If the area on which BLM-authorized activities take place is identified as being a high risk for invasive and/or noxious weeds require that vehicles be cleaned before leaving the worksite with prescriptions for the disposal of wash water.
- If the Authorized Officer determines that livestock are likely carrying ingested seeds of INNS, the Authorized Officer may require that livestock be flushed for weeds for a period of 72 hours before allowing livestock to move onto BLM-administered lands.
- If the Authorized Officer determines that BLM-authorized activities are contributing to the spread of noxious or invasive species, adjust the terms of the authorized activity to aid in the control of the species.

7.19.2 Best Management Practices

No specific BMPs apply to invasive species and pest management.

7.19.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Invasive species are controlled on BLM-administered lands through cooperative agreements with the counties and pest control districts. In addition, the field office works in cooperation with the WGFD, State Lands Division, State Parks, local NRCS offices, and private landowners to control invasive species. Control of invasive species on BLM-administered lands could improve habitats for the black-footed ferrets and prairie dogs. Chemical control of prairie dogs is not

likely to occur on public lands in areas identified for ferret reintroduction. Control of grasshopper and Mormon cricket outbreaks would benefit the black-footed ferret because infestations could adversely affect habitat quantity and quality. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for black-footed ferret. Implementing invasive species management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the potential benefit to ferret habitat, and the conservation measures proposed.

Canada Lynx. Control of invasive species on BLM-administered lands could improve lynx habitats. Implementing invasive species management actions ultimately improves habitat quality and quantity for lynx. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for Canada lynx. Disturbance limitations in Canada lynx habitat would benefit this species by minimizing the potential spread or introduction of invasive species. In high-elevation riparian areas, the BLM will ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares. Implementing invasive species management actions *may affect, but is not likely to adversely affect* the lynx due to *discountable effects (NLAA-d)*. This determination is based on invasive species management actions improving habitat for lynx and the conservation measures in place to limit disturbance in lynx habitat.

Gray Wolf. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Invasive species are controlled on BLM-administered lands through cooperative agreements with the counties and pest control districts. In addition, the field office works in cooperation with the WGFD, State Lands Division, State Parks, local NRCS offices, and private landowners to control invasive species. Control of invasive species and grasshopper and Mormon cricket outbreaks on BLM-administered lands could improve habitats for the sage-grouse. Broad-spectrum insecticides are discouraged in greater sage-grouse brood-rearing areas to reduce the adverse impacts to non-targeted insects important for young grouse from such treatments. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for greater sage-grouse. Prohibition of surface disturbance within 0.6 mile of leks in the Core Area would likely reduce the amount of permitted surface disturbance and therefore reduce the opportunities for establishment or spread of invasive species. The surface disturbance and density thresholds in the Core Area would benefit greater sage-grouse by reducing the opportunity for weeds to become established and reducing the spread of invasive species in greater sage-grouse habitat. Implementing invasive species management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on conservation measures proposed for the greater sage-grouse.

Grizzly Bear. Control of invasive species on BLM-administered lands could improve habitats for the grizzly bear. Implementing invasive species management actions ultimately improve habitat quality and quantity for the grizzly bear habitat. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for grizzly bear. The conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing

invasive species management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place to protect this species.

Blowout Penstemon. The actions associated with invasive species and pest management may improve suitability of blowout penstemon habitat in the longer term by protecting areas near suitable habitat for blowout penstemon. Authorized actions would be subject to consultation with USFWS and an effects determination. Implementation of invasive species and pest management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *beneficial effects (NLAA-b).* This determination is based on no blowout penstemon populations documented in the planning area and the potential benefit to blowout penstemon habitat.

Desert Yellowhead. The actions associated with invasive species and pest management may improve suitability of desert yellowhead habitat in the longer term by protecting habitats. Conservation measures have been developed as part of the Desert Yellowhead Statewide BA and prohibit biological control of weeds in desert yellowhead habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. Surveys for the species would be required before authorizing invasive species and pest management activities in suitable habitat. The Agency Proposed Action allows chemical vegetation treatments within identified sensitive plant populations as long as the treatments benefit the population. Implementation of invasive species and pest management actions *may affect, but is not likely to adversely affect* the desert yellowhead due to *beneficial effects (NLAA-b).* This determination is based on the potential benefits to desert yellowhead habitat and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Invasive species control measures would be limited in wetland and riparian habitats protecting the Ute ladies'-tresses habitats from herbicides. In areas where habitats are unsuitable for the Ute ladies'-tresses because of invasive species, invasive species control measures may benefit the Ute ladies'-tresses by improving those habitats. Annual and perennial invasive species occur primarily in riparian-wetland habitats on BLM-administered lands. Identifying and prioritizing areas for treatment and management activities that contribute to the establishment of weed infestations ultimately benefit habitat for Ute ladies'-tresses. If revegetation projects are conducted within 0.25 mile of known habitat for the orchid, only native species will be selected. This conservation measure will reduce the possibility of introduction of non-native species. Implementing invasive species and pest control management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *insignificant effects (NLAA-i)*. This determination is based on the protections for riparian/wetland habitats, the conservation measures for the Ute ladies'-tresses, and the current lack of identified populations of the species from the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Surface-disturbing activities and soil disturbance contribute to the spread of invasive species. While much of the surface disturbance from non-BLM actions is anticipated to be reclaimed, the potential for spread of invasive species remains from both short-term and long-term impacts. Surface disturbance is anticipated to continue on nonfederal lands. The spread of invasive species could affect threatened and endangered species habitats, making them unsuitable. Control of pest outbreaks, primarily grasshoppers and Mormon crickets, on non-public lands would benefit special status species by reducing adverse impacts to their habitat quantity and quality. The long-term effectiveness of invasive species control measures on all public and private lands in the planning area depends on continued cooperation, available funding, agency priorities, and the effectiveness and periodic assessment of weed-management actions in accordance with a comprehensive weed management plan. Unchecked invasive species could overwhelm attempts at control and substantially

impact fire and fuels management, biological resources, livestock grazing management (by reducing rangeland productivity and animal unit months [AUMs]), and recreation (by impacting wildlife habitats and scenic quality) throughout the planning area.

7.20 Riparian-Wetland Resources

Riparian-wetland areas are the transition zones between terrestrial and aquatic ecosystems and are often the key sites in arid and semi-arid environments. These communities are found in areas along perennial or intermittent drainages, seeps, and springs, and they make up a relatively small, but productive portion of the landscape. Wetlands are comprised of aquatic vegetation with unique soil characteristics that have developed under the influence of perennial water. The BLM defines wetlands as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally supports, a prevalence of vegetation typically adapted for life in saturated soil conditions. Riparian-wetland areas include marshes, shallow swamps, lakeshores, bogs, wet meadows, and estuaries, along with lands adjacent to or contiguous with perennial and intermittent flowing rivers and streams, lakes, and reservoirs with stable water levels. Ephemeral streams that do not exhibit the presence of vegetation that depends on free water in the soil are usually not considered riparian-wetland areas. In the planning area, there are 131,684 acres of riparian-wetland habitat, of which 54,292 acres are BLM-administered surface and 71,645 acres are federal mineral estate.

Healthy riparian-wetland areas enhance water quality, control erosion, diminish the impact of floods, and act as a stabilizing force during drought. These areas provide biological diversity, stable banks and shorelines, floodplain maintenance, clean and stable water supplies, aquifer recharge, flood energy dissipation and moderation, fish and wildlife habitat, livestock forage, opportunities for recreation, carbon sequestration, and scenery.

Management actions to improve riparian-wetland areas include grazing management, fencing, and road closures. Grazing management actions may include changing the time of year for livestock use, reducing the amount of time the areas are used, creating fenced riparian-wetland pastures and exclosures, and developing range improvements such as offsite water and forage through vegetative treatments.

7.20.1 Proposed Actions for Riparian-Wetland Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for riparian-wetland resources that benefit threatened and endangered species:

- Identify riparian management actions to promote biodiversity and develop an implementation plan to incorporate actions into BLM-authorized activities.
- Implement identified management actions to have riparian/wetland areas meet or exceed PFC and Standard 2 of the *Wyoming Standards for Healthy Rangelands*.
- Design utility line watercourse crossings to limit impacts to riparian areas.
- Prohibit surface-disturbing activities within 500 feet of surface water, riparian/wetland areas, and playas unless activities are determined to be necessary and when impacts can be mitigated. Mineral and realty actions in those areas are:
    - Closed to geophysical exploration
    - Closed to solid minerals leasing
    - Closed to mineral material disposal

- Excluded to major ROWs
- Avoided for minor ROWs

7.20.2 Best Management Practices

No specific BMPs apply to riparian-wetland resource management.

7.20.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Riparian-wetland resource management does not generally occur in potential black-footed ferret habitats. Prairie dogs, the black-footed ferret's primary prey, inhabit shortgrass prairie and semi-desert shrublands without much slope, and are not typically found in riparian areas. The avoidance/mitigation area buffer for perennial streams could benefit prairie dogs that use grasslands adjacent to riparian areas. Implementing riparian-wetland resources management will have *no effect (NE)* on the black-footed ferret. This determination is based on management not occurring in potential habitats, and protection of and potential improvements to a small component of prairie dog habitats.

Canada Lynx. Riparian-wetland management actions could occur in a small portion of occupied Canada lynx habitat, if at all, and some would be short term in nature (e.g., changing time of year of livestock use). Access for these activities would be primarily by vehicle (e.g., pickup truck), and monitoring would be done by personnel walking into and along streams and rivers. Riparian habitat restoration to reduce erosion and sediment movement along watercourses would be disruptive to resident lynx, but beneficial to the species and its prey in the long term. The activities associated with riparian-wetland management actions are infrequent, small in scale, and not likely to occur in lynx habitat. In high-elevation riparian areas, the BLM will ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares. Implementing riparian-wetland resource management actions *may affect, but is not likely to adversely affect* the lynx due to *discountable effects (NLAA-d*). This determination is based on the conservation measures in place that will preclude adverse effects to the lynx or its habitat or LAUs, the low potential for occurrence of wetland and riparian management actions in occupied habitat, and the likelihood of long-term habitat improvement to lynx and their prey.

Gray Wolf. Riparian-wetland management actions in gray wolf habitat would primarily be short term in nature, but some management actions (e.g., constructing fences) could have a long-term impact on wolves by impeding movement. Increased human activity and the use of roads and motorized vehicles to conduct riparian-wetland management could impact the gray wolf, but the impact would be short term. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Riparian-wetland resource management does not generally occur in winter, breeding, nesting, or early brood-rearing sage-grouse habitat, but does occur in late brood-rearing habitat both within and outside of Core Area. As summer progresses and food plants mature and dry, sage-grouse move to areas still supporting succulent herbaceous vegetation such as wet meadows, springs, riparian areas, and irrigation fields. From mid- to late summer, these wet areas are the primary sites for forb and insect production. Prohibitions of surface-disturbing activities within 500 feet of

riparian-wetland areas would limit adverse impacts to greater sage-grouse late brood-rearing habitat. Riparian-wetland resource management actions could benefit the sage-grouse who use these areas during July to mid-September. Management actions that improve riparian-wetland habitat and moves the area into or towards PFC through range improvement projects, road closures, and lease stipulations in these areas would also improve greater sage-grouse. The BLM would also require utility line watercourse crossings be designed to limit impacts to riparian areas. Therefore, implementing riparian-wetland resource management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the surface disturbance restrictions for riparian-wetland habitat and the potential of riparian-wetland resource management to improve sage-grouse habitat.

Grizzly Bear. Riparian-wetland management actions would occur in a portion of occupied grizzly bear habitat, and some would be short term in nature (e.g., changing time of year of livestock use). Some management actions such as fences could be long term in nature. Access for these activities would be primarily by vehicle (e.g., pickup truck), and monitoring would be done by personnel walking into and along streams and rivers. Some disturbance to streams or rivers during construction and occasional maintenance of monitoring equipment may occur. Riparian habitat restoration to reduce erosion and sediment movement along watercourses would be disruptive to resident grizzly bear, but beneficial to the species and its habitat in the long term. Conservation measures include requiring that the PFC of existing aquatic systems and riparian zones in occupied grizzly bear habitat be maintained for all BLM-administered lands. If these areas are polluted or damaged from activities the BLM will rehabilitate and restore these areas. Implementing riparian-wetland resource management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d*). This determination is based on the conservation measures in place and the likelihood of long-term improvement to grizzly bear habitat.

Blowout Penstemon. Riparian-wetland resource management generally does not occur in potential blowout penstemon habitat. Blowout penstemon is only found in sandy locations with little to no vegetation present and is not found in wetlands or riparian areas. Implementing riparian-wetland resource management will have *no effect (NE)* on the blowout penstemon. This determination is based on the lack of riparian-wetland resource management actions in potential blowout penstemon habitat.

Desert Yellowhead. Riparian-wetland resource management would not occur in identified desert yellowhead populations or designated critical habitat. Desert yellowhead is found in upland areas with sparse vegetation, consisting primarily of low cushion plants, and is not found in wetland or riparian areas. Implementing riparian-wetland resource management will have *no effect (NE)* on the desert yellowhead or designated critical habitat. This determination is based on the lack of riparian-wetland resource management actions in desert yellowhead habitat.

Ute Ladies'-tresses. Riparian-wetland management actions will improve habitat for the Ute ladies'-tresses by maintaining or improving riparian or wetland habitat conditions on which the species depends. Ute ladies'-tresses habitat would be improved through management of riparian-wetland areas to meet or make progress toward PFC, giving priority to areas that are functioning at risk with a downward trend or that are in non-functioning condition. Conservation measures prohibit surface disturbance within 500 feet of surface water or riparian areas; in any proposed new access, wetland and riparian areas will be avoided where possible. Implementing riparian-wetland resource management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *beneficial effects (NLAA-b)*. This determination is based on the potential for improvement of habitat and the incorporation of conservation measures for the Ute ladies'-tresses.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Protection and enhancement of riparian-wetland resources on nonfederal land in the planning area will improve habitat for threatened and endangered species. Adverse impacts are not anticipated to occur to threatened and endangered species in the long term. Actions by private landowners that impact the health of riparian-wetland areas and their performance of critical water quality protection functions may add to adverse impacts of threatened and endangered species that occur in these areas or use these habitats. Development near riparian-wetland areas can degrade these habitats including additional sediment loading in waterways.

7.21 Fish and Wildlife Resources

The BLM is responsible for managing fish and wildlife habitat on BLM-administered land in the planning area. Management of fish and wildlife species is overseen by state and federal wildlife management agencies. The WGFD manages resident wildlife populations in the planning area. The USFWS provides regulatory oversight for all species listed, proposed for listing, or candidates for listing under the ESA. The USFWS also administers the MBTA, which protects migratory bird species whether they are hunted (waterfowl) or not (songbirds).

Fish. Fish habitats are managed according to laws, regulations, BLM policies, and principles of fish management within the BLM multiple-use mandate. Aquatic species, to the extent that they are directly managed, are overseen by state and federal game management agencies. The WGFD is responsible for regulating the sport and commercial take of all fish in the planning area. The USFWS has oversight over federally threatened or endangered species. However, the BLM directly manages the habitat that supports both game and nongame fish species where they are found on BLM-administered lands.

Fish species known to occur in the planning area are adapted to a variety of stream habitats, from cold, rapid waters at higher elevations to slow, turbid waters of the high desert. Most fish populations occur in the larger rivers and their tributaries, although the WGFD stocks several waterbodies. Fish are typically classified as game or nongame and native or nonnative species.

Wildlife. Wildlife resources include big game, trophy game, furbearers, predators, small game, game birds, migratory game birds, and nongame species (raptors, mammals, neotropical migrant birds, reptiles, and amphibians), and their habitats. The BLM is responsible for managing wildlife habitats, whereas management of wildlife species is overseen by state and federal wildlife management agencies.

There are diverse wildlife habitats in the planning area, primarily because of its location in the Southern Rocky Mountain and the Intermountain Semidesert ecoregions (Bailey 1995). Elevation in the planning area ranges from 4,750 feet to 10,400 feet, supporting a variety of habitats including coniferous forests, juniper woodlands, aspen stands, mountain shrublands, canyons and rim rock, badlands, sagebrush-steppe shrublands, grasslands, and riparian-wetland areas. This variety of habitats possesses the biological and physical attributes important for breeding, birthing, foraging, wintering, and migrating wildlife species. The habitats and wildlife in the planning area represent the Great Basin flora and fauna.

There are several important features and areas in the planning area that provide habitat and survival of wildlife, including birthing and winter range habitats for big game, riparian-wetland habitats, and the Whiskey Mountain bighorn sheep area. In addition, habitat integrity, unfragmented habitat, and migration routes are important to wildlife in the planning area. Birthing and winter range habitats are typically used each year and are usually limited in size and availability. The East Fork elk winter range north of Dubois supports as many as 6,000 to 7,000 elk without the need for supplemental feeding. The Lander Slope and Red Canyon areas provide the necessary winter forage for elk and mule deer that is

not available on adjacent areas due to deep snows. Green and Crooks Mountains provide year-round habitat for a predominantly non-migratory elk herd. Elk primarily summer on top and on the south slopes are fairly restricted to the north slopes during winter months because of snow depths. There are designated calving areas on top of Green Mountain.

Many species of wildlife depend on healthy riparian-wetland habitats to provide for their necessary forage and cover requirements. The year-round availability of clean water is essential for maintaining wildlife and fish populations. Compared to all other habitats, these areas support the greatest diversity of wildlife and plant species. Many species of birds, amphibians, reptiles, and mammals are found only in riparian-wetland habitats. Riparian-wetland areas in the South Pass, Upper Beaver Creek, and Sweetwater River Valley are important moose habitat. The Whiskey Mountain bighorn sheep area near Dubois supports one of the largest and most visible bighorn sheep herds in North America. BLM-administered lands provide crucial winter range for bighorn sheep in this area. The only active habitat management plan in the planning area, *A Comprehensive Bighorn Sheep Management Plan* (Bighorn Sheep Technical Committee 2006), guides the management responsibilities for the Whiskey Mountain Bighorn Sheep Winter Range to perpetuate and emphasize bighorn sheep and their habitat.

7.21.1 Proposed Actions for Fish and Wildlife Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for fish and wildlife resources that benefit threatened and endangered species:

- Choose and implement appropriate mitigation and BMPs to minimize decreases in habitat function. Mitigate impacts as near to the impact, for the same or similar impacted species or habitats, as soon as possible. In cases where impacts cannot be mitigated to an acceptable level onsite or where the BLM and WGFD agree that mitigation or additional habitat protections farther away will be of greater benefit to wildlife, offsite mitigation will be considered.
- Minimize adverse impacts to fish and wildlife during the life of projects through project placement and maintenance of connectivity between large contiguous blocks of undisturbed habitat.
- Prohibit surface-disturbing and disruptive activities within identified big game crucial winter range from November 15 to April 30 and within identified big game parturition areas from May 1 to June 30 unless an exception, waiver, or modification is granted by the Authorized Officer. Authorize exceptions for reclamation seeding when appropriate.
- Use an integrated management approach (mechanical, chemical, or biological treatments, prescribed fire, and grazing management techniques) to manipulate vegetative communities to achieve fish, wildlife, and watershed objectives.
- Remove or modify identified wildlife hazard fences where opportunities exist.
- Cooperate with and provide support to WGFD, USFWS, and stakeholders in reintroducing native fish and wildlife species into historic or suitable ranges.
- Design, locate, and, where feasible, modify road crossings of streams to minimize impacts to fish populations and habitat.
- Work cooperatively with stakeholders and local governments to develop and implement management strategies to prevent the introduction and spread of aquatic invasive species.

- Avoid the movement of water from one drainage to another drainage to prevent aquatic invasive species and disease transfer. If equipment has been used in an area known to contain aquatic invasive species, the equipment will need to be inspected by an authorized aquatic invasive inspector certified in the State of Wyoming prior to use in any water in the planning area. If aquatic invasive species are found, the equipment will need to be decontaminated following accepted procedures.
- Require monitoring of impacts to wildlife from wind-energy development and apply appropriate mitigation.
- The Dubois, Red Canyon/ Lander Slope, Green Mountain and Sweetwater River areas are priorities for management of fish and wildlife and their habitat. See the Special Designations-ACEC section for management actions.
- To minimize impacts to wildlife from oil and gas development, utilize recommendations found in WGFD document "Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats." To minimize impacts to wildlife from wind development, utilize recommendations found in the WGFD document "Wildlife Protection Recommendations for Wind Energy Development in Wyoming."
- Apply timing limitations to surface-disturbing activities within water channels that will adversely affect spawning, egg incubation, and fry areas in fish-bearing streams. Spring spawning is protected March 15 to July 31 and fall spawning is protected September 15 to November 30. Dates may vary by species and location.
- Minimize the footprint of surface-disturbing activities and facilities to the smallest practical to protect wildlife and their habitats, except when safety and maintenance issues are identified.
- Outside of DDAs, wildlife seasonal protections from surface-disturbing and disruptive activities apply to maintenance and operations actions when the activity is determined to be detrimental to wildlife.
- Approve new fences on a case-by-case basis and do not construct fences across identified big game migration corridors unless fence is critical to the success of a comprehensive grazing management strategy and project impacts are mitigated. Look at opportunities to remove existing fences in migration corridors to try to achieve a no net gain of fences in corridors. Remove or modify existing fences to address habitat fragmentation and barriers to migration on a case-by-case basis.
- On a case-by-case basis and in coordination with adjacent landowners and/or state and county governments, close and reclaim redundant roads to reduce road density and habitat fragmentation.
- Limit wind-energy development in the sage-grouse Core Area to no more than 1 location per 640 acres and require that the cumulative disturbance from all sources is no more than 5 percent of sagebrush habitat within the project area. Manage wind-energy development on a case-by-case basis in consideration of greater sage-grouse, raptor concentration areas, big game crucial winter range, migration corridors, and parturition areas.
- On a case-by-case basis, avoid authorizing road development in big game crucial winter range and parturition areas.
- Prohibit surface-disturbing and disruptive activities within identified elk and mule deer winter range from November 15 to April 30.

- Prohibit surface-disturbing and disruptive activities within ¾-mile of active raptor nests, except bald eagle and ferruginous hawks nests where surface-disturbing and disruptive activities are prohibited within 1 mile, during the following time periods:
  - February 1 to July 31 for all raptors except bald eagle, northern goshawk, and burrowing owl
  - February 1 to August 15 for bald eagle
  - April 1 to August 31 for northern goshawk
  - April 1 to September 15 for burrowing owl

7.21.2 Best Management Practices

Specific BMPs that apply to fish and wildlife resource management identified in the programmatic BAs include:

Black-footed Ferret

- 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.
- Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan and the White-tailed Prairie Dog Conservation Assessment (Seglund et al. 2006).
- 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.

Canada Lynx

- Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts to lynx.
- Using 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.
- When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.
- Protect existing snowshoe hare and red squirrel habitat.

Gray Wolf

- Avoid an increase in miles of road in elk crucial winter range.
- Avoid situations that allow for wolves to habituate to humans, or become exposed to and use human refuse as a food resource.
- Foster public outreach/education programs to provide information on wolves in schools, campgrounds, and other places. Topics can include but are not limited to: How to be safe around wolves, wolf ecology, wolf mortality factors, and livestock grazing practices harmful to wolves.
- Continue to support the research and documentation of wolf/livestock interactions and livestock grazing practices to improve these practices so that they are more compatible with wolves.

- Continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.
- Encourage reporting of wolf observations by BLM staff and the public to the WGFD.

Grizzly Bear

- The BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM-administered lands will be done using Geographic Information System (GIS) technology. Secure habitat, open motorized access route density (refers to roads that are actively used) greater than 1 mile per square mile, and total motorized access route density (includes all roads, even gated roads) greater than 2 miles per square mile will be monitored utilizing the Yellowstone Grizzly Bear Cumulative Effects Model GIS databases and will be reported annually, as described in Interagency Conservation Strategy Team (ICST) (2007) and conducted in the Primary Conservation Area (PCA).
- In areas of vital importance to grizzly bears (e.g., known denning areas, army cutworm moth aggregations, cutthroat trout spawning sites, spring ungulate concentration sites, etc.) activities that adversely affect grizzly bear populations and/or their habitat should be avoided. Adverse habitat effects could result from land surface disturbances; water table alterations; reservoirs, ROWs, 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).

7.21.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Fish and wildlife resource management actions may lead to a benefit in habitat quality for the black-footed ferret. Limiting access to specific areas, prohibiting surface disturbance, and imposing road closures for other wildlife species could benefit black-footed ferret prey by protecting prairie dog habitat and reducing human access, potentially reducing recreational shooting. If predator control activities occurred in a prairie dog town with an undiscovered population of ferrets, a ferret could be a likely non-target victim. Management actions may temporarily affect the species. Implementing fish and wildlife resources management *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the protection of and potential improvements to black-footed ferret habitat from wildlife management actions and that the majority of the planning area (98%) has been block-cleared and therefore unlikely to support black-footed ferret populations.

Canada Lynx. Fish and wildlife resource management actions may lead to a benefit in habitat quality for the Canada lynx. The diversity of habitats and landscapes managed under the fish and wildlife resource program provides important areas for breeding, birthing, foraging, wintering, and migration of various species. Management and protection of these areas will protect and enhance snowshoe hare and red squirrel populations. Management actions associated with habitat improvement projects may cause Canada lynx to avoid or abandon habitats near these projects. Wildlife management actions in the Dubois area would likely have beneficial impacts by maintaining or improving existing habitat conditions that will benefit lynx and their prey. Limiting access to specific areas, prohibiting surface disturbance, and imposing road closures for other wildlife species would benefit Canada lynx. Implementing fish and wildlife resources management *may affect but is not likely to adversely affect* the Canada lynx due to

insignificant effects (NLAA-i). This determination is based on management actions that would protect other wildlife species and their habitats would benefit and enhance Canada lynx habitat and their prey species.

Gray Wolf. Management actions associated with habitat improvement projects may cause gray wolves to avoid or abandon habitats near these projects. Wildlife management actions in the Dubois area would likely have beneficial impacts by maintaining or improving existing habitat conditions that will benefit gray wolf and their prey. Management actions that protect other wildlife species and their habitats would benefit the gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Occupied greater sage-grouse habitat is identified on 99 percent of the planning area; therefore greater sage-grouse habitat overlaps the habitats for many other species of wildlife. Fish and wildlife resource management actions that would protect other wildlife species during important times of the year and protect habitat from loss or fragmentation would also protect sage-grouse and their habitats. Since greater sage-grouse species spends most of its time in sagebrush habitats, identified management actions to protect sagebrush habitats for other wildlife will benefit vegetation cover and foraging habitat for the greater sage-grouse. Fish and wildlife resource management actions that protect riparian areas could benefit the sage-grouse during July to mid-September, as this is when sage-grouse use these areas as late brood-rearing habitat. Implementing fish and wildlife resource management actions *may impact, but is not likely to contribute to the need for federal listing of* the greater sage-grouse *(MI)*. This determination is based on management actions that would protect other wildlife species and their habitats would benefit sage-grouse habitat.

Grizzly Bear. Fish and wildlife resource management actions will lead to a benefit in habitat quality for the grizzly bear. The diversity of habitats and landscapes managed under the fish and wildlife resource program provides important areas for breeding, birthing, foraging, wintering, and migration of various species. Management and protection of these areas will protect and enhance grizzly bear habitat. Human activity and noise associated with habitat improvement projects may cause grizzly bear to avoid the project area in the short term, however bears should return once activity ceases. Wildlife management actions in the Dubois area would likely have beneficial impacts by maintaining or improving existing habitat conditions that will benefit grizzly bear. Enhancement of elk habitat and improvement of fish and riparian habitat would benefit grizzly bear by increasing food resources for this species. Implementing fish and wildlife resources management *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on management actions that would protect other wildlife species and their habitats would protect and enhance grizzly bear foraging and denning habitat.

Blowout Penstemon. No blowout penstemon populations are known to occur in the planning area; therefore, direct effects to this species are not anticipated. Fish and wildlife management actions may improve potential habitat for the blowout penstemon by maintaining or improving overall habitat conditions depending on the time of year, duration of field activities, use of heavy machinery or hand tools, and the types of habitats affected. Mule deer, elk, and pronghorn may eat blowout penstemon plants and improving habitat for these species could impact the blowout penstemon. Implementing fish and wildlife resource management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the low likelihood for fish and wildlife management actions taking place in potential blowout penstemon habitat.

Desert Yellowhead. Fish and wildlife management actions may improve habitat for the desert yellowhead by maintaining overall habitat conditions if they occur in the desert yellowhead sites. Surveys for the species would be required before authorizing activities in suitable habitat. ESA protections for the plant and critical habitat would not allow any fish and wildlife resource management action that could adversely impact desert yellowhead or designated critical habitat.

Implementing fish and wildlife resource management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place to protect the species and the low potential for wildlife habitat improvement projects to occur in or near desert yellowhead or designated critical habitat.

Ute Ladies'-tresses. Fish and wildlife management actions will improve habitat for the Ute ladies'-tresses by maintaining or improving riparian or wetland habitat conditions, on which the species depends. Possible adverse impacts include trampling by wildlife and habitat alteration by personnel implementing wildlife habitat projects. Through conservation measures the BLM will maintain biological diversity of plant and animal species; support the 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. Implementing fish and wildlife resource management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the potential for improvement of habitat, protection of the Ute ladies'-tresses habitat, and implementation of conservation strategies for this species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Fish and wildlife management actions on nonfederal lands may result in temporary impacts on threatened and endangered species, but they are anticipated to benefit threatened and endangered species overall through habitat improvements.

7.22 Special Status Species—Plants

The BLM is responsible for managing habitat for special status plant species. The planning area contains potential habitat for 14 special status plant species. One species is listed as endangered, two species are listed as threatened, and 11 species are on the BLM sensitive species list.

The various climates, topography, soils, rock cliffs, and outcrops provide a diverse landscape in the planning area for special status plant species. These species can be found in grassland and shrubland communities, riparian-wetland and wetland habitats, and other habitats, including rocky outcrops and badlands. Due in large part to the rarity and lack of comprehensive inventories, precise information regarding the location, population size, and condition of each population in the planning area is relatively unknown.

Most of the trends that affect other plant species in the planning area also affect special status species. These include habitat degradation and fragmentation, grazing practices and management, invasive species, motor vehicles, and climate change. The BLM manages public lands to conserve or improve habitats for special status plants.

7.22.1 Proposed Actions for Special Status Species—Plants in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for special status plant species that benefit threatened and endangered species:

- Develop and implement protective measures for federally listed species in coordination with the USFWS.
- Upon designation of special status species, identify distribution, key habitat areas, and special management needs to be used in developing activity plans.
- Coordinate with agencies, including state and local governments, in the restoration, reintroduction, augmentation, or re-establishment of threatened, endangered, and other special status species populations and/or habitats.
- Implement appropriate conservation agreements, conservation measures, and BLM-endorsed management strategies for threatened, endangered, and other special status species. Comply with terms of the Statewide Programmatic Section 7 consultations (conservation measures from the letters of concurrence, statewide BAs, and BOs) for management of threatened, endangered, proposed, and candidate species.
- Develop site-specific measures for BLM-authorized activities to protect threatened, endangered, and sensitive species. Reduce the footprint of development and facilities to the smallest practical to protect special status species and their habitat.
- On a case-by-case basis, require surveys for BLM sensitive species as part of authorizing actions. Require protective actions when appropriate.
- Establish limits of acceptable habitat loss including habitat modification, fragmentation, and loss of function for identified priority species.
- Provide information to fire personnel to prevent fire suppression vehicles from staging in and driving over special status species plant populations. Currently, only the desert yellowhead populations have been identified.
- Maintain the current locatable mineral withdrawal for desert yellowhead critical habitat. Mineral and realty actions in these areas are managed with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to locatable minerals entry in order to pursue a withdrawal
    - Closed to mineral materials disposal
    - Wind energy, major utility systems, and other ROWs are excluded
- Prohibit surface-disturbing activities and apply an NSO to mineral leasing activities within the Cedar Rim population of desert yellowhead.
- Allow chemical vegetation treatments within identified sensitive plant populations so long as treatments will benefit the population.
- Apply specific measures to protect known special status plant populations from BLM-authorized activities and motorized travel on a case-by-case basis.
- Close desert yellowhead critical habitat to motorized and mechanized travel.

- On a case-by-case basis, require inventory of potential habitats for BLM sensitive plant species prior to authorizing activity. If a sensitive species is present, apply appropriate protective measures where possible.
- Authorize range improvement projects in BLM sensitive plant species habitat on a case-by-case basis, plus, as needed, buffer with the minimum distance necessary to protect population from grazing impacts.

7.22.2 Best Management Practices

Specific BMPs that apply to special status plant species resource management identified in the programmatic BAs include:

Blowout Penstemon

- When project proposals are received, the 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 blowout penstemon conservation measures, determined as appropriate by the USFWS.
- The BLM will participate in the development of both, a conservation agreement, assessment and strategy and a species specific recovery plan for the blowout penstemon in coordination with the USFWS and other agencies as appropriate. Populations and habitat of the blowout penstemon on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.
- Coordinate with the USFWS, the National Resource Conservation Service, and private landowners to ensure adequate protection for the blowout penstemon and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.
- In the event that a new population of blowout penstemon is found, the USFWS Wyoming Field Office (307-772-2374) will be notified within one week of discovery.

Desert Yellowhead

- Analyze vegetation resource management actions when appropriate.
- Conduct inventories for desert yellowhead in areas with potential habitat in the Lander FO.
- Use a GIS-based model of potential habitat.
- Maintain a database of all searched potential desert yellowhead sites.
- Train enforcement personnel on protection of the desert yellowhead and its habitat, status, and current threats.
- Educate the resource specialists, the ranger, and the fire crew about the desert yellowhead site and its designated critical habitat to assist in project development for the general area.
- Do not feature the desert yellowhead site in public information or recreational brochures in any form that would draw attention to the site.

Ute Ladies-tresses

- When project proposals are received, the 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.

- The BLM will participate in the development of 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.
- The BLM will coordinate with the USFWS, the NRCS, and private landowners to ensure adequate protection for the Ute ladies'-tresses and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.
- 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.
- Form a steering committee to develop and prioritize management practices and assist Bureau and Service with research projects.
- Conduct inventories for the orchid in areas with potential habitat.
- Maintain a database of all searched, inventoried, or monitored orchid sites. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in known or potential habitat for the orchid to determine impacts to the species.
- 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.
- 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.
- Train law enforcement personnel on protections for the orchid and its habitat, its status, and current threats to its existence.
- 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.
- The Bureau should work towards developing reintroduction sites in coordination with the Service and to maintain the integrity of these sites for the survival of the orchid. The objective would be to reintroduce populations of the orchid into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.
- Develop propagation techniques and use them to reintroduce/introduce the orchid and to repopulate known populations in the event population recovery becomes necessary.

7.22.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Management actions for special status plants will not affect the black-footed ferret. The black-footed ferret's main prey is prairie dogs that are not noted for foraging on rare or sensitive plant foods. Rather, they forage on typical plants of shortgrass prairie and semi-desert shrublands. If a population of rare plants were discovered within a prairie dog colony, protection of the

plants, such as fencing and other protective measures would have no adverse impact on black-footed ferrets or prairie dogs. Implementing special status plants management actions would have *no effect (NE)* on black-footed ferrets. This determination is based on that there are no documented populations of black-footed ferrets in the planning area and 98 percent of the planning area has been block-cleared, prairie dogs occurring over large areas that are unlikely to harbor rare plants, and protective measures for sensitive plants would have no impact on prairie dogs or black-footed ferrets.

Canada Lynx. Management actions for special status plants will benefit Canada lynx as general management actions include maintaining existing plant populations and restricting actions and surface disturbance that may be detrimental to special status plants. No actions have been identified under the Proposed RMP that would impact Canada lynx. Implementing special status plant management actions will result in *no effect (NE)* to the lynx. This determination is based on the localized nature of these actions, the restrictions of surface disturbance in these areas, as well as potential improvements to these habitats from special status plant management.

Gray Wolf. Management actions for special status plants are not anticipated to impact the gray wolf. No actions have been identified under the Proposed RMP that would impact the gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Management actions for special status plants will not impact the greater sage-grouse. General management actions include restrictions of actions and surface disturbance that may be detrimental to special status plants. No actions have been identified under the Proposed RMP that would impact greater sage-grouse. Implementing special status plant management actions will have *no impact (NI)* on the greater sage-grouse. This determination is based on the localized nature of these actions, the restrictions of surface disturbance in these areas, as well as potential improvements to these habitats.

Grizzly Bear. Management actions for special status plants will not impact the grizzly bear. General management actions will include restrictions of actions and surface disturbance that may be detrimental to special status plants. No actions have been identified under the Proposed RMP that would impact grizzly bear. Implementing special status plant management actions will result in *no effect (NE)* to the grizzly bear. This determination is based on the localized nature of these actions, the restrictions of surface disturbance in these areas, as well as potential improvements to these habitats.

Blowout Penstemon. Protection and conservation of the blowout penstemon and its habitat as identified in the management actions listed in Section 7.22.1 could have beneficial effects on this species. Inventories of potential habitats for blowout penstemon prior to authorizing activities would benefit the species by potentially identifying a population in the planning area. Restrictions on actions within potential blowout penstemon habitat may help to improve habitat. Implementing special status plant management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *beneficial effects (NLAA-b)*. This determination is based on the potential that these actions will limit disturbance in blowout penstemon potential habitats.

Desert Yellowhead. Protection and conservation of the desert yellowhead and its habitat as identified in the management actions listed in Section 7.22.1 could have beneficial effects on this species. Inventories of potential habitats for desert yellowhead prior to authorizing activities would benefit the species by potentially identifying a new population in the planning area. Restrictions on actions within desert yellowhead habitat may help to improve habitat and by closing critical habitat to motorized and

mechanized travel, direct impacts from trampling and habitat loss would be reduced. In addition, prohibiting surface-disturbing activities and applying an NSO stipulation to mineral leasing activities in would minimize impacts to both populations. Implementing special status plant management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *beneficial effects (NLAA-b)*. This determination is based on the potential that these actions will limit disturbance in desert yellowhead populations and designated critical habitat.

Ute Ladies'-tresses. Protection and conservation of the Ute ladies'-tresses and its habitat as identified in the management actions listed in Section 7.22.1 could have beneficial effects on this species. Inventories of potential habitats for Ute ladies'-tresses prior to authorizing activities would benefit the species by potentially identifying a population in the planning area. Restrictions on actions within Ute ladies'-tresses habitat may help to improve habitat. Implementing special status plant management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *beneficial effects (NLAA-b)*. This determination is based on the potential that these actions will limit disturbance in Ute ladies'-tresses potential habitats.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Special status plant species may be adversely impacted on nonfederal lands due to development and surface disturbance in these areas. Development and surface disturbance on nonfederal lands may result in the direct loss of undiscovered special status plant species populations, reduce available habitat, increase habitat fragmentation, and increase the spread of invasive species, thereby adversely impacting special status plant species.

7.23 Special Status Species—Fish and Wildlife

The BLM is responsible for managing fisheries and wildlife habitats, and state and federal wildlife management agencies oversee BLM management activities.

Fish. Fisheries habitat includes perennial and intermittent streams, lakes, and reservoirs that support fish through at least a portion of the year. Fish habitats in the planning area include perennial and intermittent streams that support fish through at least part of the year. The Wind River and North Platte watersheds are the two major drainages in the planning area. The condition of fish habitat is related to hydrologic conditions of the upland and riparian-wetland areas associated with or contributing to a specific stream or waterbody. Aquatic habitat quality varies by location and orientation to geographic landforms and vegetation. No federally listed fish species are known to occur in the planning area. The Yellowstone cutthroat trout is the only BLM sensitive fish species and only native trout in the planning area. This species is found in the Wind River drainage near Dubois. This drainage lies in the southern extent of the Yellowstone ecosystem. The species is found in relatively clear, cold streams such as the East Fork of the Wind River and its tributaries.

In addition, the Sweetwater River drainage in the planning area is part of the North Platte system, which is subject to water depletion limitations to protect threatened and endangered species, including special status fish species, downstream and outside the planning area. Water depletions upstream can change the velocity, volume, and timing of downstream river water flows. Water development projects (e.g., dams, reservoirs, water and sediment control basins, irrigation diversions, sand and gravel mining, and wetland creation) have altered historic surface water hydrographs (e.g., water flow timing, volume, and velocity) in the North Platte River ecosystem through consumption and evaporation. The BLM consults with the USFWS regarding activities that might result in water depletions occurring in the Sweetwater River watershed.

Wildlife. One endangered wildlife species (black-footed ferret), two threatened wildlife species (grizzly bear and Canada lynx), one non-essential, experimental species (gray wolf), and one candidate species (greater sage-grouse) are known to occur in the planning area. Twenty-seven BLM sensitive species are known to occur or have potential habitat in the planning area. There is critical habitat for Canada lynx in the planning area; however, the critical habitat is on USFS-managed land, not BLM-administered land.

Special status wildlife species in the planning area occupy a variety of habitat types, including sagebrush shrublands, grasslands, and riparian-wetland and wetland habitats. There are no comprehensive data on population numbers and distribution in the planning area for most special status species.

The BLM consults with the USFWS before implementing any project that might impact federally listed species or their habitats.

7.23.1 Proposed Actions for Special Status Species—Fish and Wildlife in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for special status fish and wildlife species that benefit threatened and endangered species:

- Develop and implement protective measures for federally listed species in coordination with the USFWS.
- Upon designation of special status species, identify distribution, key habitat areas, and special management needs to be used in developing activity plans.
- Coordinate with agencies, including state and local governments, in the restoration, reintroduction, augmentation, or re-establishment of threatened, endangered, and other special status species populations and/or habitats.
- Implement appropriate conservation agreements, conservation measures, and BLM-endorsed management strategies for threatened, endangered, and other special status species. Comply with terms of the Statewide Programmatic Section 7 consultations (conservation measures from the letters of concurrence, statewide BAs, and BOs) for management of threatened, endangered, proposed, and candidate species.
- Develop site-specific measures for BLM-authorized activities to protect threatened, endangered, and sensitive species. Reduce the footprint of development and facilities to the smallest practical to protect special status species and their habitat.
- On a case-by-case basis, require surveys for BLM sensitive species as part of authorizing actions. Require protective actions when appropriate.
- Establish limits of acceptable habitat loss including habitat modification, fragmentation, and loss of function on a case-by-case basis. In greater sage-grouse Core Area, the density of disturbances is limited to an average of one oil and gas or mining location per 640 acres and the cumulative value of disturbance not to exceed 5percent of the habitat within those same 640 acres.
- Livestock water developments are authorized in greater sage-grouse nesting habitat if the project will contribute improved greater sage-grouse habitat, can be designed to be compatible with greater sage-grouse, and if they are part of a comprehensive grazing strategy.
- New fences in sage-grouse habitats must be designed to have the fewest adverse impacts on greater sage-grouse and have fence markers installed to enhance visibility and reduce collision potential.

- Require the installation of anti-perching devices on high profile structures and overhead powerlines to reduce predation opportunities.
- Avoid activities that contribute sediment to waterbodies that support Yellowstone cutthroat trout, burbot, and sauger unless determined that additional sediment will not harm species or adequate mitigations can be applied.
- Implement conservation measures, terms and conditions, appropriate BMPs, required design features and reasonable and prudent measures within existing state programmatic BOs for the bald eagle.
- Avoid surface-disturbing activities in occupied white-tailed prairie dog colonies where possible.
- Manage travel corridors for threatened and endangered species and BLM sensitive species on a case-by-case basis. (Note: only Canada lynx units have been identified to date.)
- To protect the concentration of special status species and their habitats, mineral and major realty actions in the Dubois area outside WSAs and ACECs are managed as follows:
    - Closed to oil and gas leasing
    - Closed to geophysical exploration
    - Closed to phosphate leasing
    - Open to locatable minerals
    - Closed to mineral material disposals
    - Excluded to major ROWs
    - Avoided for minor ROWs

7.23.2 Best Management Practices

Specific BMPs that apply to special status fish and wildlife resource management identified in the programmatic BAs include:

Black-footed Ferret

- 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.
- Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan and the White-tailed Prairie Dog Conservation Assessment (Seglund et al. 2006).
- 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.

Canada Lynx

- Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts to lynx.
- Using 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.
- When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.
- Protect existing snowshoe hare and red squirrel habitat.

Gray Wolf

- Avoid an increase in miles of road in elk crucial winter range.
- Avoid situations that allow for wolves to habituate to humans, or become exposed to and use human refuse as a food resource.
- Foster public outreach/education programs to provide information on wolves in schools, campgrounds, and other places. Topics can include but are not limited to: How to be safe around wolves, wolf ecology, wolf mortality factors, and livestock grazing practices harmful to wolves.
- Continue to support the research and documentation of wolf/livestock interactions and livestock grazing practices to improve these practices so that they are more compatible with wolves.
- Continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.
- Encourage reporting of wolf observations by BLM staff and the public to the WGFD.

Grizzly Bear

- The BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM-administered lands will be done using GIS technology. Secure habitat, open motorized access route density (refers to roads that are actively used) greater than 1 mile per square mile, and total motorized access route density (includes all roads, even gated roads) greater than 2 miles per square mile will be monitored utilizing the Yellowstone Grizzly Bear Cumulative Effects Model GIS databases and will be reported annually, as described in ICST (2007) and conducted in the Primary Conservation Area (PCA).
- In areas of vital importance to grizzly bears (e.g., known denning areas, army cutworm moth aggregations, cutthroat trout spawning sites, spring ungulate concentration sites, etc.) activities that adversely affect grizzly bear populations and/or their habitat should be avoided. Adverse habitat effects could result from land surface disturbances; water table alterations; reservoirs, ROWs, 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).

7.23.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Black-footed ferrets are protected under the ESA. Since black-footed ferrets are not an aquatic species, management actions for special status fish would not impact black-footed ferrets. Management and protection of habitats for special status wildlife may influence potential habitats for black-footed ferrets. Surface-disturbing activities could affect the suitability of large white-tailed prairie dog complexes to be considered as potential black-footed ferret reintroduction sites in block-cleared areas. Outside the block-cleared areas, surveys for black-footed ferrets would be performed prior to authorizing surface-disturbing activities. Surface-disturbing activities could result in beneficial impacts to white-tailed prairie dogs because they often move into disturbed sites that have suitable grass communities nearby. Siting of

powerlines in existing ROWs would benefit black-footed ferrets by reducing habitat fragmentation. Management actions that protect greater sage-grouse habitat (e.g., maintaining sagebrush and understory diversity) may not benefit black-footed ferret habitat as black-footed ferrets occupy shortgrass and midgrass prairie, and semi-desert shrublands where prairie dogs are present. Avoiding surface-disturbing activities where possible in white-tailed prairie dog colonies would benefit black-footed ferret habitat. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on management actions that would protect other special status wildlife species and their habitats would protect and enhance black-footed ferret habitat, existing protective measures in the Proposed RMP, and the protection afforded by the ESA as administered by the BLM.

Canada Lynx. ESA-listed species are subject to additional management protection under BLM policy (Manual 6840). Canada lynx are protected under the ESA. Since Canada lynx is not an aquatic species, management actions for special status fish would not impact Canada lynx. Management and protection of habitats for special status wildlife species may influence potential habitats for Canada lynx. The objective of special status species management is to protect their habitats and reduce population losses. These management actions will result in beneficial effects to lynx by limiting harassment and disturbance to denning and hunting areas. Lands in the Dubois area are a priority for management actions that beneficially impact special status species. Closing lands in the Dubois area to oil and gas leasing, geophysical exploration, phosphate leasing, mineral materials disposal, excluding major ROW, and avoiding minor ROW will beneficially impact the Canada lynx by minimizing surface-disturbing and disruptive activities. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i)*. This determination is based on management actions that would protect other special status wildlife species and their habitats would protect and enhance Canada lynx, the potential for these actions to limit harassment and displacement of lynx and minimize adverse effects to lynx activity areas.

Gray Wolf. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Gray wolves are protected under the ESA. Lands in the Dubois area are a priority for management actions that beneficially impact special status species. Since the gray wolf is not an aquatic species, management actions for special status fish would not impact the gray wolf. Closing lands in the Dubois area to oil and gas leasing, geophysical exploration, phosphate leasing, mineral materials disposal, excluding major ROW, and avoiding minor ROW will beneficially impact the gray wolf by minimizing surface-disturbing and disruptive activities. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Greater sage-grouse is a Candidate species under the ESA and a Wyoming BLM Sensitive Species. Since greater sage-grouse is not an aquatic species, management actions for special status fish would not impact greater sage-grouse. Management and protection of habitats for other special status wildlife species may improve potential habitats for the greater sage-grouse in the planning area. To protect and improve sage-grouse habitat, special status wildlife species management actions include following recommendations from the BLM's National Sage-grouse Habitat Conservation Strategy Guidance for the Management of Sagebrush Plant Communities for Sage-grouse (BLM 2004c) or more recent guidance. Management

actions to improve sagebrush habitats for all sage-brush obligate special status wildlife will lead to enhanced vegetation cover and foraging habitat for the greater sage-grouse. Special status wildlife species management actions that protect riparian areas could benefit the greater sage-grouse during late brood rearing from July to mid-September. Management actions that protect black-footed ferret habitat (e.g., maintaining shortgrass and mid-grass prairie) may not benefit greater sage-grouse habitat as greater sage-grouse occupy plant communities dominated by sagebrush and a diverse understory of native grasses and forbs. Siting of powerlines in existing ROWs would benefit greater sage-grouse by reducing additional habitat fragmentation. Under the Proposed RMP, actions that maintain sagebrush and understory diversity in seasonal habitats, manage riparian-wetland habitats in functional condition, and reduce and mitigate infrastructure that can cause greater sage-grouse mortality (i.e., fences) or give predators an advantage (i.e., perching structures) would result in beneficial impacts to greater sage-grouse. Timing limitation stipulations used to protect greater sage-grouse from surface-disturbing and disruptive activities would benefit this species. Implementing special status fish and wildlife management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on management actions that would protect other special status wildlife species and their habitats would likely have beneficial effects to sage-grouse.

Grizzly Bear. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Grizzly bears are protected under the ESA. Management actions for Yellowstone cutthroat, the only special status fish occurring in the planning area, may improve aquatic and associated riparian habitats that grizzly bears use infrequently. Management and protection of habitats for special status wildlife species may influence potential habitats for grizzly bear. The objective of special status wildlife species management is to protect their habitats and allow for reintroduction or maintenance. These management actions will result in beneficial effects to grizzly bears by limiting harassment and disturbance to denning and foraging areas. Lands in the Dubois area are a priority for management actions that beneficially impact special status species. Closing lands in the Dubois area to oil and gas leasing, geophysical exploration, phosphate leasing, mineral materials disposal, excluding major ROW, and avoiding minor ROW will beneficially impact the grizzly bear by minimizing surface-disturbing and disruptive activities. In addition, adjusting livestock grazing season of use dates to avoid conflicts with grizzly bears on a case--by-case basis would benefit this species. The BLM would note and monitor important grizzly bear food resources, particularly whitebark pine, army cutworm moths, ungulates, and spawning cutthroat trout. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the potential for these actions to limit harassment and displacement of grizzly bear and minimize adverse effects to grizzly bear activity areas. In addition, management actions for other special status wildlife species within occupied grizzly bear habitat will benefit the grizzly bear.

Blowout Penstemon. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Blowout penstemon is protected under the ESA. Since blowout penstemon is not an aquatic species, management actions for special status fish would not impact potential blowout penstemon habitat. Special status wildlife species management actions will improve potential habitat for the blowout penstemon by maintaining or improving habitat conditions where these habitats overlap. However, the blowout penstemon is not currently known to occur in the planning area. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the potential for improvement of habitat and that the species is not known to occur in the planning area.

Desert Yellowhead. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Desert yellowhead and designated habitat are protected under the ESA. Special status fish do not occur in desert yellowhead habitat therefore management actions for these species would not impact desert yellowhead plants or critical habitat. Special status wildlife management actions are likely to improve habitat for the desert yellowhead by protecting overlapping habitats. Both desert yellowhead populations and designated critical habitat are located within Core Area for greater sage-grouse. Management actions for greater sage-grouse in the Core Area that limit surface-disturbing and disruptive activities in known populations of desert yellowhead would benefit this species habitat. Management for Wyoming BLM designated Sensitive Species that occur near or within desert yellowhead habitat will also protect the plant populations. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on ESA protection of desert yellowhead plants and critical habitat, the conservation measures to protect overlapping greater sage-grouse habitat and other special status species, and the potential that these protections will maintain habitat for the species.

Ute Ladies'-tresses. Special status species including ESA-listed and Wyoming BLM Sensitive Species are subject to additional management protection under BLM policy (Manual 6840). Ute ladies'-tresses is protected under the ESA. Management actions associated with special status species could benefit the Ute ladies-tresses habitat. Prohibiting surface-disturbing activities within 500 feet of surface water, riparian-wetland areas, and playas would benefit the Ute ladies'-tresses. Actions that maintain riparian-wetland areas in functional condition would benefit the Ute ladies'-tresses. Avoiding activities that contribute sediment to waterbodies that support special status fish would benefit the Ute ladies'-tresses by minimizing degradation of habitat. Implementing special status fish and wildlife management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the potential for improvement of habitat.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Special status fish and wildlife species may be adversely impacted on nonfederal lands due to development and surface disturbance in these areas. Development and surface disturbance on nonfederal lands may reduce available habitat, increase habitat fragmentation, and increase the spread of invasive species, thereby adversely impacting special status fish and wildlife species and their habitat. State, tribal, or private actions that conserve habitat for special status fish and wildlife would beneficially impact these species.

7.24 Wild Horses

The BLM protects, manages, and controls wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971. This law ensures that healthy herds thrive on healthy rangelands. Horses originally evolved on this continent and disappeared approximately 10,000 to 12,000 years ago. Spanish explorers introduced modern horses to the west in the 1500s. The BLM manages wild horses as part of its multiple-use mission. Most wild horses in the nation are found on BLM-administered lands. The BLM is responsible for managing the size and distribution of the herds.

As required by the Wild Free-Roaming Horses and Burros Act of 1971, the BLM designated 30 Herd Management Areas (HMAs) that together contain approximately 4,400 horses. Those 30 areas comprised roughly 6.6 million acres of public land, 400,000 acres of State of Wyoming land, and 2.5 million acres of privately owned lands. In recognition of the need to consolidate herds to ensure long-term genetic diversity, the BLM combined and consolidated these management areas.

At present, there are 16 HMAs in the state, and the statewide target is for a wild horse population of 2,700. The planning area has approximately 1,000 horses in seven HMAs: Antelope Hills/Cyclone Rim, Crooks Mountain, Green Mountain, Muskrat Basin, Conart Creek, Rock Creek, and Dishpan Butte. Herd management plans identify the appropriate number of horses for each HMA.

7.24.1 Proposed Actions for Wild Horses in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for wild horses that benefit threatened and endangered species:

- Consider impacts on herd health, including genetic diversity, when making management decisions regarding fencing, plus remove or modify existing fences to allow free movements among herd populations as opportunities arise.

7.24.2 Best Management Practices

No specific BMPs apply to wild horse management.

7.24.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. The management of HMAs is not expected to impact prairie dog towns or potential black-footed ferret habitat. Trampling by horses and range modification through forage species selection by horses may affect potential black-footed ferret habitat if an active prairie dog colony is present in an HMA. The BLM collects data and prescribes management actions to ensure that wild horse populations are in balance with other uses including threatened and endangered species. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing wild horse management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on HMA herd management plans establishing appropriate numbers of horses and existing conservation measures for the black-footed ferret.

Canada Lynx. The management of HMAs is not expected to adversely impact Canada lynx foraging, denning, or dispersal habitat. The BLM collects data and prescribes management actions to ensure that wild horse populations are in balance with other uses including threatened and endangered species. There are no HMAs in the LAU within the planning area and the HMAs do not overlap Canada lynx habitat. Wild horse management actions implemented will be localized within the HMAs in the planning area thus not territory occupied by the lynx. Implementing wild horse management actions would have *no effect (NE)* to the Canada lynx. This determination is based on the localized effects in HMAs and HMAs not occurring in Canada lynx habitat.

Gray Wolf. Wild horse management actions implemented will be localized within the HMAs in the planning area. HMAs do not exist in the Dubois area which is where gray wolves have been documented and the majority of the identified habitat occurs. Although gray wolves have been sighted in other

locations in the planning area outside of Dubois, the localized nature of HMA management is not expected to impact gray wolves. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The management of HMAs is not expected to impact greater sage-grouse habitat. Trampling by horses and range modification through forage species selection by horses may affect potential greater sage-grouse habitat if suitable sagebrush communities are present in an HMA. Wild horse roundup activities and infrastructure (i.e., corrals and catch pens) would be avoided on greater sage-grouse leks and could cause the short-term habitat degradation in nesting, brood-rearing, or winter habitat. Long-term habitat loss from vegetation removal could result if the same areas are used for roundups each year. In addition, grazing by wild horses could remove herbaceous nesting cover needed by greater sage-grouse. The BLM collects data and prescribes management actions to ensure that wild horse populations are in balance with other uses including threatened and endangered species. Removal of fences could benefit greater sage-grouse by reducing flight hazards for this species. Implementing wild horse management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the HMA herd management plans establishing appropriate number of horses and existing conservation measures for the greater sage-grouse.

Grizzly Bear. The management of wild horses would not adversely impact grizzly bear foraging, denning, or dispersal habitat as grizzly bear habitat does not overlap with the HMAs. Implementing wild horse management actions would have *no effect (NE)* to the grizzly bear. This determination is based on wild horse HMAs not occurring in grizzly bear habitat.

Blowout Penstemon. No blowout penstemon populations have been identified in the planning area; however, there is potentially suitable habitat south of Green Mountain, which is near the Green Mountain HMA. Blowout penstemon is found primarily on the rim and lee slopes of blowouts, and associated steep slopes deposited at the base of foothills. The actions associated with wild horse management may occur in suitable blowout penstemon habitat. Surveys for the species would be required before authorizing activities in suitable habitat. Conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. Implementation of wild horse management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area, the localized effects in HMAs and the existing conservation measures in place to protect the blowout penstemon.

Desert Yellowhead. Both desert yellowhead populations and designated critical habitat are located within the Dishpan Butte HMA. Wild horses are allowed to utilize the area and may trample individuals. Crushing, trampling or incidental grazing of desert yellowhead leaves by wild horses may compromise the reproductive capacity of any given plant. Occasional trampling may damage leaves or flowers, but the plant can grow back if the roots are not damaged. Trampling and crushing of desert yellowhead plants by grazing animals occurs at the present time at a very low frequency. Grazing by wild horses may remove competing palatable vegetation which would otherwise compete with the desert yellowhead plants. Implementation of wild horse management actions *may affect, and is likely to*

adversely affect desert yellowhead plants *(LAA)*. This determination is based on the fact that wild horse grazing may present a threat to desert yellowhead individuals through crushing, trampling and incidental grazing.

The USFWS designated critical habitat for this species is approximately 5 miles north of the location where Sweetwater Creek crosses U.S. Highway 287 in Fremont County. Wild horse management activities (e.g., temporary gathering/holding facilities) could damage plants and habitat if they were located at the site; however, the BLM has committed to the conservation measure that within designated critical habitat, the BLM will not conduct wild horse management actions. Implementation of wild horse management *may affect, but is not likely to adversely affect* the desert yellowhead critical habitat due to *insignificant effects (NLAA-i)*. This determination is based on the presence of designated critical desert yellowhead habitat within the Dishpan Butte HMA and the BLM's commitment to not conduct wild horse management activities in designated critical habitat.

Ute Ladies'-tresses. No Ute ladies'-tresses are documented within the planning area, therefore no Ute ladies'-tresses habitat is known to occur within HMAs and wild horse management is not expected to adversely impact potential Ute ladies'-tresses habitat. The BLM collects data and prescribes management actions to ensure that wild horse populations are in balance with other uses including threatened and endangered species. Trampling by horses may affect potential Ute ladies'-tresses habitat if suitable habitat is located in an HMA. Surveys for the species would be required before authorizing activities in suitable habitat. Conservation measures ensure that rangelands are capable of sustaining viable populations and a diversity of native plant species appropriate to the habitat and habitats that support or could support threatened and endangered species will be maintained or enhanced. Implementing wild horse management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the lack of identified populations of Ute ladies'-tresses in the planning area and existing conservation measures for the Ute ladies'-tresses.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Wild horse presence may add to disturbance of threatened and endangered species, range impacts, and habitat degradation. Increased human presence from recreation (e.g., wild horse viewing) also may lead to cumulative impact on threatened and endangered species. Wild horse viewing may include more travel on roads, potential off road travel, and camping in areas where threatened and endangered species occur, adding to disturbance of these species.

7.25 Cultural Resources

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. Cultural resources include archeological resources, historic architectural and engineering resources, and traditional resources. Archeological resources are areas where prehistoric or historic activity measurably altered the earth or where deposits of physical remains (e.g., arrowheads, pottery, and bottles) are discovered. Architectural and engineering resources include standing buildings, districts, bridges, dams, and other structures of historic or aesthetic value. Traditional resources can include archeological resources, structures, topographic features, habitats, plants, wildlife, and minerals that American Indians or other groups consider essential for the preservation of traditional culture.

Generally, cultural resources can be grouped into three categories: prehistoric resources, historic resources, and spiritual/sacred/traditional cultural properties (TCPs).

- Prehistoric cultural resources are sites, structures, objects, or materials deposited or left behind prior to the entry of non-American Indian (European) explorers and settlers into an area. In this part of Wyoming, the prehistoric stage spanned from approximately 11,500 years Before Present (BP) to approximately 250 years BP.
- Historic cultural resources are sites, structures, objects, or materials deposited or left behind after the European presence was established.
- Spiritual/sacred/TCPs can include prehistoric or historic resources, structures, topographic features, habitats, plants, wildlife, and/or minerals that American Indians or other groups consider essential for the preservation of traditional culture.

Common cultural resources of the prehistoric stage in the planning area include lithic scatters, stone circle habitations, petroglyphs and/or pictographs, open campsites, fire hearths or firepits, and lithic quarries.

Historic cultural resources commonly found in the planning area include ranching developments; trash scatters and dumps; mining prospects, developments, and mines; emigrant and stage trails, sites, and landmarks; livestock herder campsites; and abandoned homesteads and housepit habitations.

The following resource or property types, found in the planning area, might have spiritual, sacred, and/or traditional values: burials, battlefields, medicine wheels, sun dance locations, prayer circles and lodges, sweat lodges, altars, and cairns and other rock alignments. When these types of resources are found, traditional elders or authorities are consulted to determine if they are considered spiritual, sacred, or traditional properties, and if they qualify as TCPs.

Cultural resource management actions within the planning area that could affect threatened or endangered species include (1) protecting and preserving significant cultural resources and (2) conducting inventories and data collection for documenting and developing mitigation plans prior to surface-disturbing activities of other resource programs. Inventory and collection actions can include mapping and excavation, including the use of hand tools, power tools, or heavy machinery. Stabilization of deteriorating buildings and resources, fencing cultural resources, and constructing temporary campgrounds may also occur.

7.25.1 Proposed Actions for Cultural Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for cultural resources that benefit threatened and endangered species:

- Limit motorized travel to existing roads and trails in the areas around sacred, spiritual, and/or traditional properties.
- Mineral and realty actions in the 557-acre Warm Springs Canyon Flume Site are managed with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to locatable minerals entry in order to pursue a withdrawal
    - Closed to mineral materials disposal

  - Wind energy, major utility systems, and other ROWs are excluded
  - The remainder of the area (277 acres) is managed with the same restrictions but is open to locatable mineral entry.
- Mineral leasing, mining, and realty actions in the established protection zones around the following sites (48FR301 [2,940 acres], 48FR311 [555 acres], 48FR3997 [1,045 acres], 48FR4070 [3,378 acres], 48FR4489 [930 acres]) are managed with the following restrictions (8,848 total acres):
  - Oil and gas leasing is subject to NSO stipulations
  - Open to geophysical exploration
  - Closed to solid mineral leasing
  - Open to locatable minerals
  - Closed to salable minerals
  - Excluded to major ROWs
  - Avoided for minor ROWs

7.25.2 Best Management Practices

There are no BMPs established for cultural resource management.

7.25.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Most actions associated with cultural resource inventories, including surface surveys, record searches, and artifact characterization, will not affect black-footed ferrets or prairie dog complexes. More intensive excavation efforts and development of interpretive sites could disturb prairie dogs if such actions occurred in occupied habitats. As with any surface-disturbing activity, a preconstruction assessment of black-footed ferret and prairie dog presence will be conducted in potentially suitable habitats prior to authorization. Direct and indirect effects to prairie dog habitats will be avoided as a consequence of the pre-construction assessment and the implementation of conservation measures and the commitment to survey for ferrets. Developing interpretive sites will occur where the cultural objects and sites themselves are located. If such a site were discovered or occurred in a prairie dog colony, it could create a conflict; however, the likelihood of this event taking place is low. Implementing cultural resource management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that a cultural site will be identified in black-footed ferret habitat.

Canada Lynx. Management actions associated with cultural resource inventories, including surface surveys, record searches, and artifact characterization, will not affect the Canada lynx. Developing interpretive sites will likely occur where the cultural objects and sites themselves are located, and resident Canada lynx could be disturbed if such a site were discovered within occupied habitat. However, the likelihood of this event taking place is low. Implementing cultural resource management actions *may affect, but is not likely to adversely affect* the Canada lynx due to *discountable effects (NLAA-d)*. This determination is based on the localized nature of discovering and developing a cultural site in Canada lynx habitat.

Gray Wolf. Most actions associated with cultural resource inventories, including surface surveys, record searches, and artifact characterization, would not be expected to adversely affect the gray wolf. More intensive excavation efforts and development of interpretive sites could impact gray wolves by increasing the presence of humans in the area. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Most actions associated with cultural resource inventories, including surface surveys, record searches, and artifact characterization, will not affect the greater sage-grouse. More intensive excavation efforts and development of interpretive sites could disturb greater sage-grouse if such actions occurred in occupied habitats. Developing interpretive sites will occur where the cultural objects and sites themselves are located. If such a site were discovered or occurred in sage-grouse habitat, it could create a conflict. The as 0.6-mile sage-grouse lek buffers for greater sage-grouse Core Area and the ¼-mile sage-grouse lek buffers outside of Core Area will protect leks from cultural resource interpretive sites, although they may not be protected from minor surface disturbance associated with artifact excavation activities. In addition, nesting habitat protections will protect greater sage-grouse from disturbance related to cultural resource inventories. Implementing cultural resource management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the localized nature of cultural resource management actions and the development of a cultural site in greater sage-grouse habitat and the conservation measures in place to protect the species.

Grizzly Bear. Management actions associated with cultural resource inventories, including surface surveys, record searches, and artifact characterization, will not adversely affect the grizzly bear. Developing interpretive sites will occur where the cultural objects and sites themselves are located, and grizzly bears could be disturbed if such a site were discovered. However, the likelihood of this event taking place is low since cultural resource activities are typically associated with proposals for mineral or realty actions and the only identified grizzly bear habitat (Dubois area) is closed to most of these activities. Implementing cultural resource management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the localized nature of discovering and developing a cultural site in grizzly bear habitat and the management actions in place to protect the species.

Blowout Penstemon. No known populations of blowout penstemon occur in the planning area. Cultural resource management may affect blowout penstemon by excavating soils and removing or trampling vegetation in areas where management actions are implemented. The actions associated with cultural resources management are relatively small in scope, of short duration, and unlikely to occur in blowout penstemon habitat. Surveys for the species would be required before authorizing activities in suitable habitat. Implementation of cultural resources management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on cultural management actions may impact individual plants if they are conducted in blowout penstemon habitat.

Desert Yellowhead. Because of the plant's status under the ESA, cultural resources management actions will most likely not take place in desert yellowhead populations or critical habitat. Cultural resource actions are typically associated with proposals for mineral and realty actions and since desert yellowhead habitat is protected from the majority of these activities, the potential for cultural actions is limited. In the event cultural excavation is proposed, surveys for the species would be required and

consultation conducted with USFWS before authorizing activities. Implementation of cultural resources management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the ESA protections for the plant and critical habitat and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. No known populations of Ute ladies'-tresses occur in the planning area. Cultural resource management may affect the Ute ladies'-tresses by excavating soils and removing or trampling vegetation in areas where management actions are implemented. Surface-disturbing activities associated with cultural resource investigations can vary in size and degree of disturbance. Impacts on the Ute ladies'-tresses will depend on the number of people conducting the investigation, the time of year, duration of the field actions, use of heavy machinery or hand tools, and the type of habitat affected. Disturbance to potential Ute ladies'-tresses habitat will only likely occur if large-scale excavation takes place. Surface disturbance will be prohibited within 500 feet of surface water and riparian areas providing protection for suitable habitat. Implementing cultural resource management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the BLM's commitment to the conservation measures, which make these management actions unlikely to occur in potential Ute ladies'-tresses habitats. In addition, the BLM requires surveys to determine the presence or absence of the Ute ladies'-tresses if surface disturbance is planned in potential habitat. If cultural resources are found in potential Ute ladies'-tresses habitats, restrictions protecting the cultural resources may benefit the Ute ladies'-tresses.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. The cumulative effects of cultural resource programs on nonfederal lands are anticipated to be limited across the planning area; however, if actions for these programs occur in threatened and endangered species habitats, these species may be adversely impacted. Surface disturbance may directly impact habitat and human presence may cause species to avoid these areas. Actions from these programs also may spread invasive species, thereby degrading threatened and endangered species habitat.

7.26 Paleontological Resources

Management of paleontological resources is focused on protecting vertebrate and other scientifically significant fossils for the benefit of the public. Significant fossils include all vertebrate fossil remains and some plant and invertebrate fossils that are determined on a case-by-case basis to be scientifically unique. Abundance of these resources varies, with some geologic formations containing few or no significant fossils and other formations known to commonly produce significant numbers of fossils.

Recently signed legislation supplements existing laws and guidance regarding paleontological resources on BLM-administered lands (e.g., FLPMA, BLM Manual 8270, and BLM Handbook H-8270-1). The Paleontological Resources Preservation Act became law on March 30, 2009, as part of the Omnibus Public Lands Management Act of 2009 (Public Law 111-011). The BLM has followed up with instruction memoranda that reinforce policies regarding confidentiality and casual collecting in light of the new law (IM dated April 24, 2009, "Casual Collecting of Common Invertebrate and Plant Paleontological Resources under the Paleontological Resources Preservation Act of 2009" and IM dated June 5, 2009, "Confidentiality of Paleontological Locality Information under the Omnibus Public Lands Act of 2009") (BLM 2009f and BLM 2009g).

Three specific areas have been identified as high-potential paleontological areas.

Bonneville to Lost Cabin. This large area contains extensive exposures of the Wind River Formation, a high-potential formation for fossil resources. In this area, the Wind River Formation contains significant fossils of early mammals and plants from the Eocene Epoch, which dates from about 55 to 34 million years BP. The development of early mammals after the demise of the dinosaurs is the main focus of researchers who work in this area.

Gas Hills. This area contains exposures of the Sundance Formation, a high-potential formation for fossil resources. In this area, the Redwater Shale of the Sundance Formation, which dates from about 155 to 160 million years BP, occasionally contains significant fossils of sea-going reptiles from the Upper Jurassic. The development of marine reptiles in North America is the main focus of researchers who work in this area.

Lander Slope. This area contains exposures of the Morrison Formation, a high-potential formation for fossil resources from the Upper Jurassic Era. In this area, the Morrison Formation, which dates from about 156 to 147 million years BP, occasionally contains significant fossils of dinosaurs. The development of dinosaurs in North America is the main focus of researchers who work in this area.

The most prolific vertebrate-bearing formations are the Wind River, Wagon Bed, White River, and Morrison Formations. The Wind River Formation has produced early mammal fossils and is the focus of several national paleontological institutions. The Wagon Bed and White River Formations contain marine vertebrate fossils such as turtles. The Morrison Formation has been shown in this area to contain dinosaur remains.

Two proposed NNLs in the planning area are considered important based on their fossil content.

Beaver Rim Proposed NNL. This proposed landmark covers an area of 1,120 acres and lies along the western end of the Beaver Divide in Fremont County. This area is considered significant for its well-defined stratigraphic sequence of Tertiary deposits, which are exposed along the slopes of the rim.

Bison Basin Proposed NNL. This locality covers 1,280 acres and lies on the south flanks of the Sweetwater Arch in southern Fremont County, just north of the Great Divide Basin. The proposed NNL is considered significant because of its mammalian fossil remains. These remains are from late Paleocene Epoch sediments, and have been studied by several geological surveys and institutions. The fossil types have been found to be highly significant for scientific research and have been found in unusual quantities.

Paleontological resources management actions in the planning area that could affect threatened and endangered species include protecting and preserving paleontological resources and conducting inventories and data collection. Inventory and collection actions can include mapping and excavation, including the use of hand tools, power tools, or heavy machinery. Surface-disturbing activities associated with paleontological management actions include collecting invertebrate and plant fossils, inventorying paleontological resources, developing interpretive sites, and stabilizing erosion.

7.26.1 Proposed Actions for Paleontological Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for paleontological resources that benefit threatened and endangered species:

- Mineral and realty actions in areas with “very high” or “high” Potential Fossil Yield Classification (PFYC) are subject to CSU stipulations.

- The Beaver Rim proposed NNL (1,120 acres) are managed with the following restrictions:
  - A Plan of Operations is required for locatable mineral activities
  - Oil and gas leasing is subject to NSO stipulations
  - Closed to mineral materials disposal
  - Wind energy, major utility systems, and other ROWs are avoided
- Mineral and realty actions in the Bison Basin proposed NNL (1,280 acres) are subject to CSU stipulations.

7.26.2 Best Management Practices

No specific BMPs apply to paleontological resources management.

7.26.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Collection of fossils on public land will have minimal effects on black-footed ferrets and their habitats. Possible effects include increased human activity and minor surface disturbances associated with fossil retrieval. More intensive excavation efforts and development of interpretive sites have the potential to disturb prairie dogs if such activities occurred in occupied habitats. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Implementing paleontological resources management *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that paleontological resources management actions will occur within prairie dog complexes, the existing conservation measures, and the relatively small amount of surface disturbance associated with fossil collection.

Canada Lynx. The majority of Canada lynx habitat in the planning area is in the very high PFYC; however, no known fossil areas occur in Canada lynx habitat in the planning area. Collection of fossils on public land will likely have minimal effects on Canada lynx and their habitats. Possible effects include increased human activity and minor surface disturbances associated with fossil retrieval. Disturbance limitations in Canada lynx habitat would minimize adverse impacts from paleontological actions if they occurred in lynx habitat. Implementing paleontological resources management *may affect, but is not likely to adversely affect* the Canada lynx due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that paleontological resources management actions will occur within Canada lynx habitat, existing conservation measures, and the relatively small amount of surface disturbance associated with fossil collection.

Gray Wolf. Collection of fossils on public land will have minimal effects on the gray wolf. No known fossil areas occur in the Dubois area, where potential gray wolf habitat exists. Possible effects include increased human activity and surface disturbance associated with fossil retrieval, although impacts will vary based on the scale of the activity. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the

continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The majority of greater sage-grouse habitat in the planning area is in the moderate or unknown and very high PFYC. Two of the five fossil areas in the planning area are completely located within the Core Area for greater sage-grouse, while the other three fossil areas occur both within and outside of the Core Area. Collection of fossils on public land will have minimal effects on greater sage-grouse and their habitats due to the relatively small scale of disturbance these actions create. Possible effects include increased human activity and minor surface disturbances associated with fossil retrieval. The CSU stipulations in areas of very high or high PFYC and NSO stipulations in the Beaver Rim proposed NNL would limit the impacts to greater sage-grouse in these areas. Implementing paleontological resources management *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the unlikely event that paleontological resources management actions will occur within greater sage-grouse habitats, the existing conservation measures, and the relatively small amount of surface disturbance associated with fossil collection.

Grizzly Bear. The majority of grizzly bear habitat in the planning area is in the very high PFYC; however, no known fossil areas occur in grizzly bear habitat in the planning area. Collection of fossils on public land will have minimal effects on grizzly bear and their habitats. Possible effects include increased human activity and minor surface disturbances associated with fossil retrieval. The conservation measure requiring areas with vegetation removed due to authorized activities in occupied grizzly bear habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Implementing paleontological resources management *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that paleontological resources management actions will occur within grizzly bear habitat, existing conservation measures, and the relatively small amount of surface disturbance associated with fossil collection.

Blowout Penstemon. The actions associated with paleontological resources management actions are relatively small in scope, of short duration, and unlikely to occur in blowout penstemon habitat. No known populations of blowout penstemon are known in the planning area and paleontological resources management actions would require that surveys be conducted to determine the presence or absence of the species. Implementation of paleontological resources management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on cultural management actions may impact individual plants if they are conducted in blowout penstemon habitat.

Desert Yellowhead. Generally paleontological resources management is to protect fossils on BLM-administered lands, which also provides protection from collection activities to desert yellowhead plants. Desert yellowhead habitat is near the Beaver Rim proposed NNL, a fossil area with very high potential, therefore, paleontological resources management actions may take place in desert yellowhead habitat. Paleontological resource management actions that could impact desert yellowhead would likely not be authorized as ESA protection would prohibit. Implementation of paleontological resource management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Collecting fossils on public land will have minimal effects on the Ute ladies'-tresses and its habitats. Potential impacts depend on the number of people conducting the investigation, the time of year, duration of the field actions, use of heavy machinery or hand tools, and the type of habitats affected. As with any surface-disturbing activity, surveys for Ute ladies'-tresses will be conducted in potentially suitable habitats prior to any surface-disturbing activity taking place. Surface disturbance will be prohibited within 500 feet of surface water and riparian areas. Implementing paleontological management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that these management actions will occur in Ute ladies'-tresses habitats. In addition, existing conservation measures in place will minimize impacts on the species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. No actions associated with paleontology on nonfederal lands that could affect threatened and endangered species are anticipated.

7.27 Visual Resources

The BLM has a basic stewardship responsibility to identify and protect visual values on public lands (BLM 1984).

The BLM uses a Visual Resource Inventory (VRI) and VRM system to classify the aesthetic value of its lands and set management objectives during the planning process. The system involves assessing visual resources and assigning them to one of four VRI classes (Classes I to IV) based on three factors: scenic quality, visual sensitivity, and distance from travel or observation points. VRI classes are a general measure of the visual value of a landscape. Scenic quality is a measure of the visual appeal of a tract of land, while visual sensitivity is a measure of public concern for scenic quality in a given area. Distance is assessed by breaking the landscape into three zones (foreground and middleground, background, and seldom seen areas) based on relative visibility from travel routes or other observation points.

VRI Class III and IV areas are generally on or near linear infrastructure routes, in areas undergoing oil and gas exploration or other development, and in areas with less visual variety. VRI Class I and II areas possess outstanding scenic quality and high visual sensitivity. Such areas in the planning area include Sweetwater Rocks, Beaver Rim, Sweetwater Canyon, Red Canyon, South Pass Historic Landscape, Green Mountain, the Lander Slope, and Dubois Badlands. VRI Class I and II areas associated with travel corridors include the following locations:

- Sweetwater Basin to Beaver Rim (from Highway 220 south to U.S. Highway 287 from Muddy Gap northwest to Beaver Creek).
- Highway 28 starting at or near Commissary Hill through the South Pass historic landscape to the planning area boundary.
- U.S. Highway 287 from the WRIR boundary north to the planning area boundary, including small portions of the Wyoming Centennial Scenic Byway.
- Highway 20/789 from Shoshoni to the WRIR line, recently designated as the Wind River.
- Canyon Scenic Byway.
- The NHTs and CDNST Corridors.

The following are the objectives or standards for each VRM Class:

- Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV: The objective of this class is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

7.27.1 Proposed Actions for Visual Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for visual resources that benefit threatened and endangered species:

- Manage WSAs as VRM Class I visual resources.
- Prohibit surface-disturbing activities within important scenic areas (VRM Class I and II visual resources). Grant exceptions if it can be demonstrated through a visual simulation and contrast rating worksheet (from all key observation points within the area) that the project or identified mitigation will meet or exceed VRM Class I or II objectives. This restriction does not apply to temporary structures such as drilling rigs.
- Work with private landowners and partners to pursue conservation easements on lands adjacent to areas managed as VRM Class I and II visual resources.
- Adjust the new Lander Field Office VRM allocations to allow for resource development and while also protecting important scenic features:
    - VRM Class I: 60,115 acres
    - VRM Class II: 780,810 acres
    - VRM Class III: 857,979 acres
    - VRM Class IV: 694,759 acres

7.27.2 Best Management Practices

The following BMPs are listed in Appendix H of the Lander Proposed RMP and Final EIS and apply to visual resources management:

- *Visual Resources:* There are numerous design techniques that can be used to reduce the visual impacts from surface-disturbing projects. The techniques described here would be used in conjunction with BLM's visual resource contrast rating process wherein both the existing landscape and the proposed development or activity are analyzed for their basic elements of form, line, color, and texture. http://www.blm.gov/nstc/VRM/destech.html

7.27.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened and Endangered Species. Actions associated with VRM will not directly impact threatened or endangered species or any potential habitat. VRM will exclude some actions and structures from designated viewsheds and may have a beneficial impact of limiting disturbance in habitats suitable for threatened and endangered species. Implementing VRM actions *may affect, but is not likely to adversely affect* the threatened and endangered species due to *beneficial effects (NLAA-b)*. This determination is based on the potential of these management actions to preserve or minimize disturbance to habitats suitable for threatened and endangered species.

Candidate Species. Management of visual resources is not anticipated to detrimentally impact candidate species. Management of visual resources would have *no impact (NI)* on candidate species within the planning area. This determination is based on the potential of these management actions to preserve or minimize disturbance to habitats suitable for threatened and endangered species.

7.28 Lands and Realty—Acquisitions, Disposals, and Withdrawals

The lands and realty program manages BLM-administered land that supports all resource and management programs in the planning area. Management decisions for lands and realty are limited to BLM-administered public lands, although lands and realty actions during the life of the plan could involve other surface managers (through easements and land tenure adjustments). The primary activities of the lands and realty program include (1) land tenure adjustments, including sales and other types of disposal actions, exchanges, donations, land acquisitions and interests in lands (access easements), and (2) withdrawals, classifications, and segregations. As part of the processing of lands and realty actions, the BLM works cooperatively with other federal agencies, the State of Wyoming, cities and counties, and public and private landholders.

The BLM administers 2,394,210 acres of (71 percent) of surface lands in the planning area. Private land ownership accounts for the 668,119 acres amount of surface landownership in the planning area. Of the 5 counties in the planning area, Fremont County contains the largest amount of BLM-administered land.

7.28.1 Proposed Actions for Lands and Realty—Acquisitions, Disposals, and Withdrawals in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following lands and realty management actions that benefit threatened and endangered species:

- Retain approximately 2,348,028 acres of BLM-administered land.
- Pursue new withdrawals on approximately 429,306 acres.
- Renew existing withdrawals on 23,133 acres before they expire.

7.28.2 Best Management Practices

No specific BMPs apply to lands and realty management.

7.28.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Land acquisitions, disposals, and withdrawals may impact black-footed ferret habitats if such actions occur near prairie dog towns. Although possible, the BLM typically does not convey properties with high resource value, such as those with known threatened or endangered species, which would benefit the resources on that property. Conversely, land acquisitions and protective withdrawals may provide benefits to black-footed ferrets by acquiring additional land around prairie dog complexes that could contribute to reintroduction sites for black-footed ferrets, as suggested in the conservation strategies section. Implementing actions associated with lands and realty *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the low potential for land disposal of prairie dog habitats, the existing safeguards in the conservation strategies for protection and avoidance of prairie dog towns, and the low potential for other land management actions to disturb or remove black-footed ferret habitats.

Canada Lynx. Current BLM land holdings would be evaluated prior to disposal, including suitability and use by lynx. Approximately 6,903 acres in the LAUs are identified for disposal. Disposal or transfer of public lands may affect the lynx's ability to utilize suitable habitats and travel corridors linking desirable habitats. However, most of the disposal lands in the Dubois area require that these lands, if disposed of, must be managed similarly to adjacent lands, and therefore would likely only be disposed of to the WGFD. This type of disposal would continue to protect Canada lynx habitat as the adjacent WGFD lands are managed as Wildlife Management Areas. In addition, locatable mineral withdrawals for bighorn sheep and elk habitat in the Dubois area and pursuit for withdrawal of additional lands would protect Canada lynx habitat. Approximately 39,941 acres are currently and proposed for withdrawal in the Dubois area. The establishment of withdrawals would protect Canada lynx habitat from habitat loss and fragmentation as a result of locatable mineral exploration and development. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by the BLM, which would provide benefits to lynx that may not be afforded under nonfederal ownership. Lands in the Dubois area are predominantly privately owned, therefore BLM land acquisitions could allow for larger blocks of public land, reducing the potential for habitat loss and fragmentation. BLM-committed conservation measures ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on key linkage areas. Implementation of management actions for land acquisitions, disposals, and withdrawals in the Proposed RMP *may affect, but is not likely to adversely affect* the Canada lynx due to *insignificant effects (NLAA-i).* This

determination is based on the beneficial impacts of maintaining existing and proposing additional locatable mineral withdrawals in Canada lynx habitat, placing restrictions on management of disposal lands, and the existing conservation measures in place to evaluate effects of acquisitions, disposals, and withdrawals on Canada lynx.

Gray Wolf. Lands not under BLM jurisdiction that are suitable or occupied gray wolf habitat may be targeted for acquisition and subsequent management by the BLM, which would provide benefits to wolves that may not be afforded under nonfederal ownership. Post-disposal management of lands identified for disposal that have gray wolf habitat could impact the availability of prey and wolf movement. Some of the disposal lands in the Dubois area require that these lands, if disposed of, must be managed similarly to adjacent lands, and therefore would likely only be disposed of to the WGFD. This type of disposal would continue to protect gray wolf habitat. In addition, locatable mineral withdrawals for bighorn sheep and elk habitat in the Dubois area and pursuit for withdrawal of additional lands would protect gray wolf habitat. Approximately 39,941 acres are currently and proposed for withdrawal in the Dubois area. Lands in the Dubois area are predominantly privately owned, therefore BLM land acquisitions could allow for larger blocks of public land and subsequent protective management against habitat loss and fragmentation. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Land disposal, acquisition, and withdrawal actions may adversely impact greater sage-grouse habitats. Many of the lands identified for disposal are within greater sage-grouse habitat and if disposed of, may impact this species through habitat conversion or loss. The BLM typically does not convey properties with high resource value, such as those with known threatened or endangered species, but since 99 percent of the planning area is identified as habitat for greater sage-grouse, it would be difficult to dispose of lands not having value for the species. Conversely, land acquisitions may provide benefits to the greater sage-grouse by acquiring additional habitat. Lands identified for acquisition are within the Core Area and acquisition would benefit greater sage-grouse habitat. Under the Proposed RMP, 3,553 acres of BLM-administered land are available for disposal by sale, exchange, or other means and 1,435 acres of BLM-administered land are available for disposal with restrictions on use. Cumulatively, this acreage represents less than 0.3 percent of BLM-administered lands in the planning area that are available for disposal. Land acquisitions may benefit greater sage grouse providing post-acquisition management of the parcels leads to habitat protection and improvement. Protective withdrawals would benefit greater sage-grouse by withdrawing lands from actions that could adversely impact habitat. The Proposed RMP proposes to pursue a locatable mineral withdrawal for lands containing federal mineral estate within the 306,360-acre WRSW LWG-nominated management area. This and other mineral withdrawals in the planning area provide long-term protection from impacts associated with locatable mineral exploration and development. Implementing actions associated with lands and realty *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the potential adverse impacts from the disposal of greater sage-grouse habitat and the beneficial impacts of maintaining existing and proposing additional locatable mineral withdrawals and acquiring greater sage-grouse habitat.

Grizzly Bear. Current BLM land holdings would be evaluated prior to disposal, including habitat for and use by grizzly bear. Disposal or transfer of public lands may affect the grizzly bear's ability to use suitable habitats and travel corridors. Lands identified as important habitat or travel corridors would not likely be available for disposal as the BLM manages them on a case-by-case basis. However, some of

the disposal lands in the Dubois area require that these lands, if disposed of, must be managed similarly to adjacent lands, and therefore would likely only be disposed of to the WGFD. This type of disposal would continue to protect grizzly bear habitat. In addition, locatable mineral withdrawals for bighorn sheep and elk habitat in the Dubois area and pursuit for withdrawal of additional lands would protect grizzly bear habitat. Approximately 39,941 acres are currently and proposed for withdrawal in the Dubois area. Lands not under BLM jurisdiction that are suitable or occupied grizzly bear habitats may be targeted for acquisition and subsequent management by the BLM, which would provide benefits to grizzly bear. Lands in the Dubois area are predominantly privately owned, therefore BLM land acquisitions could allow for larger blocks of public land and subsequent protective management against habitat loss and fragmentation. Implementation of management actions for land acquisitions, disposals, and withdrawals in the Proposed RMP *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i).* This determination is based on the beneficial impacts of maintaining existing and proposing additional locatable mineral withdrawals in grizzly bear habitat, placing restrictions on management of disposal lands, and the existing conservation measures in place to evaluate effects of acquisitions, disposals, and withdrawals on grizzly bear.

Blowout Penstemon. The BLM rarely conducts land disposals of properties with high resource values, especially those with known threatened or endangered species. To prevent loss of habitat for the blowout penstemon, 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 blowout penstemon habitat, 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 blowout penstemon will not be exchanged or sold, unless it benefits the species. Implementation of **l**and acquisition, disposal, and withdrawal management actions will have *no effect (NE)* on the blowout penstemon. This determination is based on no blowout penstemon populations documented in the planning area and conservation measures in place to protect the species. Land acquisition of potential blowout penstemon habitats may provide beneficial effects to this species.

Desert Yellowhead. Lands containing limited habitats, including those of the desert yellowhead, are not identified for disposal. The BLM would maintain the current 360-acre locatable mineral withdrawal for desert yellowhead critical habitat. Implementation of **l**and acquisition, disposal, and withdrawal management actions will have *no effect (NE)* on the desert yellowhead or designated critical habitat. This determination is based on lands containing species protected under the ESA being unavailable for disposal, the conservation measures in place to protect the species and its habitat and that the BLM would maintain the locatable mineral withdrawal for desert yellowhead critical habitat. Land acquisition of potential desert yellowhead habitats may provide beneficial effects to this species.

Ute Ladies'-tresses. The BLM rarely conducts land disposals of properties with high resource values, especially those with known threatened or endangered species. To prevent loss of habitat for the blowout penstemon, 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 Ute ladies'-tresses habitat, 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 Ute ladies'-tresses will not be exchanged or sold, unless it benefits the species. Implementation of the **l**and acquisition, disposal, and withdrawal management actions will have *no effect (NE)* on the Ute ladies'-tresses. This determination is based on low potential for land disposal

under BLM management and implementing conservation measures for the Ute ladies'-tresses and its habitats. Land acquisition of potential Ute ladies'-tresses habitats may provide beneficial effects to this species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Land acquisitions, exchanges, and protective withdrawals have the potential to benefit threatened or endangered species. Lands and realty management actions by state, tribal, or private entities could alter or remove threatened or endangered species suitable habitats, especially that for prairie dogs and consequently, black-footed ferrets. The greater sage-grouse, a candidate species, may also be affected in the long term by realty actions on nonfederal land. Degradation, removal, and fragmentation of habitat may lead to additional sediment loading of waterways which could impact potential Ute ladies-tresses habitat.

7.29 Renewable Energy

Solar, wind, biomass, and geothermal resources are considered renewable energy resources. Wind energy produces electrical energy through the use of large wind turbines. Solar power refers to energy from the sun that is converted into thermal or electrical energy. Geothermal energy is derived from the heat stored in the interior of the Earth. Biomass energy is the burning or use of organic materials as a source of energy. Wind, solar and biomass facilities are processed through the BLM-administered lands and realty program and authorized under Title V of the FLPMA as ROW actions. Geothermal resources are considered a fluid leasable mineral, and the BLM processes geothermal actions according to the provisions of the Mineral Leasing Act.

The BLM only addresses wind energy development in the revised RMP due to the low potential for renewable energy projects other than for wind. Geothermal resources are addressed in section 7.9; Mineral Resources – Leasable Geothermal. If a solar or other type of renewable energy project is proposed in the future, it would be analyzed under a new NEPA document that would evaluate whether a RMP amendment would be required to approve the action.

The BLM policy is to encourage the development of renewable energy in acceptable areas. Additionally, Executive Order 13212 (May 18, 2001), instructs the BLM to expedite energy-related projects that will increase the production, transmission, and consideration of renewable energy sources on BLM-administered land, and prioritizing such projects has become a necessary component of land management planning.

In March 2009, Secretary of the Interior Ken Salazar issued a secretarial order making the production, development, and delivery of renewable energy on public land a top priority for the DOI. In addition to making renewable energy production a top priority for the department, Salazar identified specific zones on U.S. public lands where the DOI can facilitate a rapid and responsible move to large-scale production of solar, wind, biomass, and geothermal energy.

In cooperation with the United States Department of Energy (DOE) National Renewable Energy Laboratory, the BLM assessed renewable energy resources on BLM-administered land in the western United States, including Wyoming (BLM and DOE 2003). The BLM reviewed the potential for concentrated solar power as well as photovoltaic, wind, biomass, and geothermal energy on DOI, Bureau of Indian Affairs, and USFS lands in the western United States. Additional programmatic level documents for wind, geothermal, and solar (a Draft Solar Programmatic EIS is under development) describe development potential, policies, and BMPs for renewable energy resources on public lands.

Development of renewable energy resources on public lands follows policy and BMPs identified in this Programmatic EIS and other resource specific guidance.

Based on current policy direction and advances in technology, there is potential for renewable energy development in the planning area during the life of this RMP. Resource potential and the affected environment for all types of renewable energy resources in the planning area are discussed below. Wind energy has the highest potential for development in the planning area.

7.29.1 Proposed Actions for Renewable Energy in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for renewable energy that benefit threatened and endangered species:

- Programmatic policies and BMPs for wind-energy development are identified in the ROD for *Wind Energy Development on Bureau of Land Management-Administered Land in the Western States* (BLM 2005d) and IM 2009-043. The ROD identified the following areas within the NLCS as wind-energy development exclusion areas:
  - WSAs (55,338 acres)
  - CDNST (no buffer is identified)
  - NHTs (no buffer is identified)
  - Eligible waterway segments proposed for inclusion in the NWSRS (6,153 acres of BLM-administered surface)
- Manage 1,215,599 acres as wind-energy development avoidance areas.
- Manage 954,322 acres as wind-energy development exclusion areas.

7.29.2 Best Management Practices

The following resources provide information on BMPs related to renewable energy development:

- *Wind Energy Development Programmatic Environmental Impact Statement [EIS]:* The scope of the Wind Energy Programmatic EIS analysis includes an assessment of the beneficial and adverse environmental, social, and economic impacts; discussion of relevant mitigation measures to address these impacts; and identification of appropriate, programmatic policies and BMPs to be included in the proposed Wind Energy Development Program. http://windeis.anl.gov/documents/fpeis/index.cfm
- *BLM IM 2009-043, Rights-of-Way, Wind Energy:* This IM further clarifies the BLM Wind Energy Development policies and BMPs provided in the Wind Energy Development Programmatic EIS. http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-043.html
- *ROD for the Geothermal Resource Leasing Programmatic Environmental Impact Statement:* This appendix provides a list of sample BMPs that have been collected from various BLM and USFS documents addressing geothermal and fluid mineral leasing and development, including RMPs, forest plans, and environmental reports for geothermal leasing and development. The purpose of this appendix is to provide a list of recommended BMPs that would be incorporated as appropriate into the permit application by the lessee or would be included in the approved use authorization by the BLM as COA. http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PRO

TECTION_/energy/geothermal_eis/final_programmatic.Par.90935.File.dat/ROD_Geothermal_12-17-08.pdf

- *Solar Energy Development Programmatic Environmental Impact Statement:* This Programmatic EIS is currently under development (as of fall 2009) and when finalized will include policies and mitigation measures adopted as part of the proposed solar energy deployment program. The Solar Programmatic EIS will identify for the DOE, industry, and stakeholders the best practices for deploying solar energy and ensuring minimal impact to natural and cultural resources on BLM-administered lands or other federal, state, tribal, or private lands. http://www.solareis.anl.gov/

7.29.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Establishment of energy generating structures, transmission lines, and roads for renewable energy systems may impact black-footed ferret habitats. The Proposed RMP only addresses wind energy development as there is low potential for solar, geothermal, or biomass energy resources in the planning area, therefore impacts from these resources are not expected. Wind energy projects may adversely impact black-footed ferret habitats if such actions occur near prairie dog towns, however no black-footed ferrets have been discovered in the planning area and 98 percent of the planning area has been block-cleared. The Proposed RMP avoids surface-disturbing activities in prairie dog towns where possible and requires the use of anti-perching devices on new overhead powerlines or met towers to reduce impacts of predation by raptors. Potential black-footed ferret habitat is generally found in areas that have greater sage grouse habitat and greater sage-grouse Core Area is excluded for wind energy development and then will be avoided once research is completed on the impacts of wind energy on greater sage-grouse and adequate mitigation is developed. The BLM will coordinate with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Implementing actions associated with renewable energy *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the low potential for wind energy to be developed due to overlapping greater sage-grouse protections and the conservation strategies for protection and avoidance of prairie dog towns, such that adverse effects to individual black-footed ferrets would not occur.

Canada Lynx. The Dubois area, where potential Canada lynx habitat exists, is closed to wind energy development, therefore there would be no impacts from renewable energy development. Implementing actions associated with renewable energy will have *no effect (NE)* on the Canada lynx. This determination is based on Canada lynx habitat and LAUs in the Dubois area being closed to wind energy development.

Gray Wolf. The Dubois area, which has the majority of gray wolf habitat in the planning area, is excluded from wind-energy development. This action will eliminate impacts to gray wolf benefiting the gray wolf in the Dubois area. Potential habitat in the Lander Slope, Red Canyon, and Green Mountain areas is also excluded for major ROWs including those for wind energy development. Proposals for wind energy projects in the rest of the planning area are subject to the protections for VRM, cultural, and special status species resources which may limit impacts to the gray wolf in wind energy avoidance areas or through site-specific protections. Development of renewable energy projects may impact wolf distribution and habitat where they overlap. At the time of effects analysis, the gray wolf was listed as a

non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Renewable energy projects may adversely impact greater sage-grouse if such actions occur near suitable habitat. Wind energy potential has been identified in the planning area with high potential associated with the higher elevations in the South Pass, Beaver Rim, and the Green, Crooks, Rattlesnake, and Bridger Mountains. Under the Proposed RMP, 224,289 acres are open for wind energy development, 954,322 acres are excluded, and 1,215,599 acres are avoided. Avoidance areas are those lands that are to be avoided but may be available with special stipulations. The BLM will develop the criteria considered when addressing wind energy proposals in avoidance areas. Greater sage-grouse Core Area is avoided for wind energy development except for lands with lek buffers, within the 306,360-acre WRSW LWG-nominated management area, along the National Trails Management Corridor, and in the Dubois area which are excluded. Until such time as research is completed on the impacts of wind energy on greater sage-grouse and adequate mitigation is developed, the avoidance areas in Core Area are excluded from wind energy development. These actions will predominantly benefit greater sage-grouse in Core Area but will provide localized benefits to grouse outside of Core Area, primarily on leks.

The BLM recently implemented direction for permitting renewable energy projects including Wyoming IM 2010-012, Greater Sage-Grouse Habitat management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands including the Federal Mineral Estate; Washington IM 2010-022, Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie chicken; Washington IM 2010-071, Gunnison and Greater Sage-grouse Management Considerations for Energy Development (Supplement to National Sage-Grouse Habitat Conservation Strategy). These directives institute limitations on disturbances, provide guidance on use of guywires and siting of turbine or MET towers, and screening of new ROW applications for renewable energy projects to conserve greater sage-grouse habitat. Implementing actions associated with renewable energy *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the short-term exclusion and long-term avoidance of wind energy development in Core Area, the exclusion of leks outside of Core Area, and the existing safeguards in the conservation strategies to protect greater sage-grouse habitat.

Grizzly Bear. The Dubois area, where potential grizzly bear habitat exists, is closed to wind energy development; therefore there would be no impacts from renewable energy development. There is limited suitable habitat in the rest of the planning area, but grizzly bears could likely expand their range into the southern Wind River Mountains in the Lander Slope and Red Canyon areas. The Lander Slope and Red Canton ACECs are also closed to wind energy development. Implementing actions associated with renewable energy will have *no effect (NE)* on the grizzly bear. This determination is based on occupied grizzly bear habitat in the Dubois area and potential grizzly bear habitat near Lander being closed to wind energy development.

Blowout Penstemon. The actions associated with wind energy are unlikely to occur in blowout penstemon habitat due to the protection afforded the species under the ESA. Renewable energy actions are discretionary; therefore, the BLM would not authorize actions that would adversely impact blowout penstemon. Surveys for the species would be required before authorizing activities in suitable habitat. Implementation of renewable energy management actions will have *no effect (NE)* on the blowout penstemon. This determination is based on no blowout penstemon populations documented in the planning area and the lack of overlap of renewable energy and blowout penstemon habitat.

Desert Yellowhead. Desert yellowhead designated habitat, which encompasses the original identified population, is excluded for wind energy development whereas the area surrounding the Cedar Rim population is avoided. Surface-disturbing activities in the Cedar Rim population are prohibited which would preclude wind energy development. Greater sage-grouse Core Area protections, which overlap the Cedar Rim population, excludes wind energy development until research is completed regarding the impacts and adequate mitigation can be developed thereby also protecting desert yellowhead from wind energy impacts adjacent to the Cedar Rim population. Implementation of renewable energy management actions will have *no effect (NE)* on the desert yellowhead or designated critical habitat. This determination is based on desert yellowhead plants in the original identified population and critical habitat being closed to wind energy development and surface disturbing activities being prohibited in the Cedar Rim population.

Ute Ladies'-tresses. Establishment of transmission lines and corridors for renewable energy systems may impact Ute ladies'-tresses habitats although no known populations have been identified in the planning area. Surveys for the species would be required before authorizing activities in suitable habitat. BLM-committed conservation measures ensure that all proposed ROW projects will be designed and locations selected at least 0.25 mile from any known Ute ladies'-tresses habitat to minimize disturbances. If avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. Implementing the renewable energy actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on low potential for renewable energy projects in suitable Ute ladies'-tresses habitat and implementing conservation measures for the Ute ladies'-tresses and its habitats.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Proposed wind farms could alter or remove habitats for prairie dogs and provide human-introduced foraging opportunities, luring predators (e.g., foxes, coyotes, bobcats) that could prey on black-footed ferrets and compete for prairie dogs. Wind farms and could also cause additive mortality to avifauna. Construction and maintenance of permanent facilities for wind farms may result in the fragmentation of habitat for threatened and endangered species and short- or long-term losses of vegetation and increased sedimentation.

7.30 Rights-of-Way and Corridors

Section 501 of FLPMA authorizes the BLM to grant ROWs for infrastructure and facilities that are in the public interest and require ROWs over, under, upon, or through BLM-administered lands. The BLM ROW program consists of the evaluation, authorization, and management of ROWs, including corridors, for a variety of uses on public or federal land. A ROW grant is an authorization to use specific pieces of public land for certain projects, such as developing roads, pipelines, transmission lines, and communications sites. The grant authorizes rights and privileges for a specific use of the land for a specific period. A ROW corridor is an area with specific boundaries that has been designated as the preferred location for ROWs and facilities. Land uses that typically do not require a ROW are those defined as *casual use* (43 CFR 3809.5). Casual use activities are those involving practices that do not ordinarily cause any appreciable disturbance to BLM-administered lands, resources, or existing improvements.

An important component of the ROW program is the intrastate and interstate transportation of commodities that are ultimately delivered as utility services (e.g., natural gas and electricity) to residential and commercial customers. Equally important on the local level is the growing demand for legal access to private homes and ranches using ROW grants. While the majority of existing ROW

actions in the project area are for linear facilities, there are also many existing site ROWs for non-linear communication sites, water reservoirs, and energy resource distribution and transmission.

The BLM, together with the DOE and USFS, prepared a PEIS for the Designation of Energy Corridors on Federal Land in Eleven Western States. The PEIS evaluates potential impacts associated with the proposed action to designate corridors on federal land in 11 western states (including Wyoming) for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities. The ROD for the PEIS amended the existing Lander RMP by designating energy corridor 79-216 (Westwide Energy Corridor) as a multi-modal energy corridor. A small portion of energy corridor 79-216 runs through the northeast portion of the planning area in a northwest to southeast direction.

The BLM authorizes ROWs in the planning area for the development of powerlines, communication facilities, access roads, water-related facilities (wells and pipelines), and pipelines and ancillary facilities for the transportation and delivery of mineral-related commodities. A total of approximately 1,060 existing ROWs are authorized in the planning area.

7.30.1 Proposed Actions for Rights-of-Way and Corridors in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for ROWs and corridors that benefit threatened and endangered species:

- The preferred location for new ROWs and access route authorizations is in areas already disturbed by existing ROWs.
- Locate linear ROWs such as fiber optic and low-voltage powerline corridors along currently established road systems (e.g., interstate or state highways and paved county roads).
- Close the Beef Gap section of the Sweetwater Rocks complex to any new ROWs even if co-located with existing ROWs.
- Manage 1,396,977 acres as ROW avoidance areas.
- Manage 418,444 acres as ROW exclusion areas.

7.30.2 Best Management Practices

There are no BMPs associated with ROWs and corridors.

7.30.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Any new ROWs and corridors, access roads, and easements, through prairie dog colonies could destroy habitat and provide additional human access. The construction of new ROW projects within ROWs and in designated corridors decreases adverse effects. Approximately 98 percent of the planning area has been block-cleared by USFWS so the likelihood of finding a black-footed ferret population in the planning area is very low. Under the Proposed RMP, surface disturbing activities will be avoided in prairie dog towns and the footprint of development and facilities will be required to be the smallest practical to protect special status species which will benefit potential black-footed ferret habitat and reintroduction sites. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Conservation measures include coordinating with the USFWS

when project proposals are received for areas that still require black-footed ferret surveys. Implementing ROW and corridor management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the low potential for black-footed ferrets in the planning area, concentrating new ROWs with existing projects, and implementing the conservation strategies for black-footed ferrets.

Canada Lynx. ROW and corridor management actions can be a source of fragmentation of lynx habitat resulting in reduced opportunity for dispersal and mobility and increased mortality to lynx from collisions with vehicles. Any improved access may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats. The degree of these impacts is correlated with traffic volume and speed, as well as road width. The acquisition of access easements and issuance of ROWs may affect the lynx if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. Existing ROW corridors or sites are the preferred location for new ROW grants and these routes or areas are located primarily along existing highways, major pipelines and powerlines, oil fields, and communication sites, which do not typically contain Canada lynx habitats. No designated corridors or new communication sites are proposed in the Dubois area. In addition, the Dubois area is an exclusion area for major ROW development and an avoidance area for minor ROW development. Minor ROWs would only be authorized if impacts can be fully mitigated. Implementing ROW and corridor management actions *may affect, but is not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i)*. This determination is based on the Dubois area being excluded for major ROWs and avoided for minor ROWs.

Gray Wolf. The Dubois area is an exclusion area for major ROW development and an avoidance area for minor ROW development which will benefit the gray wolf. Suitable habitat in the Lander Slope and Red Canyon areas are also excluded for major ROWs and avoided for minor ROWs. In avoidance areas, minor ROWs would only be authorized if impacts can be fully mitigated. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Establishment of new ROW and corridor areas may affect greater sage-grouse habitats. Existing ROW corridors are the preferred location for ROW grants. The construction of roads within established ROWs decreases adverse effects. ROW and corridor activities may adversely affect greater sage-grouse if such actions occur near suitable or occupied habitat and powerlines and towers could provide perches for raptors. The WRSW LWG-nominated management area is excluded for major ROWs except within the one Designated Corridor that crosses the area. This corridor is limited to below ground utilities and currently contains 2 pipelines. There are approximately 95,733 acres of BLM-administered surface within the designated corridors proposed in the Proposed RMP. Proposed ROW projects in Core Area are subject to the disturbance density thresholds identified to protect greater sage-grouse. Disturbance is limited to an average of one disturbance location per 640 acres with the cumulative value of disturbances less not exceeding 5 percent of the sagebrush habitat within those same 640 acres. These limitations ROW development would benefit greater sage-grouse by reducing the surface disturbance in the Core Area. In addition, the Core Area is either excluded or avoided for ROW, which is the majority of habitat in the planning area. The nesting buffers in and outside Core Area offer protection against construction during the greater sage-grouse nesting period, but does not provide long-term protection after that time of year or after construction is completed. The Proposed RMP will require the footprint of development and facilities be reduced to the smallest practical to

protect special status species and will apply seasonal protections to surface-disturbing and disruptive activities for oil and gas maintenance and operation actions determined to be detrimental which will benefit greater sage-grouse in all occupied habitat outside of DDAs. Implementing actions associated with ROW and corridor areas *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the existing safeguards in the conservation strategies for protection and the exclusion and avoidance of greater sage-grouse habitat for ROW development.

Grizzly Bear. ROW and corridor management actions can be a source of fragmentation of grizzly bear habitat resulting in reduced opportunity for dispersal and mobility and in increased mortality to grizzly bear from collisions with vehicles. The acquisition of access easements and issuance of ROWs and leases for utility corridors may affect the grizzly bear if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the grizzly bear due to the presence of human activity. Any improved access may open new areas to human activity that may cause the grizzly bear to avoid occupied habitats, or result in increased bear/human conflict. The degree of these impacts is correlated with traffic volume and speed, as well as road width. Roads can be a source of fragmentation of grizzly bear habitat and may reduce mobility and use of otherwise secure habitat. Construction of ditches, canals, and roads may affect the grizzly bear if it occurs near travel corridors or areas between different seasonal foraging sites. Existing ROW corridors are the preferred location for ROW grants and these routes or areas are typically located along existing highways, major pipelines and powerlines, oil fields, and communication sites, and these areas do not typically contain grizzly bear habitats. The Dubois area is an exclusion area for major ROW development and an avoidance area for minor ROW development and no designated corridors or new communication sites are proposed in the Dubois area. Suitable habitat for grizzly bear habitat expansion in the Lander Slope and Red Canyon areas are also excluded for major ROWs and avoided for minor ROWs. In avoidance areas, minor ROWs would only be authorized if impacts can be fully mitigated. Implementing ROW and corridor management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *discountable effects (NLAA-d)*. This determination is based on the avoidance and exclusion areas for ROW development in the Dubois area and potential habitat expansion area near Lander and that ROW and corridor management actions occur in areas outside of habitat typically used by grizzly bears.

Blowout Penstemon. The actions associated with ROW and corridor activities are unlikely to occur in blowout penstemon habitat as no known populations have been identified in the planning area despite searches in suitable habitat. In addition, conservation measures require all proposed ROW projects be designed and locations selected at least 0.25 mile from any known blowout penstemon habitat to minimize disturbances. Implementation of ROW and corridor activities *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the conservation measures that are in place to protect blowout penstemon habitat.

Desert Yellowhead. Critical habitat is excluded from ROW development; therefore, ROW and corridor activities will not take place in desert yellowhead critical habitat. In addition, mineral leasing within the Cedar Rim population is subject to an NSO so ROWS associated with leasable mineral development would not occur in this area. The Proposed RMP designates a ROW corridor adjacent to but outside the Cedar Rim population NSO area for mineral leasing activities to minimize potential impacts from actions. Surveys for the species would be required before authorizing activities in suitable habitat and actions are subject to consultation with USFWS. ROW and corridor activities *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*.

This determination is based on the lack of overlap of ROW and corridor activities in desert yellowhead critical habitat and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. New ROW and corridor areas through potential Ute ladies'-tresses habitat are not expected to occur in the planning area. Existing ROW corridors are the preferred location for ROW grants. These routes or areas are located primarily along existing highways, major pipelines and powerlines, oil fields, and communication sites, and these sites do not typically contain Ute ladies'-tresses habitat. Surveys for the species would be required before authorizing activities in suitable habitat. All proposed ROW projects will be designed and locations selected at least 0.25 mile from any known Ute ladies'-tresses habitat to minimize disturbances. If avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. Implementing ROW and corridor management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination has been made because no populations of Ute ladies'-tresses have been recorded in the planning area and conservation measures are in place to protect the species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Increased ROW and corridor management on private and state lands may cause additional mortality of threatened, endangered, or candidate species due to collisions with vehicles. Increases of prairie dog mortalities due to vehicle collisions and loss of prairie dog habitat may occur. ROW and corridor management on state and private lands may also remove and fragment habitat that is suitable for black-footed ferret reintroduction (i.e., large prairie dog towns). Construction and maintenance of ROW on state and private lands contribute to short- and long-term losses of vegetation and increased sedimentation.

7.31 Comprehensive Trails and Travel Management

Travel and transportation are a part of virtually every activity on BLM-administered public lands, including recreation, livestock management, wildlife management, management of commodity resources, ROWs to private in-holdings, maintenance of electronic sites, and management and monitoring of public lands. The transportation network on public lands in the planning area consists of federal and state highways, county roads, and roads built to facilitate industrial and commercial development.

Comprehensive trails and travel management is the proactive management of public access, natural resources, and regulatory needs to ensure consideration of all aspects of road and trail system planning and management. This includes resource management, road and trail design, maintenance, and recreational and non-recreational uses of the roads and trails. Travel in the context of comprehensive trails and travel management incorporates access needs and the effects of all forms of travel, both motorized and nonmotorized. Comprehensive trails and travel management planning involves providing specific direction on the proper levels of land and water access for all modes of travel. Travel management objectives are the foundation for appropriate travel and access prescriptions.

7.31.1 Proposed Actions for Comprehensive Trails and Travel Management in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for comprehensive trails and travel management that benefit threatened and endangered species:

- Evaluate comprehensive Trails and Travel Management decisions to determine whether they are consistent with meeting specific land use plan and management objectives, prescriptions, or the *Wyoming Standards for Healthy Rangelands*.
- Grant administrative use authorizations on a case-by-case basis with approval from the Authorized Officer. All access agreements will specify the following: what type of use is allowed and for what purpose, times, dates or seasons of access, where the use will occur, and additional stipulations required to provide for adequate resource protection and to meet pertinent planning decisions.
- In areas with limited travel designations, limit motorized and mechanized travel to within 300 feet from motorized/mechanized routes for direct access for big game carcass retrieval provided that: (1) no resource damage occurs, (2) no new routes are created, and (3) such access is not otherwise prohibited by the Authorized Officer.
- Pursue opportunities to develop inter-agency implementation and enforcement of travel management decisions to improve public education regarding travel and to reduce non-compliance.
- To protect wildlife winter/parturition habitat, sensitive soils, erodible slopes, watersheds, and visual resources, limit motorized and mechanized travel in the following areas to designated roads and trails subject to seasonal travel limitations:
    - Lander Slope ACEC (except the Bus @ Baldwin Creek, Sinks Canyon Climbing Area and Baldwin Creek Canyon which are discussed below) are closed to motorized vehicles December 1 - June 15 (21,558 acres)
    - Red Canyon closed to all travel (human presence) from December 1 - April 30 and closed to motorized travel from December 1 - June 15 (15,109 acres)
    - Whiskey Mountain ACEC (except Whiskey Mountain WSA and lands with wilderness characteristics which are discussed below) are closed to motorized vehicles December 1 - May 1)
    - Green Mountain is closed to motorize vehicle use December 1 - June 15 at identified points on roads and trails rather than based on elevation
- To protect winter wildlife habitat and watersheds, limit motorized and mechanized travel in the following areas to designated roads and trails:
    - East Fork ACEC (as modified in the Special Designation section 7,745 acres) and additionally East Fork ACEC is closed to all travel December 16 - May 15 consistent with management in surrounding WGFD lands except for contiguous BLM-administered lands intersected by the East Fork County Road.
- Limit motorized travel in the Beaver Rim ACEC (6,421 acres) to existing roads and trails.
- Limit motorized travel in the areas adjacent to WSAs to existing roads and trails up to the boundary of the WSA.

- To manage RMZs in the manner detailed in the recreation alternatives, close the following areas to motorized travel:
  - The Bus @ Baldwin Creek
  - Johnny Behind the Rocks/Blue Ridge
  - Sinks Canyon Climbing Area
- In order to maintain lands with wilderness characteristics, close the Red Creek and portions of Torrey Rim in the Little Red Creek Complex to motorized travel and limit mechanized travel to designated roads and trails.
- In order to maintain the outstanding remarkable values of areas with tentatively classified eligible and suitable WSR segments, close the Baldwin Creek Canyon (2,349 acres) to motorized and mechanized travel.
- Limit motorized travel in the planning area, unless otherwise specified, to existing roads and trails (2,213,081 acres).
- Prohibit cross-country motorized travel and over-snow vehicle travel in all areas with limited and closed travel management designations, with the following exceptions and supplementary stipulations: BLM authorization to exercise valid existing rights; and
  - For emergency and other purposes as authorized under 8340.0-5(a)(2), (3), (4) and (5)
  - Any non-amphibious registered motorboat
  - Any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes
  - Any vehicle whose use is expressly authorized by the Authorized Officer, or otherwise officially approved
  - Vehicles in official use
  - Any combat or combat support vehicle when used in times of national defense emergencies
- Areas open to over-snow vehicle travel must have a minimum average of 12 inches of snow or be recognized as a groomed motorized trail such as the Continental Divide Snowmobile Trail. If these conditions do not exist then the over-land travel designations, regulate travel in the area.
- The following areas are limited (closed) seasonally to over-snow travel:
  - Lander Slope ACEC (except the Bus @ Baldwin Creek, Sinks Canyon Climbing Area and Baldwin Creek Canyon) is closed to over-snow motorized vehicles December 1 - June 15) (21,558 acres)
  - Red Canyon (closed to travel (human presence) from December 1 - April 30 and closed to motorized over-snow travel from December 1 - June 15 (15,109 acres)
  - Whiskey Mountain ACEC (except Whiskey Mountain WSA and lands with wilderness characteristics which are discussed below) (8,776 acres) (Closed to motorized over-snow travel December 1 - May 15)
  - East Fork (except for contiguous BLM-administered lands intersected by the East Fork County Road) closed to all travel December 16 - May 15
  - Green Mountain closed to motorized vehicles December 1 - June 15
- Close the following areas to over-snow motorized travel:
  - Beaver Creek Nordic Ski Area
  - The Bus @ Baldwin Creek

  - Sinks Canyon Climbing Area
  - Baldwin Creek Canyon
  - Little Red Creek Complex of lands with wilderness characteristics
- Close the following WSAs to over-snow motorized travel:
  - Copper Mountain (6,936 acres)
  - Lankin Dome (6,347 acres)
  - Miller Springs (6,697 acres)
  - Savage Peak (7,177 acres)
  - Split Rock (13,963 acres)
  - Sweetwater Canyon (9,135 acres)
  - Whiskey Mountain (519 acres)

7.31.2 Best Management Practices

No specific BMPs apply to comprehensive trails and travel management.

7.31.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Motorized vehicle use and two-track roads through prairie dog towns could result in a ferret being killed; however, this is highly unlikely since ferrets are nocturnal. OHV users gain access to remote areas, including prairie dog complexes, on two-track trails. This may result in recreational shooting of prairie dogs although this activity is not encouraged in the planning area and may have an additive effect with plague, distemper, and other diseases, and slow recovery of prairie dog complexes, thus reducing their potential utility for ferret reintroduction and recovery. Areas closed to motorized vehicle use would beneficially impact special status wildlife by eliminating habitat loss caused by roads and reducing disturbance or mortality from vehicles. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on road and trail management decisions will consider impacts to black-footed ferrets and the existing protections and conservation measures.

Canada Lynx. Comprehensive trails and travel management includes management of motorized vehicle use. Motorized vehicle management is not expected to result in detrimental effects to lynx behavior, denning, travel, or foraging habitats. Roads and trails can lead to incidental harvest or poaching of lynx, increase access for competing carnivores, increase disturbance or mortality from vehicles and loss of habitat. The size, type, and amount of use of roads affect the degree of impacts on Canada lynx. In the Dubois area, motorized vehicle use, where authorized, is restricted to designated routes. Dubois area WSAs and the lands with wilderness characteristics are closed to motorized vehicles and the Whiskey Mountain and East Fork areas have seasonal (winter) road closures which will reduce the effects of roads on Canada lynx. By closing roads in these habitats, there would be less potential for mortality

from vehicles and less human disturbance. The BLM-committed conservation measures in place for all activities include the assessment of lynx habitats in suitable and unsuitable conditions and the ensuing limitations on percentage of disturbance allowable to habitats. In addition, the BLM will ensure that trails and roads are designed to direct winter use away from diurnal security habitat. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may affect, but is not likely to adversely affect* the lynx due to *insignificant effects (NLAA-i)*. This determination is based on the low likelihood that effects from motorized vehicle use could result in take, the seasonal and permanent closure of roads in the Dubois area, and the conservation measures in place that will preclude adverse effects to lynx or their habitats, including LAUs.

Gray Wolf. The size, type, and amount of use of roads affect the degree of impacts on gray wolf. In the Dubois area WSAs and the lands with wilderness characteristics, closures of roads and seasonal closures of roads will reduce the effects of roads on this species. By closing roads in these habitats, there would be less potential for mortality from vehicles and less human disturbance. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. In addition, suitable gray wolf habitat in the southern Wind River Mountains near Lander has winter road closures for other wildlife that will also benefit the gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Comprehensive trails and travel management actions may affect greater sage-grouse habitat. Motorized vehicle use, where authorized, is restricted to existing roads and trails or designated routes throughout most of occupied sage-grouse habitat; however, some habitat will be restricted to designated routes, reducing impacts on habitat. Two-track roads through greater sage-grouse habitat could result in mortality or disturbance of greater sage-grouse. Protective measures are associated with greater sage-grouse Core Area through the density of disturbance thresholds. The continued use of roads in greater sage-grouse habitat, road densities, and the potential of increased traffic promote the spread of invasive species, travel routes for predators, and facilitate human access in to sagebrush habitats. In addition, human caused fires have been closely related to existing roads. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the existing protections and conservation measures.

Grizzly Bear. Comprehensive trails and travel management includes management of motorized vehicle use. Grizzly bears are sensitive to disturbances related to roads and may avoid roads; although there is individual variation in road avoidance. In the Dubois area, motorized vehicle use, where authorized, is restricted to designated routes. Dubois area WSAs and the lands with wilderness characteristics are closed to motorized vehicles and the Whiskey Mountain and East Fork areas have seasonal (winter) road closures which will reduce the effects of roads on grizzly bear. By closing roads in these habitats, there would be less potential for mortality from vehicles and less human disturbance. The use of OHVs, which allows access to remote areas, could impact grizzly bears by increasing use in habitat frequented by grizzly bear, but this is likely to occur in localized areas on BLM-administered land given the varied land ownership patterns in the Dubois area. Travel and transportation management is not expected to result in detrimental effects to grizzly bear behavior, denning, travel, or foraging habitats. The conservation measure requiring areas with vegetation removed due to authorized activities in occupied grizzly bear

habitat be revegetated and reclaimed in a fashion that considers all grizzly bear needs or requirements would minimize adverse impacts to this species. In addition, the conservation measure that restrict the timing of activity and spatial considerations for grizzly bears will be implemented to avoid or prevent significant disruptions of normal or expected bear behavior and activity in the area would also minimize adverse impacts to this species. Impacts to special status species related to road densities and which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the low likelihood that effects from motorized vehicle use could result in take and the conservation measures in place that will preclude adverse effects to grizzly bear and their habitats.

Blowout Penstemon. The actions associated with implementing travel and transportation management activities are unlikely to occur in blowout penstemon habitat. No populations of the plant have been identified in the planning area. Habitat for the blowout penstemon is primarily sand dunes and these areas typically don't have established roads. In addition, conservation measures limit the use of OHVs to designated roads and trails within 1.0 mile of known blowout penstemon populations, prohibit OHV competitive events within 1.0 mile of known blowout penstemon populations, and reclaim roads that are not required for routine operations or maintenance of developed projects, or lead to abandoned projects that have the potential to impact blowout penstemon plants. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the existing roads may be in undiscovered potential blowout penstemon habitat.

Desert Yellowhead. Designated critical habitat for desert yellowhead is closed to motorized and mechanized travel, so travel and transportation actions will not take place in desert yellowhead critical habitat. Travel and transportation activities would likely not be authorized within the Cedar Rim population since the area is subject to NSO for mineral leasing activities and ROWs are discretionary and would not be authorized in an area with an ESA-listed plant species. There are currently no ROWs authorized in the Cedar Rim population, eliminating the need for ROW maintenance activities to occur. There are 2 two-track trails that are south and west of the ridge where the Cedar Rim population is located. These trails have historically received very little vehicle travel and are used occasionally by hunters and, more recently, for desert yellowhead documentation. These trails do not intersect any of the 7 subpopulations of desert yellowhead; therefore the potential for vehicles crushing is minimal. These trails will be evaluated in the travel management plan for the area and closed if determined to be a threat to the population. Implementation of comprehensive trails and travel management activities *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the closure of desert yellowhead critical habitat and to motorized and mechanized travel and the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. Motorized vehicle use on roads and trails adjacent to riparian areas may lead to the spread of invasive species, reducing the suitability of the habitats for the Ute ladies'-tresses. In addition, unauthorized trails in riparian areas and potential stream crossings could adversely impact the Ute ladies'-tresses by altering the habitat. There are no known populations in the planning area so existing roads are not likely to contain or cross habitat. Travel management actions (i.e., road closures) may be used to make significant progress towards PFC in riparian areas. This type of management may limit adverse effects to Ute ladies'-tresses. In addition, conservation measures limit the use of OHVs to designated roads and trails within 1.0 mile of known Ute ladies'-tresses populations, prohibit OHV

competitive events within 1.0 mile of known Ute ladies'-tresses populations, and reclaim roads that are not required for routine operations or maintenance of developed projects, or lead to abandoned projects that have the potential to impact Ute ladies'-tresses plants. Impacts to special status species related to which roads to close or remain open will be analyzed in separate travel management plans. Implementing comprehensive trails and travel management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on having riparian/wetland areas meet or exceed PFC and Standard 2 of the Wyoming Standards for Healthy Rangelands and existing conservation measures in place to protect this species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Unauthorized use of motorized vehicles on federal lands could contribute to disturbance of soils, removal of vegetation, and the spread of invasive species. These actions could contribute to degradation of habitats for threatened and endangered species. An expanded network of roads on state and private lands would impact threatened and endangered species habitat through the fragmentation and direct loss of habitats.

7.32 Livestock Grazing

Cattle are the primary domestic grazers on public lands, but grazers also include sheep and horses. Goats are sometimes authorized for the purpose of suppressing invasive plant species. The number of these grazing animals has varied in response to their economic value as a commodity and their use in ranching operations.

Approximately 97 percent of the public lands in the planning area are available for livestock grazing. The other 3 percent is primarily land in highway easements, very rocky areas, or areas that have been mined and have little vegetation. Oil and gas development and associated infrastructure (e.g., roads, pipelines) have contributed to the reductions in surface area available for grazing. A few allotments have been closed to livestock grazing because of other land use priorities, such as the bighorn sheep wintering areas in Dubois.

Actions associated with livestock grazing management include converting to new types of livestock and authorizing livestock grazing, and adjusting season of use, distribution, kind, class, and number of livestock. Other actions include vegetative manipulation treatment projects using prescribed fire, mechanical treatments, seeding, or chemical treatments to modify plant communities. The BLM has constructed fences, water developments, spring enclosures, and cattleguards.

7.32.1 Proposed Actions for Livestock Grazing in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for livestock grazing that benefit threatened and endangered species:

- Monitor precipitation and vegetative production trends on BLM-administered lands as a tool to understand impacts to soil, water, and vegetative resources.
- On a case-by-case basis adjust allotment and pasture boundaries, including combining allotments, to facilitate management and to achieve progress towards rangeland health.
- Require that forage supplements be certified safe/compatible for sheep, wildlife, and wild horses.

- Modify BLM-authorized grazing use on an allotment-by-allotment basis to protect soil, water, and vegetative resources.
- Modify or implement livestock grazing strategies to facilitate successful reclamation efforts.
- Continue implementation of existing AMPs. Develop and implement new AMPs with grazing permittees/lessees and stakeholders to achieve desired resource goals.
- A total of 69,276 acres are unavailable to grazing.
- A total of 7,566 acres are closed to grazing.
- Develop and install range improvement projects necessary to implement comprehensive grazing management strategies leading to improved rangeland health or to enhance successful grazing management strategies already in place. Benefits associated with the projected improvement in rangeland health should exceed the impacts associated with the project infrastructure. Avoid projects that would expand grazing on the landscape without a clear link to a comprehensive grazing strategy and consideration of other resources.
- Prohibit placement of salt, mineral, or forage supplements, such as low moisture block supplements in the following areas:
  - within ½-mile to water and riparian/wetland areas, NHT, regional historic trails and early highways or as needed to protect setting, so long as impacts are not visible
  - within 0.6-mile of the perimeter of greater sage-grouse leks
  - on areas being reclaimed
- Avoid concentrations of livestock in areas of known eligible and unevaluated cultural sites.
- Remove or modify fences and cattleguards on a case-by-case basis to facilitate livestock, wild horses, and wildlife movement and management while enhancing other resource values.
- Design new fences to have the fewest adverse impacts to greater sage-grouse and require the installation of fence markers to increase visibility and reduce collision potential.

7.32.2 Best Management Practices

The following BMPs have been identified for livestock grazing:

- *Pasture, Rangeland, and Grazing Operations BMPs.* The link below provides BMPs compiled by the USEPA to prevent or reduce pollution associated with livestock grazing. Topics include practices to reduce methane production, managing nonpoint source pollution, controlled grazing, reducing animal feeding operation pollution, and manure management. http://www.epa.gov/oecaagct/anprgbmp.html
- *National Range and Pasture Handbook.* Developed by NRCS grazing land specialists, this handbook provides a source of expertise to guide cooperators in solving resource problems and in sustaining or improving their grazing lands resources and operations. http://www.glti.nrcs.usda.gov/technical/publications/nrph.html

7.32.3 Impact Analysis and Effects Determinations

In addition to the above management actions and BMPs, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. If an undiscovered population of black-footed ferrets is found on a grazing allotment, the use of motorized vehicles for livestock grazing management could result in a collision

with a black-footed ferret; however, the nocturnal habit of black-footed ferrets will likely preclude such an event. Dogs used in livestock operations could carry distemper, and potentially transmit the disease to a black-footed ferret. Fences used in livestock grazing could provide additional perches for raptors, which could prey on prairie dogs and black-footed ferrets. Livestock grazing is generally compatible with prairie dog habitat and can provide a beneficial effect if managed correctly. Grazing reduces vegetation height, thereby improving habitat for prairie dogs. The Proposed RMP will avoid surface-disturbing activities in prairie dog towns, where possible, to avoid the loss of prairie dog and potential black-footed ferret habitat. Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. No black-footed ferrets have been discovered in the planning area and 98 percent of the planning area has been block-cleared by USFWS. Implementing livestock grazing management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of a black-footed ferret colliding with a vehicle or being infected by canine distemper from a dog, the small number of prairie dogs that will be consumed by perching raptors, the potential benefit of livestock grazing in prairie dog habitats, and the incorporation of existing conservation measures.

Canada Lynx. Livestock grazing management actions that may occur in occupied Canada lynx habitat would be expected to disturb resident lynx in the short term, but livestock management is limited in lynx habitat. Livestock management actions may affect only a portion of the large territory occupied by lynx. In the planning area, approximately 21,053 acres of BLM-administered surface in the LAUs are open to livestock grazing and approximately 1,685 acres within the LAUs are closed to livestock grazing. In addition, approximately 4,284 acres are unavailable to livestock grazing in LAUs including the East Fork and Whiskey Mountain ACECs. Due to the land pattern in the Dubois area, BLM-administered lands are intermingled with large blocks of private lands therefore management is limited without the construction of numerous fences. Conservation measures include ensuring 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; ensuring that grazing in aspen stands is managed to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones; and ensuring within lynx habitat, 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. Implementing livestock management actions *may affect, but is not likely to adversely affect* the lynx due to *discountable effects (NLAA-d)*. This determination is based on the existing conservation measures in place to protect the species.

Gray Wolf. Livestock grazing in gray wolf habitat could result in gray wolf and livestock conflict. The effects of livestock grazing management could include the lethal control of gray wolves due to conflicts with livestock and disruption of behavior patterns and social systems due to the presence of livestock. Livestock grazing is allowed on over 95 percent of BLM-administered land in the planning area. Portions of the Dubois area, where potential gray wolf habitat in the planning area is located, is closed or unavailable to livestock grazing, including within the East Fork and Whiskey Mountain ACECs to eliminate forage competition with wintering elk and other big game. Reducing forage competition for these species would benefit the gray wolf which preys on these species. Human presence associated with livestock grazing management could result in mortality for wolves through shooting, snaring, and trapping. In addition, conservation measures disseminate information on wolf/livestock interactions, alternate livestock practices that minimizes conflicts between wolves and livestock, and compatible lambing and calving methods that reduce or eliminate wolf depredation in occupied habitat. At the time

of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Beneficial and adverse effects of livestock grazing on sage-grouse habitats can vary with grazing management systems. To address impacts to greater sage-grouse, the BLM will use recommendations from the following sources: "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat - With Emphasis on Nesting and Early Brood Rearing"; "Sage-Grouse Habitat Management Guidelines for Wyoming"; Studies in Avian Biology article "Ecology and Conservation of Greater Sage-Grouse: A Landscape Species and Its Habitats"; "WAFWA Greater Sage-Grouse Conservation Strategy" and additional information as it becomes available. Water developments in arid areas can provide water to sage-grouse and other wildlife, and allow for dispersal of grazing animals over a larger area. However, water developments allow for grazing of forage used as nesting cover by greater sage-grouse during a season when historically an area may not have been occupied by livestock. Water impoundments can also be vectors for mosquitoes that carry West Nile virus which is deadly to greater sage-grouse. Fencing constructed to implement grazing management systems can pose threats as greater sage-grouse can fly into fence wire, resulting in injury or death of the bird. Under the Proposed RMP, limitations are in place for salt and mineral placement and the construction of water developments and fences in greater sage-grouse habitats. Short-duration grazing in late spring and early summer may improve both quantity and quality of summer forage (forbs) for sage-grouse. Conversely, long-term continuous use by livestock may not leave suitable residual cover for nesting. Forage utilization levels will be established in greater sage-grouse nesting habitat to ensure adequate residual cover remains. Livestock grazing can be compatible with greater sage-grouse habitat and can provide a beneficial effect if managed correctly. Impacts to greater sage-grouse from grazing management actions are likely to be localized as management is typically specific by grazing allotment. Implementing livestock grazing management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the potential adverse and beneficial impacts of livestock grazing management in sage-grouse habitat and the incorporation of existing conservation measures.

Grizzly Bear. Livestock grazing management actions that occur in occupied grizzly bear habitat would be expected to disturb resident grizzly bears. The effects of livestock grazing management could include displacing grizzly bears, lethally controlling grizzly bears due to conflicts, and disruption of behavior patterns and social systems due to the presence of livestock. In the BLM's statewide programmatic Grizzly Bear BA (BLM 2006), the BLM determined that the issuance of grazing permits could adversely impact grizzly bears on some allotments. Livestock grazing is allowed on over 95 percent of BLM-administered land in the planning area. Portions of the Dubois area, where much of the grizzly bear habitat in the planning area is located, is closed to livestock grazing in areas of identified resource conflict including within the East Fork and Whiskey Mountain ACECs, benefitting the grizzly bear. While BLM-authorized grazing allotments do not overlap with the Grizzly Bear Recovery Area/Primary Conservation Area, there is overlap with grizzly bear transition habitat (BLM 2011). Since the release of the Grizzly Bear BA (BLM 2006), there has been a substantial increase in grizzly bear sightings and conflicts in the Dubois area (BLM 2011). The recent BA developed by the BLM for livestock grazing lease issuance in the Dubois area, provides an allotment-specific assessment of the potential for livestock/grizzly bear conflict in Dubois (BLM 2011). Future management under the revised RMP will be consistent with management as it was described in the 2011 allotment-specific assessment.

Livestock/grizzly bear conflict has the potential to result in both direct and indirect adverse effects on grizzly bear. Approximately 23 incidents of livestock depredation by grizzly bear have been recorded in the Dubois area from 2000-2010, with most occurring on neighboring USFS-administered land (BLM 2011). During the spring months, when bears emerge from their dens, livestock are most vulnerable to depredation by grizzly bear. Elk, mule deer and bighorn sheep are primary prey of grizzly bear and their presence in crucial winter/yearlong range in the spring months is likely to draw bears into the area where livestock may graze.

Although the BLM is not responsible for trapping and relocating depredating grizzly bears, actions such as the authorization of livestock grazing permits and the installation of rangeland improvement projects in grizzly bear habitat could lead to the development of problem behavior patterns in grizzly bears. Consequently, BLM actions could lead to trapping and relocating of grizzly bears. Trapping and relocation of a grizzly bear has the potential to result in accidental injury or death of a bear through injury during trapping or accidental overdose of immobilization drugs. The BLM is unlikely to allow the installation of some range infrastructure, such as fences, in the Dubois area due to the high value wildlife habitat in the area. Other actions, such as prohibiting placement of salt and mineral supplements within ½-mile of water and riparian-wetland areas could reduce the occurrence of livestock/grizzly bear conflict.

Livestock grazing in occupied grizzly bear habitat also has the potential to result in illegal, accidental, or defensive take by grazing permittees in the act of trying to protect their livestock. A potential risk exists for take of grizzly bears as a result of accidentally encountering bears feeding on livestock carcasses. Disposal of livestock carcasses also has the ability to adversely impact grizzly bear through more indirect effects. Indirect effects of livestock grazing includes conditioning of grizzly bears to view livestock as prey; loss of reproductive potential for grizzly bear removed from the population; disturbance to grizzly bear behavior patterns, social systems, and activity patterns; and declines in foraging efficiency and survival of relocated bears.

Given the expanding range of grizzly bear in the region, including recent sightings of grizzly bear in the foothills above Lander, it is possible that livestock/grizzly bear conflict will increase over the life of the plan. Implementing livestock management actions *may affect, and is likely to adversely affect (LAA)* the grizzly bear. This determination is based on livestock grazing on BLM-administered lands taking place in grizzly bear habitats and the likelihood that livestock grazing in the Dubois area will result in the take of a grizzly bear. The BLM will continue section 7 consultation with the USFWS at the site-specific level for grizzly bear.

Blowout Penstemon. Blowout penstemon habitat could be damaged by livestock activities; however, livestock grazing typically does not occur in on sand dune areas with sparse vegetation. Conservation measures will be added to grazing permit renewals in allotments with known blowout penstemon populations to restrict where mineral supplements or new water sources can be located and to consult with the USFWS about any potential increases in livestock stocking levels. Implementation of livestock grazing management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the incorporation of existing conservation measures for the blowout penstemon.

Desert Yellowhead. Livestock in particular have been recognized as agents of detrimental change in the composition, structure, and development of plant communities. In the past, herbivory by wild ungulates was considered to have little or no impact to plant community composition and structure, but now is it recognized as an ecological force in ecosystems. Crushing, trampling or incidental grazing of desert yellowhead leaves by livestock does occur and may compromise the reproductive capacity of any given

plant. Occasional trampling may damage leaves or flowers, but the plant can grow back if the roots are not damaged. Trampling and crushing of desert yellowhead plants by grazing animals occurs at the present time at a very low frequency and these plants have existed with livestock grazing for at least 100 years. Grazing by livestock or wildlife may remove competing palatable vegetation which would otherwise compete with the desert yellowhead plants. Implementation of livestock grazing management actions *may affect, and is likely to adversely affect* the desert yellowhead plant *(LAA).* This determination is based on the fact that livestock grazing may present a threat to desert yellowhead individuals through crushing, trampling, and incidental grazing.

The USFWS has designated critical habitat for this species. Livestock grazing may present a threat to desert yellowhead individuals and habitat quality, as the critical habitat area is within an existing grazing allotment. However, the BLM has committed to several conservation measures to protect critical habitat from the impacts of livestock grazing including that livestock will not be intentionally herded within 0.5 mile of designated critical habitat, the BLM will not increase current permitted livestock stocking levels, the BLM will not approve placement of mineral supplements or additional water sources for livestock on public lands within 2 miles of the site, and no supplemental feeding or straw placement can be done without proper authorization. High concentrations of livestock could cause adverse impacts to the desert yellowhead; however, high concentrations of livestock are not likely to occur because of the lack of other desirable forage species in the area. In addition, the desert yellowhead does not appear to be palatable to livestock or wildlife. Implementation of livestock grazing management *may affect, but is not likely to adversely affect* the desert yellowhead critical habitat due to *insignificant effects (NLAA-i)*. This determination is based on the conservation measures in place and that current livestock grazing practices have not proven detrimental and may beneficially affect the desert yellowhead populations.

Ute Ladies'-tresses. Livestock grazing use is often heavy in riparian areas due to increased forage production and water availability. Livestock grazing in riparian areas could alter plant communities, and increase soil erosion, streambank degradation, and the spread of invasive species. Implementing the *Wyoming Standards for Healthy Rangelands* will reduce these impacts. Livestock grazing may adversely impact the Ute ladies'-tresses by foraging and trampling individual plants. The USFWS has determined that the foraging and trampling of individual plants by livestock may harm or reduce an individual plant fitness or survival. Fencing, development of alternative water supplies for livestock, herding, placing feed and mineral supplements away from water sources, and adjusting pasture boundaries and season of use will minimize the impacts on riparian areas. There are no known occurrences of Ute ladies'-tresses in the planning area. If plants are identified, conservation measures will be added to grazing permit renewals in allotments with known Ute ladies'-tresses populations to restrict where mineral supplements or new water sources can be located and to consult with the USFWS about any potential increases in livestock stocking levels. In addition, grazing will be intensively managed within known habitat containing populations from July through September to allow plants to bloom and go to seed. Implementing livestock grazing management actions *is likely to adversely affect (LAA)* the Ute ladies'-tresses. This determination is based on the potential for livestock grazing management actions to occur in Ute ladies'-tresses habitat and result in destruction of individuals. Scientific literature regarding this species indicates that properly managed livestock grazing management may benefit the species by reducing competing vegetation.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Livestock grazing on private lands may adversely affect threatened or endangered species. Grazing in riparian areas could impact stream bank stability, trample vegetation, and increase sedimentation, all of which could adversely impact threatened and endangered species

that occur in these habitats. Livestock grazing in listed plant species habitat on nonfederal lands could adversely impact this species. Livestock grazing actions include fencing and water developments (e.g., wells, pipelines, reservoirs, spring developments) can result in the loss, degradation, and/or fragmentation of habitat for threatened and endangered species.

7.33 Recreation

Recreational opportunities are offered to the public on all BLM-administered lands in the planning area to which there is legal access. Federal lands in the planning area provide a broad spectrum of outdoor opportunities that afford visitors the freedom of recreational choice with minimal regulatory constraints. Recreational activities allowed by the BLM include hiking, hunting, mountain biking, boating, fishing, OHV use, horseback riding, and camping. Categories of recreation management actions include allowing recreational access and use by the public, administering special recreational permits, developing recreational areas and campsites, imposing restrictions, acquiring recreational access, and assessing effects of recreational use to the environment.

BLM guidance (IM No. 2006-060 and IM No. 2007-043) establishes the BLM's commitment to incorporate the framework of benefits-based management into its recreation management program. Benefits-based management is a method of managing recreation that focuses on the beneficial outcomes from engaging in recreational activities, rather than only on the recreation activities themselves. This approach gives the BLM a framework within which to manage recreation on public lands to provide outcomes that benefit individuals, communities, economies, and the environment (BLM 2009h).

More recent BLM guidance (IM No. 2011-004-October 2010) has the purpose to transmit revised guidance for recreation and visitor services planning in conjunction with the BLM's land use planning process. This guidance establishes a three-tier classification for lands used and managed for recreation. This new classification replaces the existing 30-year-old, two-tier system where all lands were classified as either SRMAs or ERMAs. The primary goal is to create a functional, viable recreation planning process that is easily understood and can be consistently implemented throughout the BLM.

The RMP planning process identifies areas where recreation is the management focus. The 2005 revision of the *BLM Land Use Planning Handbook* (H-1610-1) amended the criteria for identifying an SRMA; these are administrative units where the predominant land use and emphasis is recreation.

While assessing adverse effects of recreational actions to the environment, the BLM analyzes actions that increase human activity, especially in riparian areas. The BLM monitors recreational use, develops management plans, and evaluates and updates recreational potential in the planning area. Surface disturbance and other activities associated with the recreational resources program include, but are not limited to, the following actions: (1) managing recreational use, (2) permitting competitive recreational events, (3) developing recreation trails, (4) constructing recreational sites, (5) maintaining developed and undeveloped recreational sites (e.g., campgrounds), (6) placing boundary signs and interpretive markers, (7) allowing commercial recreational uses, and (8) developing public water sources for recreational facilities.

7.33.1 Proposed Actions for Recreation in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for recreation that benefit threatened and endangered species:

- Mineral and realty actions in the Castle Gardens Archeology Site (78 acres), Atlantic City Campground (181 acres), Big Atlantic Gulch (181 acres), Cottonwood Campground (80 acres), Lands adjacent to the Fremont County Campground (20 acres), Miners Delight (239 acres), Wildhorse Point (20 acres), Devils Gate Interpretive Site (113 acres), Martins Cove Trail (927 acres), Split Rock Rest Interpretive Site (242 acres), and Steamboat Lake Overlook (128 acres) are managed with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to phosphate leasing
    - Closed to locatable minerals entry in order to pursue a withdrawal
    - Closed to mineral materials disposal
    - Wind energy, major utility systems, and other ROWs are excluded
- In the Green Mountain ERMA (129,579 acres), manage future and existing recreation sites, national/regional trails, local system trails, and trailheads and interpretive sites with exceptional recreational values or significant public interest as subject to CSU stipulations.
- Mineral and realty actions in the Johnny Behind the Rocks zone are managed with the following restrictions:
    - Oil and gas leasing is subject to NSO stipulations
    - Closed to geophysical exploration
    - Closed to phosphate exploration
    - Closed to locatable minerals entry in order to pursue a withdrawal
    - Closed to mineral material sales
    - Excluded from realty actions
- Close the Johnny Behind the Rocks zone to motorized travel.
- Close The Bus @ Baldwin Creek zone to motorized travel.
- Mineral and realty actions in the Dubois Mill Site area are managed with the following restrictions:
    - Closed to oil and gas leasing
    - Closed to geophysical exploration
    - Closed to phosphate leasing
    - Closed to mineral material disposals
    - Excluded to major ROWs
    - Avoided for minor ROWs
- Motorized travel in the Dubois Mill-site SRMA will be limited seasonally (closed between December 1 - May 15) and to designated roads and trails.
- If grazing permits in Sweetwater Canyon are voluntarily relinquished the BLM will close the area to livestock grazing.
- Maintain existing back country acreage in the Whiskey Peak area (10,250 acres).

7.33.2 Best Management Practices

No specific BMPs apply to recreation management.

7.33.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Recreational sites, trails, and actions do not typically occur in or near prairie dog complexes. Concentrated recreational use may compact or erode soil; however, recreational activities are usually dispersed over large areas and do not occur within prairie dog complexes. Recreational shooting of prairie dogs may occur although this activity is not encouraged in the planning area. Pet dogs that are not current with their vaccinations may expose wildlife to diseases. If cross-country use were to occur in an undiscovered black-footed ferret population, there is the possibility of direct vehicle mortality; however, this is unlikely, because most vehicle use occurs during daylight hours and ferrets are nocturnal. In addition, cross-country use is limited to certain uses.

Conservation measures include coordinating with the USFWS when project proposals are received for areas that still require black-footed ferret surveys. If avoidance of suitable prairie dog towns or complexes is not possible, surveys of towns or complexes for black-footed ferrets will be performed in accordance with current USFWS guidelines and recommendations. Implementing recreation management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *discountable effects (NLAA-d)*. This determination is based on the unlikely choice of prairie dog towns for camping, hiking, biking, hunting and other recreational activities, OHV management restrictions, and the conservation measures in place to protect the species.

Canada Lynx. The Dubois area is managed for dispersed recreation activity. Established recreational facilities do not typically occur in Canada lynx habitats, but use of hiking trails that pass through suitable habitat may disturb resident Canada lynx. Winter activities may cause short-term behavioral avoidance by Canada lynx where they occur. One of the greatest causes of adverse impacts to Canada lynx comes from recreationists pioneering unauthorized trails into unroaded habitats, causing animal disruption and habitat fragmentation. Canada lynx habitat is from recreationists pioneering new trails into unroaded habitats, causing animal disruption and habitat fragmentation. If off road use were to occur in Canada lynx habitat, this species could be disturbed and may avoid the area in which the disturbance occurred. However, this is unlikely because cross-country use is limited to certain uses. Very minimal impacts might occur if an OHV traveled into lynx habitat to perform necessary tasks, and the existing conservation measures would prevent adverse impacts from occurring to lynx or their habitat.

Conservation measures include ensuring that within an LAU, federal actions do not degrade or compromise landscape connectivity or linkage areas when planning and operating new or expanded recreation developments; that winter recreational special use permits that promote snow compacting activities in lynx habitat are evaluated and amended as needed; and that there is 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. Implementing recreation management actions *may affect, but is not likely to adversely affect* the Canada lynx due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely choice of lynx habitat for recreation development, the dispersed nature of recreational activity in the Dubois area, the limited and fragmented lynx habitats on BLM-administered lands, and the conservation measures in place to protect the species and habitats.

Gray Wolf. Increases in recreational use of BLM-administered lands and areas of concentrated use may disturb gray wolves. Recreation areas that occur in elk and other big game habitat may be used as access points for trapping, shooting, and/or snaring of wolves. The Dubois area, where potential gray wolf habitat occurs, is managed for dispersed recreation activity. If cross-country use were to occur in gray wolf habitat, this species could be disturbed and may avoid the area in which the disturbance occurred. Increased access for humans may be a source of increased mortality for wolves by shooting, snaring, and trapping. However, this is unlikely because cross-country use is limited to certain uses. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Increases in recreational use of BLM-administered lands and areas of concentrated use may disturb greater sage-grouse. Because greater sage-grouse habitat covers the majority of the planning area, impacts from recreational use are likely to occur, especially in the southern portion of the planning area where many of the recreation management areas occur. Impacts from bird watching at leks may be reduced by focusing the public viewing at specific leks that are already subject to some level of disturbance, thereby reducing pressure on relatively undisturbed leks. Hunting of greater sage-grouse is regulated by the WGFD and as needed, seasons are closed to regulate hunting effectively. Closing areas to minerals development and motorized travel would minimize the proliferation of new road development, reducing adverse impacts to greater sage-grouse. One of the greatest potential causes for adverse impacts to greater sage-grouse comes from recreationists pioneering unauthorized trails into unroaded habitats, causing animal disruption and habitat fragmentation. If cross-country use were to occur in greater-sage grouse habitat, there is the possibility of direct vehicle mortality; however, this is unlikely, because cross-country use is limited to certain uses. Implementing recreation management actions *may impact, but is not likely to contribute to the need for federal listing of the greater sage-grouse (MI)*. This determination is based on the dispersed nature of recreation and the conservation measures in place to protect the species in those areas of higher recreational use.

Grizzly Bear. Established recreational facilities do not typically occur in grizzly bear habitats. In the Dubois area, recreation is managed for dispersed recreation activity. Activities such as hunting, fishing, and hiking could occur in grizzly bear habitat and the general increase in recreational use of BLM-administered lands may increase the potential for bear/human conflict. Human intrusions can displace or disturb grizzly bears, especially in areas where human activity is concentrated or consistent. For example, hiking trails that pass through suitable habitat may disturb the grizzly bear. Few new recreational projects or activities are anticipated to take place in grizzly bear habitat. One of the greatest potential causes for adverse impacts to grizzly bear comes from recreationists pioneering unauthorized trails into unroaded habitats, causing animal disruption and habitat fragmentation. If cross-country use were to occur in grizzly bear habitat, this species could be disturbed and may avoid the area in which the disturbance occurred. However, this is unlikely because cross-country use is limited to certain uses, reducing impacts to grizzly bear habitat and disrupt foraging and movement.

Conservation measures in occupied grizzly bear habitat and in areas of bear conflicts include installing bear-resistant refuse containers in developed campgrounds and picnic areas where refuse containers are provided and maintained, and in areas receiving dispersed recreational use, the BLM will inform the public of proper storage techniques for food and refuse. In addition, the BLM will ensure that special use permits in occupied grizzly bear habitat will specify food storage and handling and garbage disposal standards. Implementing recreation management actions *may affect, but is not likely to adversely affect*

the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely choice of grizzly bear habitat for recreation development, the dispersed nature of most recreation use, and the conservation measures in place to protect the species.

Blowout Penstemon. No known populations of blowout penstemon have been identified in the planning area. If cross-country use were to occur in blowout penstemon habitat, an undiscovered population or individual plants could be trampled or potential habitat could be altered. Cross-country use is limited to certain uses, but because blowout penstemon occurs on sand dunes there could be impacts from unpermitted dune buggy use. Conservation measures require all proposed projects be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse impacts is not possible, the BLM will re-initiate consultation with the USFWS. In addition, projects will not be authorized closer than 0.25 mile from any known blowout penstemon populations without concurrence of the USFWS and BLM Authorized Officer. The actions associated with implementing recreation management activities *may affect, but is not likely to adversely affect* the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on no blowout penstemon populations documented in the planning area and the conservation measures in place to protect blowout penstemon habitat.

Desert Yellowhead. Recreation management actions occurring near desert yellowhead habitat could lead to non-native invasive species becoming more prevalent. Designated critical habitat is closed to motorized and mechanized travel reducing the potential for the increase of invasive species related to recreation activities. Surface-disturbing activities, including developed recreation sites, in the Cedar Rim population are prohibited. Implementation of recreation management *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place to protect the species and its habitat.

Ute Ladies'-tresses. No known populations of the Ute ladies'-tresses occur near developed or proposed recreational sites. Extensive trail systems in riparian areas are not common due to the potential flooding in the area. Ute ladies'-tresses habitat may be indirectly impacted by the spread of invasive species from recreational actions. Invasive species may be spread by hikers and/or their vehicles, degrading potentially suitable Ute ladies'-tresses habitats. Recreation site development will not be authorized in known Ute ladies'-tresses habitat. In addition, the BLM will create programs that will strive to protect the Ute ladies'-tresses habitat and prevent new trails from being constructed within 0.25 mile from known occurrences of the Ute ladies'-tresses. One of the greatest potential causes for adverse impacts to Ute ladies'-tresses comes from recreationists pioneering unauthorized trails into unroaded habitats, causing animal disruption and habitat fragmentation. If cross-country use were to occur in Ute ladies'-tresses habitat, an undiscovered population or individual plants could be trampled or potential habitat could be altered. Implementing recreation management actions *may affect, but is not likely to adversely affect* the Ute ladies'-tresses due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event BLM-authorized actions occur in Ute ladies'-tresses habitats, the current lack of identified populations of the species in the planning area, and the conservation strategies implemented if surface-disturbing activities were to occur in suitable habitats.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Dispersed recreation on nonfederal lands may impact threatened and endangered species, especially if this action occurs in occupied habitats. However, these types of actions are anticipated to be localized in nature and dispersed throughout the planning area. Increased human presence and use of particular areas during sensitive time periods (e.g., breeding/birthing, nesting, winter, flowering periods) would contribute to adverse impacts to threatened and endangered species.

7.34 Special Designations—Areas of Critical Environmental Concern

An ACEC is defined in FLPMA, Section 103(a) as an area within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish and wildlife, and other natural systems or processes. ACECs are also designated to protect life and ensure safety from natural hazards. Designation of ACECs during revisions of land use plans is mandatory under FLPMA. BLM regulations for implementing the ACEC provisions of FLPMA are found at 43 CFR 1610.7-2(b). An ACEC designation carries only one automatic management prescription: a Plan of Operations is required for all minerals activities, regardless of size. Without ACEC designation, a Plan of Operations is required only for locatable mining activities of more than five acres. All other management prescriptions are developed on a site-specific basis, depending on the resources to be protected and the identified threats to those resources.

Under the Proposed RMP, the Lander Field Office proposes the following management of ACECs in the planning area.

Lander Slope (*Existing*)

The Lander Slope ACEC consists of 25,065 acres of BLM-administered surface of high-elevation slopes and drainages south and west of Lander. Most of the area consists of high-elevation slopes and drainages covered by mountain shrub communities, with smaller areas of forest and wet meadow communities. Resources that met the ACEC importance and relevance criteria in the 1987 RMP were fish and wildlife, scenic values, and natural processes.

Red Canyon (*Existing*)

The Red Canyon ACEC consists of 15,109 acres of BLM-administered surface of high-elevation slopes and drainage in the foothills of the Wind River Mountains south and west of Lander. Resources that met the ACEC importance and relevance criteria in the 1987 RMP were wildlife, special status species, scenic values, and geologic features.

Whiskey Mountain (*Existing*)

The Whiskey Mountain ACEC consists of 8,776 acres of BLM-administered surface on Whiskey Mountain south and southeast of Dubois. The ACEC contains high-elevation, wind-swept slopes and rocky cliffs. Resources that met the ACEC importance and relevance criteria in the 1987 RMP were wildlife and scenic values.

Beaver Rim (*Existing*)

The Beaver Rim ACEC consists of 6,421 acres of BLM-administered surface in south-central Fremont County, north and west of Sweetwater Station. The Beaver Rim ACEC is an east-west trending escarpment that separates the Sweetwater River drainage basin from the Wind River drainage basin.

Resources that met the ACEC importance and relevance criteria in the 1987 RMP were fish and wildlife, geologic features, paleontological values, plant communities, and scenic values.

South Pass Historic Mining District (*Existing*)

The South Pass Historic Mining Area ACEC is 12,576 acres of BLM-administered surface, consisting of a historic gold mining region southwest of Lander. The ACEC has both sagebrush steppe and forested areas, with steep to rolling hills. The value that met the ACEC importance and relevance criteria in the 1987 RMP was cultural resources. Under the Proposed RMP, the South Pass Historic Mining Area would be located within the newly designated South Pass Historical Landscape ACEC (124,229 acres). As with the existing ACEC, the proposed expansions contain cultural resources and hazards associated with historic mining activities. In addition, the area proposed as the South Pass Historical Landscape ACEC contains 27.15 miles of Congressionally Designated Trails.

East Fork (*Expansion*)

The East Fork ACEC would be expanded by 3,314 acres for a total of 7,745 acres of BLM-administered surface in the drainages of the East Fork of the Wind River, Wiggins Fork, Bear Creek, and Alkali Creek 5 miles northeast of Dubois. The area consists of high elevation, wind-swept slopes and sagebrush draws near timber patches. The resource that met the ACEC importance and relevance criteria in the 1987 RMP was wildlife. The proposed expansion of the East Fork ACEC would include land in the Spence/Moriarity Wildlife Management Area and areas adjacent to the USFS and WRIR boundaries northeast of the Spence/Moriarity Wildlife Management Area and would expand the ACEC.

Green Mountain (*Expansion*)

The Green Mountain ACEC consists of 14,612 acres of BLM-administered surface on the north slopes of Green Mountain and Crooks Mountain in southeast Fremont County, south of Jeffrey City. The area is characterized by sagebrush grasslands at the lower elevations and conifers at the mid to higher elevations. Resources that met the ACEC importance and relevance criteria in the 1987 RMP were wildlife and plant communities. The proposed expansion of the Green Mountain ACEC would include lands south of the existing ACEC and would expand the ACEC to 21,389 acres of BLM-administered surface. As with the existing ACEC, the proposed expansion contains wildlife resources. In addition, the expansion area includes an elk parturition area near the top of Green Mountain. This portion of Green Mountain consists of open sagebrush surrounded by forested areas.

7.34.1 Proposed Actions for Areas of Critical Environmental Concern in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following management actions for ACECs that benefit threatened and endangered species.

Lander Slope ACEC

Mineral and realty actions in the ACEC are managed with the following restrictions:

- Open to oil and gas leasing subject to NSO stipulations
- Closed to geophysical exploration
- Closed to phosphate leasing
- Closed to mineral materials disposal

- Excluded to major ROWs
- Avoided for minor ROWs

Manage plant communities for rangeland health and to protect important wildlife habitat primarily for elk and mule deer and, where appropriate, bighorn sheep.

Red Canyon ACEC

Mineral and realty actions in the ACEC are managed with the following restrictions:

- Open to oil and gas leasing subject to NSO stipulations
- Closed to geophysical exploration
- Closed to phosphate leasing
- Closed to mineral material sales
- Excluded to major ROWs
- Avoided for minor ROWs

Close the ACEC to human presence from December 1 through April 30 and motorized vehicle use from December 1 through June 15.

Manage plant communities for rangeland health and to protect important wildlife habitat primarily for elk, mule deer, and moose.

On a case-by-case basis, undertake treatments for invasive species to protect wildlife and sensitive plant species habitat.

Whiskey Mountain ACEC

Mineral and realty actions in the ACEC are managed with the following restrictions:

- Closed to oil and gas leasing
- Closed to geophysical exploration
- Closed to phosphate leasing
- Withdrawn from locatable minerals
- Closed to mineral material sales
- Excluded for major ROWs
- Avoided for minor ROWs

The ACEC is closed to livestock grazing (6,106 acres), except for 2,670 acres.

Beaver Rim ACEC

Mineral and realty actions in the ACEC are managed with the following restrictions:

- Open to oil and gas leasing subject to NSO stipulations
- Closed to geophysical exploration
- Closed to solid mineral leasing
- Closed to mineral material disposal

- Excluded for major ROWs
- Avoided for minor ROWs

Manage the plant community to provide wildlife habitat and to protect sensitive plant species and unique plant communities.

South Pass Historical Landscape ACEC

Designate the South Pass Historical Landscape ACEC (124,229 acres).

Mineral and realty actions are managed with the following restrictions:

- Oil and gas leasing: NSO
- Geophysical exploration: Open, but must meet surface use standards to protect recreational, historical, and cultural values
- Locatable minerals: Open with a Plan of Operations except for existing locatable minerals withdrawals
- Non-energy leasable minerals; major mineral material disposals; and major realty actions: closed unless projects meet VRM objectives

East Fork ACEC

Expand the ACEC by 3,313 acres for a total of 7,744 acres.

Mineral and realty actions in the expanded ACEC are managed with the following restrictions:

- Closed to oil and gas leasing
- Closed to geophysical exploration
- Closed to phosphate leasing
- Withdrawn from locatable mineral entry (except those portions that were formerly part of the Dubois Badlands)
- Closed to mineral material sales
- Excluded for major ROWs
- Avoided for minor ROWs

The ACEC is closed to livestock grazing (1,845 acres), except for 200 acres that were part of the 1987 Dubois Badlands ACEC and the Bitterroot Ranch allotment (691 acres) which are open for livestock grazing.

Green Mountain ACEC

Expand the ACEC by 6,777 acres for a total of 21,389 acres.

Mineral and realty actions in the ACEC are managed with the following restrictions:

- Open to oil and gas leasing subject to NSO stipulations
- Closed to geophysical exploration
- Closed to solid mineral leasing
- Closed to mineral material disposals
- Excluded for major ROWs
- Avoided for minor ROWs

7.34.2 Best Management Practices

No specific BMPs apply to ACEC management.

7.34.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened and Endangered Species. Management of ACECs is not anticipated to detrimentally impact threatened or endangered species or their habitats. Management of these areas may have beneficial effects on threatened and endangered species due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within. Canada lynx denning habitat, foraging habitat, and migration corridors would have further protections by the proposed expansion of the East Fork ACEC (7,745 acres). In addition, both gray wolf and grizzly bear denning, foraging, and dispersal habitat would be further protected by the expansion of the East Fork ACEC (7,745 acres). Implementing ACEC management actions *may affect, but is not likely to adversely affect* threatened and endangered species due to *beneficial effects (NLAA-b)*. This determination is based on the expansion of threatened and endangered species habitat protection. Implementing ACEC management actions will have *no effect (NE)* on desert yellowhead or designated critical habitat as the ACEC areas do not overlap with desert yellowhead habitat.

Candidate Species. Management of ACECs is not anticipated to detrimentally impact candidate species. Expansions of the ACECs include additional protections over greater sage-grouse brood-rearing, nesting, and winter range habitat. The South Pass Historical Landscape ACEC benefits greater sage-grouse by placing restrictions on mineral and ROW and development. Management of ACECs would have *no impact (NI)* on candidate species within the planning area. Management of these areas may have beneficial effects on candidate species due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. No actions associated with ACECs on nonfederal lands are anticipated to affect threatened and endangered species.

7.35 Special Designations—Congressionally Designated Trails

BLM land use planning guidance requires special management for Congressional designations (BLM Land Use Planning Handbook H-1601-1). Congressionally Designated Trails in the planning area include the CDNST and the Oregon/Mormon Pioneer/California/Pony Express NHTs. Additionally, management of Congressionally Designated Trails is guided by IM 2009-215 (Planning for Special Designations within the National System of Public Lands). Under IM 2009-215 “A presidential proclamation or act of Congress that designates an area within the National System of Public Lands supersedes conflicting direction by the FLPMA. Specifically the land use plan and management direction for such a designation must comply with the purposes and objectives of the proclamation or act of Congress regardless of any conflicts with the FLMPA multiple use mission.”

In 1968, the National Trails System Act (NTSA; Public Law 90-543) provided for the development of a national system of trails in urban, rural, and wilderness settings. Originally, the NTSA specified three categories of national trails: National Scenic Trails (NSTs), recreation trails, and connecting or side trails.

In 1978, historic trails were added as another category. Today, only Congress can designate NHTs and NSTs.

The CDNST is a 3,100-mile trail extending from Canada to Mexico and passing through the Rocky Mountain States of Montana, Idaho, Wyoming, Colorado, and New Mexico. An 89-mile on-the-ground route of the CSNST was designated through the planning area in 1999, with an additional 3 miles added in 2001. These 92 miles of the CDNST include 2 miles of hiking trail, 10 miles of cross-country travel, 4 miles of gravel roads, and 76 miles of primitive two-track roads.

7.35.1 Proposed Actions for Congressionally Designated Trails in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for Congressionally Designated Trails that benefit threatened and endangered species:

- For the National Trails Management Corridor:
    - Apply an NSO restriction to oil and gas leasing
    - Existing locatable mineral withdrawals are maintained on 3,115 acres and withdrawals are pursued on an additional 202 acres plus ten feet on each side of the ruts and swales of the NHTs
    - Geophysical exploration is closed within 1 mile on each side of the Trails
    - Phosphate leasing is close
    - Realty actions and mineral material disposals are avoided except in designated utility corridors unless hidden from the Trails and they meet the VRM designation for the proposed area
    - Wind energy development is excluded

7.35.2 Best Management Practices

No specific BMPs apply to congressionally designated trails management.

7.35.3 Impact Analysis and Effects Determinations

In addition to the above management actions and conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Management of Congressionally Designated Trails is not anticipated to impact threatened or endangered species or their habitats. The Proposed RMP manages the CDNST as an NST and includes constraints to protect the integrity and setting of the trails, which would beneficially impact black-footed ferret habitat by limiting certain uses along the trail and within specified distances of the trail. Recreation along the trail would continue on the 2 miles of hiking trail, 10 miles of cross-country travel, 4 miles of gravel roads, and 76 miles of primitive two-track roads. If a reintroduction site is proposed along these recreation routes, the BLM would monitor and post restrictions on recreational opportunities on BLM-administered lands within one mile of the site. In addition, management of various NHTs would continue. Designating utility corridors across the NHTs and restricting highly visible projects along the NHTs would reduce habitat fragmentation and beneficially impact black-footed ferret habitat. Implementing Congressionally Designated Trails management actions *may affect, but is not likely to adversely affect* black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on the conservation measures for the trails that will also protect black-footed ferret habitat.

Canada Lynx. No Congressionally Designated Trails management actions are anticipated to occur in Canada lynx habitat as none of these trails occur in the Dubois area. Implementing Congressionally Designated Trails management actions will have *no effect (NE)* on Canada lynx as the Congressionally Designated Trails areas do not overlap with Canada lynx habitat.

Gray Wolf. No Congressionally Designated Trails management actions are anticipated to occur in gray wolf habitat as none of these trails occur in the Dubois area. If gray wolves become established outside the Dubois area, management actions for the CDNST and NHTs would benefit this species by reducing surface disturbance and habitat fragmentation. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. The Proposed RMP manages the CDNST as an NST and includes constraints to protect the integrity and setting of the trails, which would beneficially impact greater sage-grouse habitat. In addition, management of various NHTs would continue. Recreation along the trail would continue on the 2 miles of hiking trail, 10 miles of cross-country travel, 4 miles of gravel roads, and 76 miles of primitive two-track roads which may adversely impact greater sage-grouse if it occurs during sensitive time periods. However, the prohibitions on disruptive activities within 0.6 mile of the perimeter of occupied leks in the Core Area and on or within 0.25-mile radius of a lek outside the Core Area would limit these adverse impacts. Designating utility corridors across the NHTs and restricting highly visible projects along the NHTs would reduce habitat fragmentation and beneficially impact greater sage-grouse habitat. In addition, requiring new audible and atmospheric effects not to exceed current levels along the NHT corridors would beneficially impact greater sage-grouse. Implementing Congressionally Designated Trails management actions *may affect, but is not likely to contribute to the need for federal listing (MI)* of the greater sage-grouse. This determination is based on the expansion of greater sage-grouse habitat protection from CDNST and NHT management.

Grizzly Bear. No Congressionally Designated Trails management actions are anticipated to occur in grizzly bear habitat as none of these trails occur in the Dubois area. If grizzly bear become established outside the Dubois area, management actions for the CDNST and NHTs would benefit this species by reducing surface disturbance and habitat fragmentation. Implementing Congressionally Designated Trails management actions will have *no effect (NE)* on grizzly bear as the Congressionally Designated Trails areas do not overlap with grizzly bear habitat.

Blowout Penstemon. Direct impacts to the blowout penstemon are not anticipated to occur because there are no known blowout penstemon populations in the planning area. If recreation along the CDNST took place in an undiscovered population, it could adversely impact this species. However, the management of the CDNST may benefit unknown populations due to access restrictions and limits to surface disturbance. Designating utility corridors across the NHTs and restricting highly visible projects along the NHTs would beneficially impact blowout penstemon by reducing the potential for adverse impacts in an undiscovered population. Implementation of Congressionally Designated Trails management actions *may affect, but is not likely to adversely affect* blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the potential that these actions may maintain or improve habitat for blowout penstemon because of access restrictions and surface disturbance limitations and that no populations are known to occur in the planning area.

Desert Yellowhead. No Congressionally Designated Trails management actions are anticipated to occur in desert yellowhead habitat as none of these trails occur in known habitat for this species. Implementing Congressionally Designated Trails management actions will have *no effect (NE)* on desert

yellowhead or designated critical habitat as the Congressionally Designated Trails areas do not overlap with desert yellowhead habitat.

Ute Ladies'-tresses. Direct impacts to the Ute ladies'-tresses are not anticipated to occur because there are no known Ute ladies'-tresses populations in the planning area. If recreation along the CDNST took place in an undiscovered population, it could adversely impact this species. However, the management of the CDNST may benefit unknown populations due to access restrictions and limits to surface disturbance. Designating utility corridors across the NHTs and restricting highly visible projects along the NHTs would beneficially impact Ute ladies'-tresses by reducing the potential for adverse impacts in an undiscovered population. Implementation of Congressionally Designated Trails management actions *may affect, but is not likely to adversely affect* blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the potential that these actions may maintain or improve habitat for Ute ladies'-tresses because of access restrictions and surface disturbance limitations and that no populations have been identified in the planning area.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. A visitor center associated with the Mormon Pioneer Trail is being built on private lands which are greater sage-grouse habitat. Actions such as this could contribute to habitat fragmentation, loss of habitat, noise, and human disturbance to greater sage-grouse and other species that occur in habitats where these actions would take place.

7.36 Special Designations—Wilderness Study Areas

The Wilderness Act of 1964 established a national system of lands designed to preserve a representative sample of ecosystems in a natural condition for the benefit of future generations. With the passage of FLPMA in 1976, Congress directed the BLM to inventory, study, and recommend which public lands under its administration should be designated as wilderness. Areas identified under this direction are WSAs. To be designated as wilderness, an area must have the following characteristics:

- *Size:* roadless areas of at least 5,000 acres of public lands or of a manageable size.
- *Naturalness:* generally appears to have been affected primarily by the forces of nature.
- *Opportunities:* provides outstanding opportunities for solitude or primitive and unconfined types of recreation.

There are no Congressionally designated wilderness areas in the planning area; however, there are eight WSAs. With the increase in demand for consumptive and non-consumptive resources, and with increased housing and subdivision development near natural and primitive areas, the WSAs preserve unique ecosystem niches that can support desired outcomes.

The BLM is required by Congress to manage WSAs to preserve the wilderness characteristics under the non-impairment standard until Congress designates the lands under wilderness review as wilderness, or releases the lands to uses other than wilderness. The BLM performs inventories of these areas and makes recommendations regarding the areas and acreage that it recommends for designation as wilderness. These recommendations are based on factors such as the manageability of the area, how well it meets the characteristic of wilderness, whether it conflicts or potentially conflicts with other users and uses, and other relevant factors.

7.36.1 Proposed Actions for WSAs in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for WSAs that benefit threatened and endangered species:

- Non-Grandfathered uses (as defined in the WSA Interim Management Policy) are subject to the non-impairment standard.
- In the event Congress releases any of the Lander Field Office WSAs without management direction, the BLM will continue to manage the released area(s) under similar direction as detailed in the WSA Interim Management Policy until a Land Use Plan amendment is developed detailing management direction for the area(s).
- The following WSAs are closed to motorized travel:
  - Dubois Badlands
  - Copper Mountain
  - Whiskey Mountain
- Motorized travel is limited to designated roads and trails that existed and were identified before or during the inventory phase of the wilderness review in the Sweetwater Rocks Complex and Sweetwater Canyon WSAs.

7.36.2 Best Management Practices

No specific BMPs apply to WSAs management.

7.36.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened and Endangered Species. Management of WSAs is not anticipated to impact threatened or endangered species or their habitats. The WSA designation is beneficial to the protection of air and watersheds, soil and water quality, ecological stability, plant and animal gene pools, and habitats for wildlife. Management of these areas may have beneficial effects on threatened and endangered species due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within. Implementing WSA management actions *may affect, but is not likely to adversely affect* threatened and endangered species due to *beneficial effects (NLAA-b)*. This determination is based on the continuation of threatened and endangered species habitat protection. Implementing WSA management actions will have *no effect (NE)* on desert yellowhead or designated critical habitat as the WSA areas do not overlap with desert yellowhead habitat.

Candidate Species. Management of WSAs would have *no impact (NI)* on candidate species within the planning area. The WSA designation is beneficial to the protection of air and watersheds, soil and water quality, ecological stability, plant and animal gene pools, and habitats for wildlife. Management of these areas may have beneficial effects on candidate species due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. No actions associated with WSAs on nonfederal lands are anticipated to affect threatened and endangered species.

7.37 Special Designations—Wild and Scenic Rivers

The National WSR System is a system of nationally designated rivers preserved in a free-flowing condition; the immediate environments of these rivers are recognized for outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values. The system consists of three types of rivers.

1. *Recreation.* Rivers or sections of rivers that are readily accessible by road or railroad, that might have some development along their shorelines, and that might have undergone some impoundments or diversion in the past.
2. *Scenic.* Rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped, but accessible in places by roads.
3. *Wild.* Rivers or sections of rivers free of impoundments and generally inaccessible, except by trails, with essentially primitive watersheds or shorelines, and unpolluted waters.

At present, there are no Congressionally designated WSRs in the planning area; however, nine waterways have been found to meet the eligibility criteria for WSR designation, and two of these waterways meet suitability factors. The *Lander Field Office Review of Potential Wild and Scenic Rivers in the Lander Resource Management Plan Planning Area* (BLM 2002) documents these findings.

7.37.1 Proposed Actions for Wild and Scenic Rivers in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for Wild and Scenic Rivers that benefit threatened and endangered species:

- The BLM-administered lands within eligible and suitable WSRs are closed to land disposal actions.
- To resist invasion by noxious weeds, manage native plant communities and soils to maintain an ecologically healthy and vigorous condition within eligible and suitable WSRs.
- The Baldwin Creek Unit is closed to mineral materials disposal, oil and gas leasing is subject to NSO stipulations, and realty actions including ROWs are avoided. The Sweetwater Canyon WSA is managed under the WSA Interim Management Policy.
- Water impoundments, diversions, or hydroelectric power facilities are subject to mitigation measures necessary to maintain free flowing characteristics.
- Close the Baldwin Creek Unit to motorized travel. Motorized travel in the Sweetwater River Unit will be limited to designated roads and trails.
- Commercial timber sales and harvests in the Baldwin Creek Unit are subject to VRM Class II requirements. Commercial timber sales and harvests in the Sweetwater Canyon WSA are subject to the WSA Interim Management Policy.
- Manage segments considered eligible to improve characteristics which would facilitate future suitability classification.

7.37.2 Best Management Practices

No specific BMPs apply to WSRs management.

7.37.3 Impact Analysis and Effects Determinations

In addition to the above management actions, conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened and Endangered Species. Management of WSRs is not anticipated to adversely impact threatened or endangered species or their habitats. The WSR designation is beneficial to the protection of watersheds, water quality, ecological stability, and habitats for wildlife. Management of these areas may have beneficial effects on threatened and endangered species, including Ute ladies'-tresses, due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within. Implementing WSR management actions *may affect, but is not likely to adversely affect* threatened and endangered species due to *beneficial effects (NLAA-b)*. This determination is based on the continuation of threatened and endangered species habitat protection. Implementing WSR management actions will have *no effect (NE)* on blowout penstemon, desert yellowhead or designated critical habitat as the WSR areas do not overlap with blowout penstemon or desert yellowhead habitat.

Candidate Species. Management of WSRs would have *no impact (NI)* on candidate species within the planning area. The WSR designation is beneficial to the protection of watersheds, water quality, ecological stability, and habitats for wildlife. Management of these areas may have beneficial effects on candidate species due to access restrictions, limitations on surface disturbance, and management objectives specifically designed to benefit the resources contained within.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. No actions associated with WSRs on nonfederal lands are anticipated to affect threatened and endangered species.

7.38 Socioeconomic Resources

Social conditions concern the human communities in the planning area, including towns, cities, and rural areas, and the custom, culture, and history of the area as it relates to human settlement, as well as current social values.

Throughout the history of the planning area, the use of natural resources on private, state, and federal land has provided the basis for continued social and economic stability in all four counties. Agriculture, mining, mineral development and production, and tourism are directly tied to the ability to use federal and state land. As a result, management decisions for federal (and state) land and natural resources will have a ripple effect throughout the social and economic climate of the planning area.

Because men and women of all ages and all levels of educational attainment use BLM-administered lands, the variation in these demographic groups is not a driver for BLM's management actions in the planning area. However, the demographic data provides a backdrop of the human communities that will be affected by the BLM's decisions.

7.38.1 Proposed Actions for Socioeconomic Resources in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes no protections for socioeconomic resources that benefit threatened and endangered species.

7.38.2 Best Management Practices

No specific BMPs apply to socioeconomic resources management.

7.38.3 Impact Analysis and Effects Determinations

The conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Threatened and Endangered Species. Socioeconomic resource management actions are not anticipated to adversely impact threatened or endangered species or their habitats. The Proposed RMP would result in a slight decrease in job opportunities associated with decreased development of oil and gas resources, due to the economic downturn; therefore, it may result in a benefit to listed species. The Proposed RMP would result in some beneficial impacts on air quality, wildlife, and other resources that improve quality of life related to natural characteristics. Implementing socioeconomic resources management will have *no effect (NE)* on threatened and endangered species. This determination is based on the slight benefit to threatened and endangered related to socioeconomic resource management.

Candidate Species. Socioeconomic resource management actions would have *no impact (NI)* on candidate species within the planning area. The Proposed RMP would result in a slight decrease in job opportunities associated with decreased development of oil and gas resources, due to the economic downturn; therefore, it may result in a slight decrease in population, which may benefit listed species. No specific actions for socioeconomic resources are anticipated to impact candidate species.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Housing developments could expand into threatened and endangered species habitats. Housing developments could remove, degrade, or fragment habitats for these species. Development into prairie dog habitats could remove habitat or introduce distemper through domestic dogs.

7.39 Health and Safety

The BLM addresses a variety of potential hazards on public surface lands to reduce risks to visitors and employees. Hazards include hazardous materials; mine shafts and adits; abandoned equipment and structures; explosives and munitions; natural geologic hazards; and spills from pipelines, tankers, and storage tanks.

Abandoned mines are a common feature on BLM-administered lands. The BLM has identified 934 known AML sites throughout the State of Wyoming (BLM 2009i). As of December 31, 2008, remediation projects have begun at nine of these sites, three of which are in the planning area (the Gas Hills Haul Road, for which the BLM completed remediation in 2004; the South Pass mining area, for which the BLM has partially completed remediation; and the Copper Mountain mines, for which remediation is pending) (BLM 2009j).

7.39.1 Proposed Actions for Health and Safety in the Lander Proposed RMP and Final EIS

The Proposed RMP proposes the following protections for health and safety that benefit threatened and endangered species:

- Manage hazardous materials to reduce health and safety risks to the public, to restore contaminated lands, and to carry out emergency response activities, per appropriate laws, policies, and regulations.
- Reclaim AML to productive uses including, but not limited to, grazing, recreation, fish and wildlife habitat, and preservation of historical/cultural resources.
- Require that all new major ROWs, pipelines, and trenches across roads be closed as soon as possible to reduce hazards to the public, livestock, and wildlife after initial surface disturbance.
- Prohibit channel-disturbing activities on Rock Creek and Willow Creek in the Upper Sweetwater river drainage to avoid the mobilization of mercury.

7.39.2 Best Management Practices

No specific BMPs apply to health and safety management.

7.39.3 Impact Analysis and Effects Determinations

In addition to the above management actions, the conservation measures identified in Section 10.0 of this BA were taken into consideration for the impact analysis and effects determinations.

Black-footed Ferret. Potentially suitable black-footed ferret habitat exists in planning area where white-tailed prairie dogs complexes are present. Where needed, warning signs and protective fencing would be erected in AML sites. The construction and maintenance of signs and fencing could conceivably cause a direct mortality to ferrets if they were above ground during the action, and if the operators were negligent and unaware in the conduct of their actions. It is also conceivable the warning signs and fences could provide a perch for avian predators of the ferret. However, there are no plans to construct warning signs or fences in black-footed ferret habitat. Implementing health and safety management actions *may affect, but is not likely to adversely affect* the black-footed ferret due to *insignificant effects (NLAA-i)*. This determination is based on management actions that are relatively small in scope and of short duration.

Canada Lynx. Actions related to health and safety will result in no impacts on lynx behavior, denning habitat, or foraging habitat. The actions associated with health and safety management are relatively small in scope, of short duration, and unlikely to occur in lynx habitat. Implementation of health and safety management actions *may affect, but is not likely to adversely affect* the Canada lynx due to *insignificant effects (NLAA-i)*. This determination is based on the lack of overlap of management activities and Canada lynx habitat.

Gray Wolf. Actions related to health and safety will result in no impacts on gray wolf. At the time of effects analysis, the gray wolf was listed as a non-essential, experimental population and all BLM programs evaluated in this document presented *no jeopardy (NJ)* to the gray wolf as any effects to this population would not have jeopardized the continued existence of the species. As of September 30, 2012, the gray wolf is officially delisted and consultation is no longer required for the species.

Greater Sage-grouse. Suitable sage-grouse habitat, the Core Area, and lek sites exist in the planning area. The construction and maintenance of health and safety management activities, including signage and fencing, could conceivably cause indirect effects to individuals or direct mortality if sage-grouse were present during the action, and if the operators were negligent and unaware in the conduct of their actions. The actions associated with health and safety management are relatively small in scope, and of short duration. Protective measures are associated with the greater sage-grouse Core Area, and there are ¼-mile sage-grouse lek buffers as well as 0.6-mile sage-grouse lek buffers in the planning area. In addition, a 2-mile sage-grouse nesting habitat buffer exists in the planning area. Implementing health and safety management actions *may impact, but is but not likely to contribute to the need for federal listing (MI)* of the greater sage-grouse. This determination is based on the lack of impacts due to management actions that are relatively small in scope and of short duration occurring in sage-grouse habitat.

Grizzly Bear. Actions related to health and safety will result in no impacts on grizzly bear behavior, denning habitat, or foraging habitat. The actions associated with health and safety management are relatively small in scope, of short duration, and unlikely to occur in grizzly bear habitat. The construction and maintenance of signs and fencing could conceivably cause indirect impacts on grizzly bears if they were present during the action, but these actions are relatively small in scope, and of short duration. Implementation of health and safety management actions *may affect, but is not likely to adversely affect* the grizzly bear due to *insignificant effects (NLAA-i)*. This determination is based on the lack of impacts due to management actions that are relatively small in scope and of short duration occurring in grizzly bear habitat.

Blowout Penstemon. Actions related to health and safety are not anticipated to result in adverse impacts on the blowout penstemon or suitable habitat. The actions associated with health and safety management are relatively small in scope, of short duration. The construction and maintenance of signs and fencing could conceivably cause indirect impacts on blowout penstemon if suitable habitat is present. Implementation of health and safety management actions *may affect, but is not likely to adversely affect* the blowout penstemon due to *insignificant effects (NLAA-i)*. This determination is based on the lack of impacts due to management actions that are relatively small in scope and of short duration occurring in blowout penstemon habitat.

Desert Yellowhead. Actions related to health and safety are not anticipated to result in adverse impacts on the desert yellowhead or critical habitat. The actions associated with health and safety management are relatively small in scope, of short duration. The construction and maintenance of signs and fencing could conceivably cause indirect impacts on desert yellowhead if it is carried out in designated critical habitat. Implementation of health and safety management actions *may affect, but is not likely to adversely affect* the desert yellowhead or designated critical habitat due to *insignificant effects (NLAA-i)*. This determination is based on the lack of impacts due to management actions that are relatively small in scope and of short duration occurring in desert yellowhead habitat.

Ute Ladies'-tresses. As funding allows, warning signs and protective fencing would be erected in AML sites. Typically signage and fencing for health and safety do not take place in riparian habitat, but the construction and maintenance of signs and fencing could conceivably cause disturbance to potential Ute ladies'-tresses habitat. However, these effects will be localized. Implementing health and safety management actions *may affect, not likely to adversely affect the* Ute ladies'-tresses due to *discountable effects (NLAA-d)*.

Cumulative Effects. Cumulative effects include future state, tribal, or private actions reasonably certain to occur in the planning area. Disposal or an accidental spill of hazardous materials on nonfederal land could be detrimental to threatened or endangered species if the disposal or spill occurred in or adjacent to their habitats.

8.0 SUMMARY OF CUMULATIVE EFFECTS

Cumulative effects are the collective incremental impacts of the Proposed RMP when considered with other past, present, or reasonably foreseeable future actions by federal, state, tribal, or private entities. The cumulative impacts analysis area varies depending on the resource being impacted and ranges from being within the planning area to the State of Wyoming. There are 39 reasonably foreseeable projects and actions in or adjacent to the planning area. The breakdown of the 39 projects by agency includes 2 BLM RMPs, 1 BLM Programmatic Wind Energy (EIS), 1 BLM Programmatic Energy Distribution Corridor EIS, 1 BLM Programmatic Geothermal Leasing EIS, 4 County Land Use Plans, 7 Conservation District Plans, 6 Watershed Plans, 1 Wyoming USDA Strategic Plan, 3 WGFD Plans, 1 Wyoming State Water Plan for the Wind/Bighorn River Basin, 2 Wyoming Statewide Outdoor Recreation and Trail Plans, 1 Wyoming State Historic Preservation Office Statewide Plan, 1 USFWS Plan, 2 National Forest Plans, 1 Wyoming State Plan, 3 county FMPs, 1 National Park Service FMP for YNP, and 1 National Fire Plan. Future federal actions that are unrelated to the Proposed RMP are not considered because they require separate consultation pursuant to section 7 of the ESA.

Surface-disturbing and other disruptive activities that occur on non BLM-administered lands are not subject to the restrictions identified under the Proposed RMP that are designed to protect wildlife habitat on BLM-administered lands and therefore may increase the cumulative impacts on wildlife habitat. Nonfederal actions that may affect threatened and endangered species or their habitats in the planning area are listed below.

- Increased residential development may contribute to a reduction of suitable habitat for threatened and endangered species through degradation, removal, and fragmentation of habitat, including additional sediment loading of waterways.
- An expanded network of roads on state and private lands will impact threatened and endangered species habitat through the fragmentation or direct loss of habitats.
- Fragmentation, loss, or degradation of threatened and endangered species habitat due to the infrastructure associated with urban expansion and mineral development including pipelines and powerlines.
- Spread of invasive species on state and private lands throughout the planning area.
- Actions by private landowners that impact the health of riparian-wetland areas and their performance of critical water quality protection functions.
- Livestock grazing actions including fencing and water developments (e.g., wells, pipelines, reservoirs, spring developments) can result in the loss, degradation, and/or fragmentation of habitat.
- Surface-disturbing activities caused by mineral and other development, the construction and maintenance of ROW, and vegetation treatments (e.g., prescribed burns and mechanical fuels treatments) on state and private lands contribute to short- or long-term losses of vegetation and increased sedimentation.
- Surface disturbance associated with oil and gas development including permanent facilities such as roads and well pads may compromise habitat of threatened and endangered species.
- Surface disturbance associated with locatable mineral development may remove habitat for threatened and endangered species.
- Wildfire will likely occur across the state regardless of land ownership, and this may compromise habitat of threatened and endangered species.

9.0 SUMMARY OF EFFECTS DETERMINATIONS

Table 3 summarizes the effects determinations for threatened and endangered species in the planning area.

Table 3. Summary of Effects Determinations for Threatened and Endangered Species

Resource Area	Black-footed Ferret	Canada Lynx	Gray Wolf	Greater Sage-grouse	Grizzly Bear	Blowout Penstemon	Desert Yellowhead	Desert Yellowhead Critical Habitat	Ute Ladies'-tresses
Air quality	NLAA-i	NE	NJ	MI	NE	NE	NLAA-d	NLAA-d	NE
Geologic resources	NE	NE	NJ	NI	NE	NE	NE	NE	NE
Soil	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Water	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NE	NE	NE	NLAA-d
Cave and karst resources	NE	NLAA-d	NJ	NI	NLAA-d	NE	NE	NE	NE
Non-WSA lands with wilderness characteristics	NE	NE	NJ	NI	NLAA-b	NE	NE	NE	NLAA-b
Mineral resources – locatable minerals	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Leasable minerals – coal	NE	NE	NJ	NI	NE	NE	NE	NE	NE
Leasable minerals – geothermal	NE	NE	NJ	NI	NE	NE	NE	NE	NE
Leasable minerals – oil and gas	NLAA-i	NLAA-i	NJ	MI	NLAA-d	NLAA-i	NLAA-d	NLAA-d	NLAA-d
Leasable – oil shale	NE	NE	NJ	NI	NE	NE	NE	NE	NE
Leasable minerals – other solid leasable minerals	NLAA-i	NE	NJ	MI	NLAA-d	NLAA-i	NLAA-d	NLAA-d	NLAA-d
Salable minerals	NLAA-d	NLAA-i	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire and fuels management – unplanned/wildfire	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire and fuels management – planned/prescribed fires	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire and fuels management – stabilization and rehabilitation	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Forests, woodlands, and aspen communities	NE	NLAA-i	NJ	MI	NLAA-i	NE	NE	NE	NE
Grassland and shrubland communities	NLAA-b	NLAA-d	NJ	MI	NLAA-d	NLAA-b	NLAA-b	NLAA-b	NLAA-b
Invasive species and pest management	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NLAA-b	NLAA-b	NLAA-b	NLAA-i
Riparian-wetland resources	NE	NLAA-d	NJ	MI	NLAA-d	NE	NE	NE	NLAA-b
Fish and wildlife resources	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d

Table 3. Summary of Effects Determinations for Threatened and Endangered Species

Resource Area	Black-footed Ferret	Canada Lynx	Gray Wolf	Greater Sage-grouse	Grizzly Bear	Blowout Penstemon	Desert Yellowhead	Desert Yellowhead Critical Habitat	Ute Ladies'-tresses
Special status species – plants	NE	NE	NJ	NI	NE	NLAA-b	NLAA-b	NLAA-b	NLAA-b
Special status species – fish and wildlife	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Wild horses	NLAA-d	NE	NJ	MI	NE	NLAA-d	LAA	NLAA-i	NLAA-d
Cultural resources	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Paleontological resources	NLAA-d	NLAA-d	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Visual resources	NLAA-b	NLAA-b	NJ	NI	NLAA-b	NLAA-b	NLAA-b	NLAA-b	NLAA-b
Lands and realty – acquisitions, disposals, and withdrawals	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NE	NE	NE	NE
Renewable energy	NLAA-d	NE	NJ	MI	NE	NE	NE	NE	NLAA-d
Rights-of-way and corridors	NLAA-d	NLAA-i	NJ	MI	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Comprehensive trails and travel management	NLAA-d	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Livestock grazing management	NLAA-i	NLAA-d	NJ	MI	LAA	NLAA-d	LAA	NLAA-i	LAA
Recreation	NLAA-d	NLAA-i	NJ	MI	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Special designations (ACECs)	NLAA-b	NLAA-b	NJ	NI	NLAA-b	NLAA-b	NE	NE	NLAA-b
Special designations (Congressionally Designated Trails)	NLAA-i	NE	NJ	MI	NE	NLAA-d	NE	NE	NLAA-d
Special designations (WSAs)	NLAA-b	NLAA-b	NJ	NI	NLAA-b	NLAA-b	NE	NE	NLAA-b
Special designations (wild and scenic rivers)	NLAA-b	NLAA-b	NJ	NI	NLAA-b	NE	NE	NE	NLAA-b
Socioeconomic resources	NE	NE	NJ	NI	NE	NE	NE	NE	NE
Health and safety	NLAA-i	NLAA-i	NJ	MI	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-d

ACEC Area of Critical Environmental Concern
BLM Bureau of Land Management
ESA Endangered Species Act
LAA May affect, is likely to adversely affect
LJ Is likely to jeopardize proposed species
MI May impact, but not likely to contribute to the need for federal listing
NE No effect
NI No impact
NJ Is not likely to jeopardize proposed species
NLAA-b-i-d May affect, but is not likely to adversely affect, due to beneficial, insignificant, or discountable effects
WSA Wilderness Study Area

10.0 SUMMARY OF SPECIES-SPECIFIC COORDINATION AND CONSERVATION MEASURES

Implementing the following species-specific conservation measures is intended to minimize adverse effects that are likely to result from implementing the management actions identified for the RMP. Specific to each species, this section describes (1) proposed protections in the Proposed RMP, (2) conservation measures committed to by the BLM as identified in the statewide programmatic BAs and BOs, and (3) BMPs as identified in the statewide programmatic BAs. The BLM will 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 will apply until such time that further investigation and subsequent consultation with the USFWS result in more appropriate management prescriptions.

10.1 Black-footed Ferret Conservation Measures

10.1.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The following protection is proposed for black-footed ferrets:

- Require black-footed ferret surveys before authorizing surface-disturbing activities in prairie dog towns suitable as potential habitat for black-footed ferrets, unless cleared by the USFWS.

10.1.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM 2005a) and the BO (USFWS 2006b) for the BLM's statewide programmatic BA include the following:

- 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 BA (BLM 2005a)) or the USFWS's block clearance letter of February, 2004) (USFWS 2004)] and meet potential habitat criteria as defined by USFWS' guidelines (USFWS 1989), the BLM will 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.
- 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 will be performed in accordance with current USFWS guidelines and recommendations. This information will be provided to the BLM and the USFWS in accordance with section 7 of the ESA, as amended (50 CFR 402.10 and 13), and the Interagency Cooperation Regulations.
- 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 BLM 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 at 50 CFR I7.2 I(c) (3-4). It is

imperative that any fresh black-footed ferret carcass be salvaged and immediately transported to the USFWS so pertinent information concerning the cause of death can be gathered, including photographs to document an accurate depiction of the fatality.

- 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 BLM staff and management.
- 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 BLM Field Office Manager, the USFWS Field Office Supervisor, the WGFD Non-game Coordinator, and other potentially affected parties. This task force will be formed within 48 hours of the find to determine appropriate conservation/ protection actions. The BLM shall coordinate with these affected parties to ensure that ferret surveys or appropriate actions are performed as deemed necessary. The BLM will also re-initiate section 7 consultation with the USFWS. An emergency road closure limiting access to the site will be enacted by the BLM within 48 hours of the find to protect the newly discovered black-footed ferrets. This emergency road closure will 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 in the town or complex may be allowed to continue.
- 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.
- 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.
- The BLM shall work with the USFWS and the WGFD to identify and select Special Management Areas (SMAs) for potential reintroduction sites for black-footed ferrets. These areas will be selected based on a number of factors, including the BLM'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, SMAs 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 2005a). Protective measures will be drawn up for these SMAs, and may include being withdrawn from leasing and protected from commercial development (i.e., land disposal through Recreation and Public Purposes [R&PP] actions, etc.). Examples of protective measures that will be included in these SMAs are:
    - The BLM 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 BLM-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.

- The BLM shall monitor and post restrictions, if necessary, on recreational opportunities and other uses on BLM-administered lands within one mile of formally proposed and active reintroduction sites for black-footed ferrets.
- The BLM 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 worksites during or after hours. The BLM 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.

10.1.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2005a) and the BO (USFWS 2006b) for the BLM's statewide programmatic BA include the following:

- 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.
- Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan and the White-tailed Prairie Dog Conservation Assessment (Seglund et al. 2006).
- Establish land stewardship agreements with other agencies and/or private landowners where large (1,000 acres) prairie dog towns or complexes exist. These agreements should manage potential uses that may be detrimental to prairie dogs and their habitats, while preserving the landowner's intent for use.
- Avoid sale or exchange of lands with potential for black-footed ferret reintroductions, and attempt to acquire parcels with suitable prairie dog complexes on them, especially those parcels that could potentially be part of a black-footed ferret reintroduction effort.
- Initiate, to the extent feasible, land exchanges in the Thunder Basin and Shirley Basin in areas with potential for black-footed ferrets to increase the land area in federal ownership.
- Avoid vegetation stand conversions that have been shown to be detrimental to white tail prairie dogs; reduce or eliminate any other suspected ecosystem-degrading practices.
- 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.
- 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.

10.2 Canada Lynx Conservation Measures

10.2.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The following protection is proposed for Canada lynx:

- Manage travel corridors for threatened and endangered species and BLM sensitive species on a case-by-case basis (only Canada lynx units have been identified to date).

10.2.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM-2005b) and the BO (USFWS 2005b) for the BLM's statewide programmatic BA include the following:

- Within an LAU, the BLM shall ensure that mapping occurs of lynx habitat and non-habitat, and that denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. The BLM or 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.
- The BLM shall limit disturbance in each LAU to 30 percent of the suitable habitat within the LAU. If 30 percent of the habitat within an LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of management activities. The 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 where LAUs cross administrative boundaries, primarily with the USFS.
- 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.
- The BLM shall maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat. Where less than 10 percent is currently present in an LAU, defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.
- The 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 best available science.
- The BLM shall ensure that habitat connectivity within and between LAUs is maintained.
- The BLM shall document lynx observations (tracks, sightings, along with date, location, and habitat) and provide these to the WYNDD; and request an annual update from them on all sightings for review in each field office.
- Following a disturbance (blowdown, fire, insects) that could contribute to lynx denning habitat, the BLM shall allow no salvage harvest when the affected area is smaller than 5 acres. Some exceptions apply, as specified in the Lynx Conservation Assessment Strategy timber management project planning standards.
- The BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.

- In aspen stands, the BLM shall ensure that harvest prescriptions apply that favor regeneration of aspen.
- The 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.
- In the event of a large wildfire, the BLM shall ensure that a post-disturbance assessment prior to salvage harvest is conducted, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.
- The 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 should be avoided if possible.
- The 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.
- In lynx habitat within an LAU, the 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.
- The BLM shall ensure that trails, roads, and lift termini are designed to direct winter use away from diurnal security habitat.
- To protect the integrity of lynx habitat, the BLM shall ensure that (as new information becomes available) winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat are evaluated and amended as needed.
- The 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 three years or longer and will depend on site-specific conditions.
- The 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.
- Within lynx habitat, the 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.
- On projects where over-snow access is required, the BLM shall ensure use is restricted to designated routes.
- Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, shall be conducted by USFWS Wildlife Services personnel in accordance with USFWS recommendations established through a formal section 7 consultation process.
- The 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 should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

- In high-elevation riparian areas, especially those subject to grazing, the BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.
- Within lynx habitat, the BLM shall ensure that key linkage areas and potential highway crossing areas are identified, using best available science.
- The BLM shall work cooperatively and proactively with the Federal Highway Administration and State Departments 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).
- Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. 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.
- The BLM shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on key linkage areas.
- If activities are proposed in lynx habitat, the BLM shall ensure that stipulations and COA for limitations on the timing of activities and surface use and occupancy are developed at the leasing and Notice of Staking/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.
- The BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. The BLM shall encourage remote monitoring of sites that in lynx habitat so that they do not have to be visited daily.

10.2.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2005b) and the BO (USFWS 2005b) for the BLM's statewide programmatic BA include the following:

- Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris.
- 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.
- Provide for continuing availability of foraging habitat in proximity to denning habitat.
- In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc.). Improvement harvests should be designed to 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.

- Provide habitat conditions through time that support dense horizontal understory cover, and high densities 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 that have little value to snowshoe hares.
- 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).
- Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.
- Consider the need for pre-treatment of fuels before conducting management ignitions.
- Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maximizes lynx denning habitat.
- Map and monitor the location and intensity of snow-compacting activities (e.g., 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.
- Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow-compacting activities are minimized or discouraged.
- Identify and protect potential security habitats in and around proposed developments or expansions.
- Determine where high total road densities (more than 2 miles per square mile) coincide with lynx habitat and prioritize roads for seasonal restrictions or reclamation in those areas.
- Minimize roadside brushing in order to provide snowshoe hare habitat.
- Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.
- 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.
- Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.
- To reduce mistaken shooting of lynx, initiate and/or augment interagency information and education efforts throughout the range of lynx in the contiguous states. Utilize trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, etc., to inform the public of the possible presence of lynx, field identification, and their status.
- Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.
- Where feasible within identified key linkage areas, maintain or enhance native plant communities and 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.

- Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. 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.
- In land adjustment programs, identify key linkage areas. Work toward unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisition.
- Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.
- Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts to lynx.
- Using 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.
- When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.
- Protect existing snowshoe hare and red squirrel habitat.

10.3 Gray Wolf Conservation Measures

10.3.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The Proposed RMP does not identify specific protection measures for the gray wolf.

10.3.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM 2004a) and the BO (USFWS 2005c) for the BLM's statewide programmatic BA include the following:

- No project actions to be located within 100 meters (330 feet) of den sites between April 1 and June 30. Areas within 0.8 kilometer (½ mile) of a den site are recommended for protection from disturbance.
- 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 next bullet); avoid situations that lead to the adoption of human foods and garbage by wolves, which could lead to a bite and subsequent elimination of the wolf.
- Disseminate information useful to livestock producers on wolf/livestock interactions, alternate 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.

- Designate a state representative to attend the annual interagency coordination meeting.
- Continue to attend the annual coordination meetings with the WGFD.

10.3.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2004a) and the BO (USFWS 2005c) for the BLM's statewide programmatic BA include the following:

- Avoid an increase in miles of road in elk crucial winter range.
- Avoid situations that allow for wolves to habituate to humans, or become exposed to and use human refuse as a food resource.
- Foster public outreach/education programs to provide information on wolves in schools, campgrounds, and other places. Topics can include but are not limited to: How to be safe around wolves, wolf ecology, wolf mortality factors, and livestock grazing practices harmful to wolves.
- Continue to support the research and documentation of wolf/livestock interactions and livestock grazing practices to improve these practices so that they are more compatible with wolves.
- Continue to provide and improve wolf habitat by monitoring elk populations and improving habitat for elk.
- Encourage reporting of wolf observations by BLM staff and the public to the WGFD.

10.4 Grizzly Bear Conservation Measures

10.4.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The following protection is proposed for the grizzly bear:

- On a case-by-case basis, adjust livestock grazing season of use dates to avoid conflict with grizzly bears.

10.4.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM 2006) and the BO (USFWS 2006c) for the BLM's statewide programmatic BA include the following:

- 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.
- 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.
- In occupied grizzly bear habitat, and in areas of bear conflicts, the BLM shall install bear-resistant refuse containers in developed campgrounds and picnic areas where refuse containers

are provided and maintained. In areas receiving dispersed recreational use, the BLM shall inform the public of proper storage techniques for food and refuse.

- 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.
- Important grizzly bear food resources that may occur on BLM-administered land, particularly whitebark pine, army cutworm moths, ungulates (primarily elk calving grounds), and spawning cutthroat trout, shall be noted and monitored. Other important foods may be added to those listed above as our understanding of grizzly bear food resources on BLM-administered land grows. Monitoring protocols for these food resources can be adapted from Appendix E of the Conservation Strategy (ICST 2003) (http://www.fs.fed.us/r 1 /wildlifeligbc/ ConservationStrategy/C Sappendices.pdf).
- The BLM shall continue to attend, and be a member of, the Yellowstone Ecosystem Subcommittee of the IGBC. After delisting, the BLM shall continue to attend the appropriate coordination group(s) including the Yellowstone Grizzly Coordinating Committee.
- The BLM shall not approve commercial cutting or other removal of whitebark pine in the six BLM administrative areas analyzed in this document in occupied or potential grizzly bear habitat.
- 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. Currently these conflicts are discussed at the NW Wyoming Level One Streamlining Team meetings held approximately every 45 to 60 days.
- 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 ½ 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 about carcass disposition the permit holder (or lessee) shall contact the appropriate BLM field office.
- The BLM shall require that the PFC of existing aquatic systems and riparian zones in occupied grizzly bear habitat be maintained for all BLM-administered public lands. If these areas are polluted and/or damaged from activities, lessee/permittee/ grantee or the BLM will be required to assume full responsibility for rehabilitation and restoration of such areas (from IGBC 1986).
- 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.

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

10.4.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2006) and the BO (USFWS 2006c) for the BLM's statewide programmatic BA. These BMPs are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect the grizzly bear. BMPs include the following:

- 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. The 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.
- The BLM should adjust management of domestic livestock on public land allotments or leases to minimize grizzly bear-livestock conflicts (e.g., season of use, class of livestock, etc.).
- 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.
- 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 (e.g., big game ranges).
- 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.
- Where possible, maintain road densities of less than 1 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.
- The BLM should initiate a habitat mapping and monitoring effort for the grizzly bear. Habitat mapped on BLM-administered lands will be done using GIS technology. Secure habitat, open motorized access route density (refers to roads that are actively used) greater than 1 mile per square mile, and total motorized access route density (includes all roads, even gated roads) greater than 2 miles per square mile will be monitored utilizing the Yellowstone Grizzly Bear Cumulative Effects Model GIS databases and will be reported annually, as described in ICST (2007) and conducted in the Primary Conservation Area (PCA).
- In areas of vital importance to grizzly bears (e.g., known denning areas, army cutworm moth aggregations, cutthroat trout spawning sites, spring ungulate concentration sites, etc.) activities that adversely affect grizzly bear populations and/or their habitat should be avoided. Adverse habitat effects could result from land surface disturbances; water table alterations; reservoirs, ROWs, 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).

10.5 Greater Sage-grouse Conservation Measures

10.5.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The following protections are proposed for the greater sage-grouse:

- Prohibit surface-disturbing or surface occupancy on or within a 0.6-mile radius of the perimeter of occupied greater sage-grouse leks in greater sage-grouse Core Area and on or within 0.25-mile radius of the perimeter of occupied greater sage-grouse leks outside greater sage-grouse Core Area.
- Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 in suitable greater sage-grouse nesting/early brood-rearing habitat in greater sage-grouse Core Area and within 2 miles of occupied leks or in important connectivity habitat outside greater sage-grouse Core Area.
- Prohibit surface-disturbing and/or disruptive activities from December 1 to March 14 in greater sage-grouse winter concentration areas.
- Prohibit disruptive activities between 6 pm and 8 am from March 1 to May 15 on or within 0.6-mile radius of the perimeter of occupied greater sage-grouse leks in greater sage-grouse Core Area and on or within 0.25-mile radius of the perimeter of occupied greater sage-grouse leks outside greater sage-grouse Core Area.
- In the greater sage-grouse Core Area, limit the density of disturbances to an average of 1 disturbance location per 640 acres. The one location and cumulative value of existing disturbances will not exceed 5 percent of the sagebrush habitat within those same 640 acres.
- Develop an implementation plan to divide greater sage-grouse Core Area into smaller subunits and develop an absolute disturbance threshold not to exceed 5 percent total disturbance per each subunit. Areas with co-located disturbances may exceed 1 per 640 acres and the 5 percent of cumulative disturbance provided the total disturbance does not exceed the limit for the subunit.
- Allow livestock water development projects in greater sage-grouse nesting habitat if the project will contribute to improved greater sage-grouse habitat and developments can be designed to be compatible with greater sage-grouse.
- Establish forage utilization levels in greater sage-grouse nesting habitat to ensure adequate residual cover remains.
- Design and locate fences so as to not disturb important sage-grouse habitat areas. Require the installation of fence markers on new wire fences constructed in greater sage-grouse habitat to increase fence visibility and reduce collision potential.
- New permanent, high-profile structures (higher than 12 feet) within greater sage-grouse nesting habitat will be allowed on a case-by-case basis. Require the installation of anti-perching devices on appropriate structures to reduce predation opportunities.
- Manage wind-energy development on a case-by-case basis in consideration of impacts to greater sage-grouse and its habitat and in conformity with proposed disturbance density standards.
- Limit noise sources to 10 dBA above natural ambient noise measured at the perimeter of occupied greater sage-grouse leks from March 1 to May 15 unless scientific findings indicate a different noise level is appropriate.

- Exclude wind energy development in greater sage-grouse Core Area until research is completed and adequate mitigation can be developed.
- To minimize raptor use, require anti-perching devices on new overhead powerlines in greater sage-grouse habitats. Work with ROW holders to install anti-perching devices on existing overhead powerlines.
- Allow above ground low voltage utility lines or require burying lines in greater sage-grouse, prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis.

10.5.2 Conservation Measures Committed to by the BLM

There are no conservation measures for the greater sage-grouse because there is no BLM statewide programmatic BA or BO for the greater sage-grouse.

10.5.3 Best Management Practices

There are no BMPs for the greater sage-grouse because there is no BLM statewide programmatic BA or BO for the greater sage-grouse.

10.6 Blowout Penstemon Conservation Measures

10.6.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The Proposed RMP does not identify specific protection measures for the blowout penstemon.

10.6.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM 2005c) include the following:

- These conservation measures will be added to grazing permit renewals in allotments with known blowout penstemon populations:
  - Place mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known blowout penstemon populations. Do not place supplemental feed for livestock, wildlife, or wild horses within 1.0 mile of known blowout penstemon populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from blowout penstemon populations and subsequent grazing on the blowout penstemon plants. Surveys for blowout penstemon will be conducted in potential blowout penstemon habitat prior to livestock operations projects.
  - The BLM will not increase permitted livestock stocking levels in any allotment with pastures containing known blowout penstemon populations without consulting with the USFWS. It is unknown to what extent overall impacts due to livestock grazing have on the blowout penstemon, whether it is detrimental due to actual grazing and trampling of plants or beneficial due to livestock removal of adjacent competing vegetation.
- Biological control of noxious plant species will be prohibited in blowout penstemon habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The BLM will monitor biological control vectors.

- Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 mile of known blowout penstemon populations and insecticide/pesticide treatments will be prohibited within 1.0 mile of known blowout penstemon populations 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, pesticide use within 1.0 mile of known blowout penstemon populations will be applied by hand and herbicides applied by hand within 0.25 mile of blowout penstemon populations, with care taken not to spray blowout penstemon plants.

  Aerial application of herbicides will be carefully planned to prevent drift in areas near known blowout penstemon populations (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 blowout penstemon.

- If revegetation projects are conducted within 0.25 miles of known penstemon habitat, only native species will be selected. However, no revegetation projects will be done in known or potential blowout penstemon habitats as the plants requires open non-vegetated to sparsely vegetated sand dunes due to the early seral stage nature of the plant and shifting sand dune habitat substrate. This conservation measure will be applied within 0.25 miles of known blowout penstemon habitat and will be done to keep non-native species from competing with the blowout penstemon.
- Limit the use of OHVs to designated roads and trails within 1.0 mile of known blowout penstemon populations, with no exceptions for the “performance of necessary tasks” other than firefighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known blowout penstemon populations. Roads that have the potential to impact blowout penstemon plants 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.
- Apply a COA on all APDs oil and gas wells for sites within 0.25 miles of any known blowout penstemon populations. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing blowout penstemon populations. Operations outside of the 0.25-mile buffer of the blowout penstemon population, such as “directional drilling” to reach oil or gas resources underneath the blowout penstemon habitat would be acceptable.
- Apply a COA on all applications for APDs oil and gas wells for sites within 0.25 miles of any known blowout penstemon populations. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing blowout penstemon populations. Operations outside of the 0.25-mile buffer of the blowout penstemon population, such as “directional drilling” to reach oil or gas resources underneath the blowout penstemon habitat would be acceptable.
- For known blowout penstemon populations, the BLM will place a CSU stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within a 0.25 mile of known blowout penstemon populations. For existing oil and gas leases with known blowout penstemon populations, the BLM will require a COA prohibiting all surface disturbances in the same 0.25-mile buffer area around those known blowout penstemon populations.

- The disposal (sale and removal) of salable minerals, which includes sand, is a discretionary BLM action and is prohibited within a 0.25-mile buffer area of known blowout penstemon populations.
- To prevent loss of habitat for the blowout penstemon, 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 blowout penstemon habitat, 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 blowout penstemon will not be exchanged or sold, unless it benefits the species.
- All proposed ROW projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 mile from any known blowout penstemon habitat to minimize disturbances. If the avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the USFWS.
- All proposed projects will be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse effects 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 blowout penstemon populations without concurrence of the USFWS and the BLM Authorized Officer. No activities will be authorized within 0.25 miles of any known blowout penstemon populations during the essential growing season time period (from April 15 to September 15, the growing, flowering, and fruiting stages) to reduce impacts to this species.

10.6.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2005c) are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect blowout penstemon. BMPs include the following:

- When project proposals are received, the 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 blowout penstemon conservation measures, determined as appropriate by the USFWS.
- Designate ACECs for the known populations of blowout penstemon (will add future populations to the ACEC as they are found) within all four affected Field Offices, beginning with the Rawlins FO. If these known populations of blowout penstemon are designated as an ACEC, they will require a plan of operations to be completed for any operations causing surface disturbance greater than causal use and a NEPA review before locatable mineral claims can be explored, mined and developed (43 CFR 3809 regulations).
- The BLM will participate in the development of both, a conservation agreement, assessment and strategy and a species specific recovery plan for the blowout penstemon in coordination with the USFWS and other agencies as appropriate. Populations and habitat of the blowout penstemon on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.
- Limit the use of OHVs to designated roads and trails within 1.0 mile of potential blowout penstemon habitat, with no exceptions for the performance of necessary tasks other than firefighting and hazardous material cleanup allowed using vehicles off road. No OHV competitive events will be allowed within 1.0 mile of potential blowout penstemon populations.

- Coordinate with the USFWS, the National Resource Conservation Service, and private landowners to ensure adequate protection for the blowout penstemon and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.
- To prevent grazing of blowout penstemon plants by livestock, keep livestock at least 0.25 mile away from known blowout penstemon populations during the essential growing season (from April 15 to September 15 – the growing, flowering, and fruiting stages) through herding of livestock away from known blowout penstemon populations or by excluding livestock from pastures with known blowout penstemon populations.
- Known blowout penstemon habitat should be fenced to keep livestock from grazing blowout penstemon plants. However, this is usually not practicable due to the difficulty in placing fences in a sandy substrate and high maintenance costs or the inability to maintain the fences at all. Placement of permanent fencing, or temporary electric fences around blowout penstemon populations and habitat could be done on a larger scale by fencing off a much larger area around sand dunes. Generally the sand dune complexes that comprise blowout penstemon habitat are very extant, sometimes running for dozens of miles, making fencing difficult to impossible. In the unlikely event that permanent fencing is placed around known blowout penstemon populations or habitats during the essential growing season, mineral supplements and water sources may be placed outside of the fences closer than the 1.0 mile specified in the conservation measures, to the known blowout penstemon habitat at the discretion of the BLM's Authorized Officer.
- In the event that a new population of blowout penstemon is found, the USFWS Wyoming Field Office (307-772-2374) will be notified within one week of discovery.
- Initiate land tenure adjustments to acquire lands with populations of blowout penstemon or potential habitat to ensure a higher level of protection under the ESA on federal lands for the blowout penstemon.
- To prevent loss of habitat for the blowout penstemon, 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 blowout penstemon habitat, the BLM will survey to assess the potential for the existence of blowout penstemon. While it is difficult to assess whether the blowout penstemon 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 blowout penstemon, including habitat that was used historically, that has retained its potential to sustain this listed species, and is deemed to be essential to their survival (BLM 2001). Potential blowout penstemon habitat may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

10.7 Desert Yellowhead and Designated Critical Habitat Conservation Measures

10.7.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The following protections are proposed for desert yellowhead:

- Provide information to fire personnel to prevent fire suppression vehicles from staging in and driving over special status species plant populations. Currently, only the desert yellowhead population has been identified.
- Maintain the current locatable mineral withdrawal for desert yellowhead critical habitat. Additionally manage these areas with an NSO restriction and as ROW exclusion areas and close them to phosphate leasing and mineral material disposals.
- Apply specific measures to protect known special status plan populations from BLM-authorized activities and close desert yellowhead critical habitat to motorized and mechanized travel.

10.7.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as modified from the BLM statewide programmatic BA (BLM 2004b) and evaluated in the BLM statewide programmatic BO (USFWS 2005a) include the following:

- The BLM agrees to withdraw the designated 360 acre critical habitat area from mineral location and entry under the General Mining Law of 1872.
- The BLM will not increase current permitted (livestock) stocking levels.
- The BLM will not approve placement of mineral supplements or additional water sources for livestock, wild horses, or wildlife on public lands within 2 miles of the site.
- No supplemental feeding or straw placement can be done without proper authorization (43 CFR 4140 (a)(3)). Livestock will not be intentionally herded within 0.5 mile of the desert yellowhead site or in designated critical habitat.
- The BLM will work with all interested parties in the development and implementation of a monitoring plan for the desert yellowhead and its designated critical habitat. The plan will include regular patrol of the site for unlawful uses of the land, and the monitoring of invasive weed populations. This plan will also include, but is not limited to, the inventory and monitoring of all vehicle access to the area for the purpose of restricting access of vehicles that pose a threat to the desert yellowhead population.
- Prohibit biological control of weeds in desert yellowhead habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The BLM will monitor biological control vectors.
- Apply a COA on all APDs within the desert yellowhead site and designated critical habitat, prohibiting all surface-disturbing activities.
- Prohibit the disposal of salable minerals in designated desert yellowhead critical habitat.
- The BLM will not conduct wild horse management actions (e.g., temporary gathering/holding facilities) within designated critical habitat.

10.7.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BO (USFWS 2005a) are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect desert yellowhead. BMPs include the following:

- Analyze vegetation resource management actions when appropriate.
- Conduct inventories for desert yellowhead in areas with potential habitat in the Lander FO.
- Use a GIS-based model of potential habitat.
- Maintain a database of all searched potential desert yellowhead sites.
- Train enforcement personnel on protection of the desert yellowhead and its habitat, status, and current threats.
- Educate the resource specialists, the ranger, and the fire crew about the desert yellowhead site and its designated critical habitat to assist in project development for the general area.
- Do not feature the desert yellowhead site in public information or recreational brochures in any form that would draw attention to the site.

10.8 Ute Ladies'-tresses Conservation Measures

10.8.1 Proposed Protections in the Lander Proposed RMP and Final EIS

The Proposed RMP does not identify specific protection measures for the Ute ladies'-tresses.

10.8.2 Conservation Measures Committed to by the BLM

Conservation measures for this species as identified in the BLM statewide programmatic BA (BLM 2007) and the BO (USFWS 2007c) for the BLM's statewide programmatic BA include the following:

- Surface disturbance will be prohibited within 500 feet of surface water and/or riparian areas.
- NSO will be allowed within SMAs (e.g., known threatened or endangered species habitat).
- Portions of the authorized use area are known or suspected to be essential habitat for threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and USFWS 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).
- Within the potential of the ecological site (soil type, landform, climate, and geology), the BLM will ensure that the soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.
- The BLM will ensure that 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.
- The BLM will ensure that 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.

- The BLM will ensure that 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.
- The BLM will ensure that grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of federally 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.
- The BLM will maintain biological diversity of plant and animal species; support the 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.
- In any proposed new access, wetland and riparian areas will be avoided where possible.
- Grazing will be intensively managed within known habitat containing populations from July through September, to allow plants to bloom and go to seed.
- Recreational site development will not be authorized in known Ute ladies'-tresses habitat.
- The BLM 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 Ute ladies’-tresses do not occur.
- The BLM will add the following two conservation measures to grazing permit renewals in allotments with known Ute ladies'-tresses populations:
    - The BLM will ensure the placement of mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known Ute ladies'-tresses populations. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of known Ute ladies'-tresses populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Ute ladies'-tresses populations and potential overgrazing of the areas occupied by the species. Surveys for Ute ladies'-tresses will be conducted in potential Ute ladies'-tresses prior to livestock operations related construction projects.
    - The BLM will not increase permitted livestock stocking levels in any allotment with pastures containing known Ute ladies'-tresses populations without consulting with the Service.
- Biological control of noxious plant species will be prohibited within 1.0 mile from known Ute ladies’-tresses habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The BLM will monitor biological control vectors.
- Except in cases of extreme ecological health (insect or weed outbreaks, infestations), herbicide treatment of noxious plants/weeds will be well-regulated within 0.25 miles of known populations of the Ute ladies'-tresses and insecticide/pesticide treatments will be well regulated 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 the following will apply: where needed and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specifics to dicots will be preferred where these are adequate to control the noxious weeds present.
- Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of the Ute ladies'-tresses (outside of the 0.25-mile buffer). The BLM will work with the APHIS, the Service, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the orchid.
- 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 reduce the possibility that non-native species will be introduced and will compete with Ute ladies'-tresses orchid.
- The BLM will limit the use of off road vehicles (OHVs) to designated roads and trails within 0.5 mile of known Ute ladies'-tresses populations, with no exceptions for the "performance of necessary tasks" other than firefighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known Ute ladies'-tresses orchid populations. Roads that have the potential to impact Ute ladies'-tresses orchid are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the Bureau.
- The BLM will apply a COA on all APDs oil and gas wells for sites within 0.25 miles of any known populations of the Ute ladies'-tresses. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing populations of the Ute ladies'-tresses. Operations outside of the 0.25-mile buffer of Ute ladies'-tresses populations, such as "directional drilling" to reach oil or gas resources underneath the Ute ladies'-tresses habitat, would be acceptable.
- For known Ute ladies'-tresses populations, the BLM will place a 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 BLM will require the COA in conservation measure 19 above including the same 0.25-mile buffer area around those known Ute ladies'-tresses populations.
- 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 Ute ladies'-tresses orchids.
- To prevent loss of habitat for the Ute ladies’-tresses, 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 Ute ladies'-tresses, 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 Ute ladies’-tresses will not be exchanged or sold, unless it benefits the species.
- All proposed ROW projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known Ute ladies’-tresses habitat to minimize disturbances. If avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the Service.

- All proposed projects will be designed and locations selected to minimize disturbances to known Ute ladies'-tresses populations, and if the avoidance of adverse effects is not possible, the BLM will re-initiate consultation with the Service. Projects will not be authorized closer than 0.25 miles from any known Ute ladies'-tresses populations 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 Ute ladies'-tresses populations during the essential growing season time period (from July to September, the growing, flowering, and fruiting stages) to reduce impacts to the species.
- In order to conserve and protect natural areas, planned recreational foot trails are created to control human traffic. The BLM will create programs that will strive to protect the Ute-ladies'-tresses habitat and prevent new trails from being constructed within 0.25 miles from known occurrences of the orchid.

10.8.3 Best Management Practices

BMPs for this species as identified in the BLM statewide programmatic BA (BLM 2007), and the BO (USFWS 2007c) for the BLM's statewide programmatic BA. The BMPs are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect the Ute ladies'-tresses. BMPs include the following:

- When project proposals are received, the 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 meas**u**res, determined as appropriate by the USFWS.
- The BLM will participate in the development of 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.
- The BLM will coordinate with the USFWS, the NRCS, and private landowners to ensure adequate protection for the Ute ladies'-tresses and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.
- 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.
- Livestock grazing, mowing/haying, and some burning are specific management tools 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.
- Recreational foot trails that may be located adjacent to Ute ladies'-tresses plant habitat should be constructed to reduce impacts to this species.
- To prevent loss of habitat for the Ute ladies'-tresses, 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." 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 species,

and is deemed to be essential to their survival. Potential orchid habitat may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

- 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.
- 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 BLM should continue water use in a manner that maintains suitable habitat for the Ute ladies'-tresses orchid to benefit the species.
- Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.
- For the protection of the Ute ladies'-tresses and its potential habitat, surface-disturbing activities listed above should be avoided in the following areas when they occur outside the protective 0.25-mile buffer from populations of the Ute ladies'-tresses: (a) identified 100-year flood plains, (b) areas within 500 feet from perennial waters, springs, wells, and wetlands, and (c) areas within 100 feet of the inner gorge of ephemeral channels.
- Form a steering committee to develop and prioritize management practices and assist Bureau and Service with research projects.
- Conduct inventories for the orchid in areas with potential habitat.
- Maintain a database of all searched, inventoried, or monitored orchid sites. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in known or potential habitat for the orchid to determine impacts to the species.
- 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.
- 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.
- 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.
- Train law enforcement personnel on protections for the orchid and its habitat, its status, and current threats to its existence.
- 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.

- The Bureau should work towards developing reintroduction sites in coordination with the Service and to maintain the integrity of these sites for the survival of the orchid. The objective would be to reintroduce populations of the orchid into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.
- Develop propagation techniques and use them to reintroduce/introduce the orchid and to repopulate known populations in the event population recovery becomes necessary.

11.0 SUMMARY OF SPECIES STATUS IN THE FUTURE

Black-footed Ferret. The prairie dog, upon which the black-footed ferret depends for food and shelter, has fewer protective regulations than the ferret. The most recent reviews by the USFWS for the black-tailed prairie dog (69 FR 51217), white-tailed prairie dog (69 FR 64889), and Gunnison prairie dog (73 FR 6660) all concluded that inadequate regulatory mechanisms did not rise to the level of an important threat for any of these three species. Although it was concluded that this factor was not likely to cause any of these species to become threatened or endangered within the foreseeable future, most prairie dog populations may no longer be large or stable enough (due to plague and poisoning) to support ferrets. The prairie dog may be able to persist in smaller, more fragmented populations; however, these populations are often incapable of supporting ferrets. More protective regulations, particularly those related to poisoning and maintaining adequate prairie dog habitat, could improve opportunities for ferret recovery at what are now sites of marginal potential (USFWS 2008).

The USFWS suggests that the additive and synergistic effects (e.g., poisoning, plague, habitat destruction) have likely impacted the black-footed ferret and have rendered many areas unsuitable for future recovery; however, the USFWS is unable to adequately describe and quantify these effects (USFWS 2008).

It has been recommended by the USFWS that further evaluation and consideration be given to the merits of adding multi-generational wild born ferrets (animals exposed to natural selection processes) into the captive breeding program, as a separate captive population, to ensure the continued genetic fitness of the species and to maximize the number of animals available for reintroduction in future years (USFWS 2008).

There is a large amount of present and future minerals development throughout the State of Wyoming, and a large portion of the white-tailed prairie dog range is classified as valuable for oil, gas, and CBNG development. Although an individual well might not take up a large footprint, the combined surface area of thousands of wells adds substantially to the potential loss of prairie dog habitat and ferret reintroduction sites.

In the planning area, suitable habitat for the black-footed ferret may be affected by future minerals development. The Pathfinder prairie dog complex overlaps Lander and Rawlins Field Offices, and is the only significant complex with suitable habitat for the black-footed ferret in the planning area (BLM 2005a).

Canada Lynx. In 2003, the USFWS determined that climate change was not a threat to lynx within the contiguous United States DPS because the best available science available at that time was uncertain in nature (68 FR 40083). Since that time, new information on regional climate changes and potential effects to lynx habitat has been developed, and this new information suggests that climate change may be an issue of concern for the future conservation of lynx because lynx distribution and habitat is likely to shift upward in elevation within its currently occupied range as temperatures increase (50 CFR Part 17). This information, combined with the information in 2003, still needs to be evaluated further to determine how climate change might affect lynx and lynx habitat. The USFWS is evaluating the information in the 5-year review for lynx. In 2009 the USFWS found it appropriate to designate critical habitat for the lynx in areas occupied by the species that currently contain the physical and biological features essential to the conservation of the lynx (50 CFR Part 17). Revisions to the critical habitat designation may be necessary in the future to accommodate shifts in the occupied range of the lynx. The revised critical habitat units in this rule include higher-elevation habitats that lynx would be able to continue to use if lynx distribution or habitat shifted upward in elevation according to the USFWS (50 CFR Part 17).

The USFWS has acknowledged that climate change could change the suitability of lynx habitat in the future. However, the USFWS is required to designate critical habitat based upon the best available scientific and commercial data at the time it finalizes the designation. In 2009, reliable projections of future climate changes in lynx habitat in the contiguous United States were not available. However, for mountain-dwelling species like lynx, the USFWS concluded that higher elevation habitat is likely to become increasingly important in the face of climate changes (50 CFR Part 17). Designated critical habitat units include the highest-elevation habitat in the areas, and these areas may become more important to the extent lynx distribution and habitat shift upward in elevation as temperatures increase. High elevation habitat was included in the proposed designation, and the USFWS determined it appropriate to include these high elevation habitats in the final designation (FR 50 CFR Part 17).

In the planning area, habitat has been delineated within a single LAU. There are 10,893 acres of BLM LAU habitat, comprising 9 percent of the total BLM LAU acreage (BLM 2005b). In the future, the Canada lynx may be affected by any actions which fragment significant blocks of suitable lynx habitat.

Gray Wolf. According to the *Wyoming Wolf Recovery Report* (Jimenez et al. 2010), in 2009 more than 320 wolves in over 44 packs inhabited Wyoming including YNP. The wolf population increased statewide by approximately 6 percent, making 2009 the seventh consecutive year that the wolf population in Wyoming has exceeded the numerical, distributional, and temporal recovery goals established by the USFWS. The gray wolf population in Wyoming (outside YNP) increased by approximately 26 percent, consisting of more than 224 wolves in over 30 packs of which approximately 21 breeding pairs produced more than 89 pups that survived through December 31, 2009. Causes of mortality included harvest or control outside YNP, intraspecific pack strife, disease, and malnutrition. Agency control efforts removed 31 depredating wolves (approximately 12 percent of the Wyoming wolf population outside YNP) to reduce livestock losses due to wolves (Jimenez et al. 2010). Numerous ongoing research projects are investigating predator-prey interactions, wolf population dynamics, elk habitat selection, disease, genetics, interactions between wolves and other predators, and livestock depredations. This information will help manage wolf populations.

The States of Montana and Idaho have adopted State laws, management plans, and regulations that the USFWS has determined will conserve a recovered wolf population into the foreseeable future (Volume 74 FR 62 Page 15123-15188).

As habitats or sites for any future listed species are identified within a resource area, protection measures will be developed in consultation with the USFWS (BLM 2004a). In the future, management prescriptions for potential habitat will include consideration for future occupancy by threatened and endangered species. Key habitat characteristics will be identified to help ensure maintenance of high quality areas for natural reoccupation (BLM 2004a).

In the planning area in the future, construction of roads and pads and increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with wolves and increased intrusion by humans. Association with humans leads to higher wolf mortality due to easier access for illegal trapping, snaring, and shooting (Gray Wolf BA).

Greater Sage-grouse. Various regulatory mechanisms that guide the protection and conservation of the greater sage-grouse are in place. The members of an expert panel and the USFWS decision support team were provided with detailed information regarding regulatory mechanisms pertaining to the greater sage-grouse. Based on the best scientific and commercial data available the USFWS decided that because of greater sage-grouse population declines, the species deserves federal protection. However, greater sage-grouse will not be listed because other species are a higher priority.

In the planning area in the future, the greater sage-grouse may be affected by habitat loss, habitat fragmentation, habitat degradation, hunting, disturbance, life history (e.g., population cycles, genetic diversity), exurban development, energy development, invasive species, disease, mining, livestock grazing, and climate change (USFWS 2009c).

Grizzly Bear. Researchers are particularly concerned about impacts of future climate warming on two very important foods, seeds of whitebark pine and aggregated army cutworm moths. These two species occur at high elevations (greater than 8,200 feet and greater than 10,170 feet, respectively) and are therefore particularly susceptible to climate warming. Worst-case scenarios predict total elimination of these food sources in the GYA. Replacement sources of high quality foods are unknown.

Large area requirements, low reproductive potential, and sensitivity to human disturbance contribute to intrinsic vulnerability in this species. Throughout their range, documented human disturbances include helicopter and fixed-wing aircraft flying overhead, hydrocarbon exploration and development, hydroelectric development, timber extraction, recreational activities, and roads and highways. These disturbances may result in displacement and/or disruption of normal behavior patterns such as copulation, movement, denning, foraging, physiological arousal without overt behavioral response, and even direct loss of habitat via avoidance. However, many of these disturbances are not factors for the GYA population of grizzly bears, as they do not occur there.

In the planning area in the future, the increase in human activity associated with oil and gas and mineral development may adversely impact grizzly bear behavior by causing bears to avoid or abandon these areas. Construction of roads or pads, access by OHVs, and other facilities and actions associated with development of mineral resources may alter or destroy existing terrestrial habitats that may be suitable grizzly bear foraging habitats or linkages between suitable habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in human-bear interactions—which are the largest source of bear mortality—and vehicle collisions. Additional impacts on grizzly bears are increased access into habitat by humans, increased fragmentation, associated noise and human activity, and associated hazards such as chemical toxins (BLM 2006).

Blowout Penstemon. According to NatureServe (2009), land conservation for the blowout penstemon is an immediate priority and active management is probably necessary. Experiments should be designed and initiated and basic life history and propagation research is needed. In addition, both a cooperative management agreement and landowner contact efforts are needed.

According to NatureServe (2009), recovery potential for the blowout penstemon is high. Disturbed habitat (overgrazed or otherwise degraded) is actually preferred for colonization efforts. There are also indications that artificial propagation and transplanting can be used to reintroduce populations in suitable areas.

Deer, rabbit, and insect browsing is a concern, and blowout penstemon are visited by large numbers of insects. The effect of this browsing on viable seed production is not known and more research into this is needed (NatureServe 2009). Grazing management has been suggested as the easiest management technique. Management treatments are needed to reduce competition with grasses and make new sites available for colonization (NatureServe 2009). In the planning area in the future, the blowout penstemon may benefit from creating conditions favorable for colonization on new sites.

Desert Yellowhead. The desert yellowhead is currently known from a single population of plants widely scattered over an area of 50 acres. This population consists of one large subpopulation at the base of Cedar Rim and two smaller subpopulations. Originally, it was estimated that there were approximately 500 plants within 2.5 acres. However, this was a visual estimate (likely weighted toward flowering

plants) and is not considered a rigorous estimate of the population size at the time. Therefore, this estimate should not be considered a reliable data point when assessing population trends over time.

Complete population censuses were initiated and conducted from 1995 to the present. A permanent survey grid is now in place and has facilitated an annual census of all known individuals. The total population size has varied from 9,293 to 13,244 individuals during 1995 to 2003. The results for more recent years are being compiled and will provide a basis for characterizing minimum-maximum population numbers and trends. Despite extensive searches, no additional desert yellowhead populations have been located.

Designated critical habitat in the planning area protects the existing desert yellowhead population in Fremont County. However, the species may be affected by livestock grazing and wild horse management in the future.

Ute Ladies'-tresses. According to NatureServe (2009), the Ute ladies'-tresses are declining 10 to 30 percent. Population monitoring studies in Colorado and Utah have projected long-term declines if not extirpations in both riparian corridor and wet meadow settings and under current land use practices without conservation intervention (NatureServe 2009). In Idaho, long-term monitoring has detected local extirpation of subpopulations as habitat condition deteriorates through flooding or vegetative succession. New monitoring and demographic research have documented that populations are more stable than originally suspected, because most past monitoring studies had focused on counts of flowering plants, which are more likely to fluctuate than counts that include more cryptic vegetative, fruiting, and dormant plants (NatureServe 2009). Most of the multi-year monitoring studies based on flowering plants exhibit an oscillating trend, alternating between periods of increase and decrease around a relatively stable mean. This species also appears more tolerant of human-induced disturbances than originally supposed, based on the discovery of additional populations in extensively human-modified habitats (NatureServe 2009).

In the planning area in the future, the Ute ladies'-tresses habitat may be affected by development in or near wetlands, water diversions, channelization, and irrigation. All of these factors decrease the input of water into riparian systems or completely destroy habitat, thus eliminating potential habitat for this species. Invasive plants may also affect habitat (BLM 2007).

12.0 REFERENCES

Bailey, R.G. 1995. Description of the Ecoregions of the United States. 2d ed. Rev. and expanded (1st ed. 1980). Misc. Publ. No. 1391 (rev.), Washington, DC: USDA Forest Service. 108p. with separate map at 1:7,500,000.

Bartos, D.L. and R.B. Campbell. 1998. Decline of Quaking Aspen in the Interior West – Examples from Utah. Rangelands 20(1): 17-24.

Bighorn Sheep Technical Committee. 2006. A Comprehensive Bighorn Sheep Management Plan. Dubois, Wyoming.

BLM (Bureau of Land Management). 1984. 8400 - Visual Resource Management, BLM Manual. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 1998. Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming.

BLM. 2001. BLM Manual 6840, Special Status Species Management. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 2002. Final Report of Lander Field Office Review of Potential Wild and Scenic Rivers in the Lander RMP. Available online: http://www.blm.gov/pgdata/etc/medialib/blm/wy/programs/planning/rmps/lander.Par.18314.File.dat/WildScenicRiverRpt.pdf

BLM. 2004a. Final Statewide Programmatic Gray Wolf Biological Assessment. Department of the Interior, Bureau of Land Management, Wyoming State Office. Cheyenne, Wyoming. September 8, 2004.

BLM. 2004b. Statewide Programmatic Biological Assessment: Desert Yellowhead (*Yermo xanthocephalus*). U.S. Bureau of Land Management Wyoming State Office. June 2004.

BLM. 2004c. BLM National Sage-grouse Habitat Conservation Strategy Guidance for the Management of Sagebrush Plant Communities for Sage-grouse. November 2004.

BLM. 2005a. Final Statewide Programmatic Biological Assessment: Black-footed Ferret (*Mustela nigripes*). Submitted to U.S. Department of the Interior, Bureau of Land Management. Wyoming State Office. Cheyenne, Wyoming. August 25, 2005.

BLM. 2005b. Final Statewide Programmatic Canada Lynx (*Lynx canadensis*) Biological Assessment. U.S. Department of the Interior, Bureau of Land Management, Wyoming State Office. July 20, 2005.

BLM. 2005c. Statewide Programmatic Biological Assessment: Blowout Penstemon (*Penstemon haydenii*). U.S. Bureau of Land Management Wyoming State Office. August 2005.

BLM. 2005d. Record of Decision: Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments. U.S. Department of the Interior, Bureau of Land Management. December.

BLM. 2006. Final Statewide Programmatic Grizzly Bear (*Ursus arctos*) Biological Assessment. U.S. Department of the Interior, Bureau of Land Management, Wyoming State Office. September 30, 2005 (Updated June 29, 2006).

BLM. 2007. Final Report Statewide Programmatic Biological Assessment Ute Ladies-Tresses Orchid (*Spiranthes diluvialis*). U.S. Bureau of Land Management Wyoming State Office. October 2005 (With Final Edits – 7 March 2007).

BLM. 2008a. MS-8380 Cave and Karst Management. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C.

BLM. 2008b. Approved Resource Management Plan Amendments/Record of Decision for Oil Shale and Tar Sands Resources to Address Land Use Allocations in Colorado, Utah, and Wyoming and Final Programmatic Environmental Impact Statement, November 2008. Available online: http://ostseis.anl.gov/documents/docs/OSTS_ROD.pdf.

BLM. 2009a. Final Mineral Occurrence and Development Potential Report. Lander Field Office Planning Area. April 2009.

BLM. 2009b. Reasonable Foreseeable Development Scenario for Geothermal Development, Lander Field Office Planning Area. U.S. Department of the Interior, Bureau of Land Management. Wyoming State Office and Resource Management Group. March 25, 2009.

BLM. 2009c. Reasonable Foreseeable Development Scenario for Oil and Gas, Lander Field Office, Wyoming. Wyoming State Office and Resource Management Group. February 9, 2009.

BLM. 2009d. Geographic Information System (GIS) Data. U.S. Department of the Interior, Bureau of Land Management. Lander Field Office, Wyoming.

BLM. 2009e. Summary of the Analysis of the Management Situation for the Lander Resource Management Plan Revision.

BLM. 2009f. Confidentiality of Paleontological Locality Information under the Omnibus Public Lands Act of 2009 (123 Stat. 991), Title VI, Subtitle D, Paleontological Resources Preservation (OPLA-PRP). June 5, 2009. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-138.html. Accessed July 20, 2009.

BLM. 2009g. Casual Collecting of Common Invertebrate and Plant Paleontological Resources Under the Paleontological Resources Preservation Act of 2009. April 24, 2009. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-113.html. Accessed July 20, 2009.

BLM. 2009h. Recreation Planning. U.S. Department of the Interior, Bureau of Land Management. Washington, D.C. Available online: http://www.blm.gov/wo/st/en/prog/Recreation/national_recreation/recreation_planning.print.html. Accessed August 2009.

BLM. 2009i. Abandoned Mine Site Inventory. Available online: http://www.blm.gov/wo/st/en/prog/more/Abandoned_Mine_Lands/abandoned_mine_site.html. Accessed August 24, 2009.

BLM. 2009j. Abandoned Mine Lands Projects. Available online: http://www.blm.gov/wy/st/en/programs/aml/projects.html. Accessed August 24, 2009.

BLM. 2010. Instruction Memorandum No. 2010-149. Sage-grouse Conservation Related to Wildland Fire and Fuels Management. U.S. Department of the Interior, Bureau of Land Management. Available online: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-149.html.

BLM. 2011. Biological Assessment for Bureau of Land Management Livestock Grazing Lease Issuance in the Dubois, Wyoming Area. U.S. Department of the Interior, Bureau of Land Management.

BLM and DOE (Department of Energy). 2003. Assessing the Potential for Renewable Energy on Public Lands. February. U.S. Department of the Interior, Bureau of Land Management. U.S. Department of Energy, Energy Efficiency and Renewable Energy.

BLM and USFWS (U.S. Fish and Wildlife Service). 2005. Conservation Agreement, Assessment and Strategy for the Desert Yellowhead (*Yermo xanthocephalus*). BLM and USFWS.

Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

DeBruin, R.H., R.M. Lyman, R.W. Jones, and L.W. Cook. 2001. Coal-bed Methane in Wyoming: Wyoming Geological Survey Information Pamphlet No. 7 (second revision), 21 pp.

Griffin, P.C. and L.S. Mills. 2007. Precommercial Thinning Reduces Snowshoe Hare Abundance in the Short Term.

Griffin, P.C. and L.S. Mills. 2009. Sinks without Borders: Snowshoe Hare Dynamics in a Complex Landscape.

Griffith, G.E. and J.M. Omernik. 2009. Encyclopedia of Earth – Ecoregions of Wyoming. Available online: http://www.eoearth.org/article/Ecoregions_of_Wyoming_(EPA).

Heidel, B. 2008. *Penstemon haydenii* Blowout Penstemon. State Species Abstract. Wyoming Natural Diversity Database. Available online: http://www.uwyo.edu/wynddsupport/docs/Reports/SpeciesAbstracts/Penstemon_haydenii.pdf. Accessed November 2010.

ICST (Interagency Conservation Strategy Team). 2007. Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area.

IGBC (Interagency Grizzly Bear Committee). 1986. Interagency Grizzly Bear Guidelines.

Jimenez, M.D., D.W. Smith, D.R. Stahler, E. Albers, and R.F. Krischke. 2010. Wyoming Wolf Recovery 2009 Annual Report. Pages WY-1 to WY-28 in U.S. Fish and Wildlife Service Rocky Mountain Wolf Recovery 2009 Annual Report. USFWS, Ecological Services, Helena, Montana.

NatureServe. 2009. NatureServe Explorer: An Online Encyclopedia of Life [web application]. Version 7.1. (2 February 2009) Data Last Updated October 2009. NatureServe, Arlington, Virginia. Available online: http://www.natureserve.org/explorer. Accessed October-November, 2010.

NatureServe. 2010. NatureServe Explorer: An Online Encyclopedia of Life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available online: http://www.natureserve.org/explorer.

Seglund, A.E., A.E. Ernst, M. Grenier, B. Luce, A. Puchniak, and P. Schnurr. 2006. White-tailed Prairie Dog Conservation Assessment. Western Association of Fish and Wildlife Agencies. Laramie, Wyoming. Unpublished Report. 137pp.

USBR and USFWS (U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service). 2006. Platte River Recovery Implementation Program Final Environmental Impact Statement. Bureau of Reclamation. April 2006.

USFWS (U.S. Fish and Wildlife Service). 1985. Interior population of the least tern determined to be endangered. Federal Register 50:21784-21792.

USFWS. 1987. Endangered and threatened animals and plants; final rule to determine *Penstemon haydenii* (blowout penstemon) to be an endangered species. (U.S. Fish and Wildlife Service. Federal Register 52:32926-32929.

USFWS. 1988. Black-footed Ferret Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 154 pp.

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

USFWS. 1990. Recovery Plan for the Interior Population of the Least Tern (*Sterna antillarum*). U.S. Fish and Wildlife Service, Twin Cities, Minnesota. 90pp.

USFWS. 1993a. Grizzly Bear Recovery Plan. U.S. Fish and Wildlife Service. Natural Science 312, University of Montana, Missoula, Montana.

USFWS. 1993b. Recovery Plan for the Pallid Sturgeon (*Scaphirhynchus albus*). U.S. Fish and Wildlife Service, Region 6. Denver, Colorado.

USFWS. 1998. Endangered Species Consultation Handbook. Procedures for Conducting Section 7 Consultations and Conferences. U.S. Fish and Wildlife Service, National Marine Fisheries Service. March.

USFWS. 2002a. Revised Intra-Service 7 Consultation for Federal Agency Actions Resulting in Minor Water Depletions to the Platte River System. U.S. Fish and Wildlife Service. March 2002.

USFWS. 2002b. Designation of critical habitat for the Northern Great Plains breeding population of the piping plover; final rule. Federal Register 67(146):57638-57717.

USFWS. 2004. Block Clearance Letter (ES-61411/BFF/WY7746) Indicating that Black-Footed Ferret Surveys Are No Longer Required In All Black-tailed Prairie Dog Colonies Statewide or In White-tailed Prairie Dog Towns Except Those Noted In an Attachment. February 2, 2004. From the office of Brian T. Kelly, Field Supervisor, Wyoming Field Office.

USFWS. 2005a. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Desert Yellowhead (*Yermo xanthocephalus*). June 7, 2005. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2005b. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Canada lynx (*Lynx canadensis*). August 9, 2005. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2005c. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Gray wolf (*Canis lupus*). March 21, 2005. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2006a. USFWS Five Year Review for the Western Prairie Fringed Orchid. 3/21/2006.

USFWS. 2006b. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Black-footed ferret (*Mustela nigripes*). January 10, 2006. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2006c. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Grizzly Bear (*Ursus arctos horribilis*). September 1, 2006. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2007a. Current List of Threatened, Endangered, Proposed, and Candidate Species That May Occur In the Lander Planning Area. Ecological Service Office, Cheyenne, Wyoming. September 6.

USFWS. 2007b. USFWS Five Year Review for the Pallid Sturgeon. 6/13/2007.

USFWS. 2007c. U.S. Fish and Wildlife Service Biological Opinion for the BLM's Final Statewide Programmatic Biological Assessment: Ute ladies'-tresses (*Spiranthes diluvialis*). April 5, 2007. From the USFWS Cheyenne, WY, Ecological Field Office.

USFWS. 2008. Black-footed Ferret (*Mustela nigripes*) 5-Year Status Review: Summary and Evaluation. U.S. Fish and Wildlife Service.

USFWS. 2009a. U.S. Fish and Wildlife Service Spotlight Species Action Plan for the Black-footed Ferret. U.S. Fish and Wildlife Service.

USFWS. 2009b. Environmental Assessment – Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of Canada Lynx. U.S. Fish and Wildlife Service Region 6. February.

USFWS. 2009c. U.S. Fish and Wildlife Service Spotlight Species Action Plan for Greater Sage-grouse (*Centrocercus urophasianus*). Mountain-Prairie Region (Region 6), Denver, Colorado; Wyoming Ecological Services Field Office.

USFWS. 2009d. U.S. Fish and Wildlife Service Spotlight Species Action Plan for the Whooping Crane. U.S. Fish and Wildlife Service.

USFWS. 2009e. USFWS Spotlight Species Action for the Piping Plover (*Charadrius melodus*). Endangered Species Program, Northeast Region. December 4, 2009.

USFWS. 2010a. Fact Sheet Regarding the Status Review Finding: Endangered Species Act Listing Decision for the Greater Sage Grouse. U.S. Fish and Wildlife Service. March 5, 2010.

USFWS. 2010b. Species Profile for the Greater Sage Grouse. U.S. Fish and Wildlife Service. Available online: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W. Accessed October-November, 2010.

USFWS. 2010c. U.S. Fish and Wildlife Service - Species Profile for the Desert Yellowhead. Available online: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q3GI. Accessed October-November, 2010.

USFWS. 2012. Endangered and Threatened Wildlife and Plants; Removal of the Gray Wolf in Wyoming from the Federal List of Endangered and Threatened Wildlife and Removal of the Wyoming Wolf Population's Status as an Experimental Population; Final Rule. Federal Register, Volume 77, No. 175, pages 55530-55604. September 10.

VerPloeg, A.J. 1986. Reconnaissance Examination of Selected Oil Sand and Oil Spring Occurrences In Wyoming: Wyoming State Geological Survey Open File Report 86-14, 47p. Also published by DOE as DOE/LC/10916-1984.

WGFD (Wyoming Game and Fish Department). 2005. Wyoming Grizzly Bear Management Plan. February 2002, amended July 2005. Available online: http://gf.state.wy.us/downloads/pdf/GBearManagementPlanAmendedJuly2005.pdf.

WRSW LWG. 2007. Wind River/Sweetwater River Local Sage-Grouse Conservation Plan. August 3.

WYNDD (Wyoming Natural Diversity Database). 2010a. Mammal Species of Concern. Available online: http://uwadmnweb.uwyo.edu/wyndd/info.asp?p=3913. Accessed October-November, 2010.

WYNDD. 2010b. Desert Yellowhead Recovery Outline: Wyoming Natural Diversity Database, Recovery Outline for Desert Yellowhead (*Yermo xanthocephalus*).

Wyoming Association of Conservation Districts. 2010. Information Bulletin: Greater Sage-Grouse as a Candidate Species in Wyoming. March 5, 2010. Available online: http://www.conservewy.com/temp/sagegrouse_310.pdf.