U.S. Department of the Interior

Bureau of Land Management
Casper Field Office, Wyoming

October 2006

Casper Field Office Planning Area

Draft Biological Assessment for the Casper Field Office Resource Management Plan Revision

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for the
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Bureau of Land Management
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ACRONYMS AND ABBREVIATIONS

°C	degrees Celcius
°F	degrees Fahrenheit
AAQS	ambient air quality standards
ACEC	Area of Critical Environmental Concern
AML	Abandoned Mine Land
AMP	Allotment Management Plan
ANS	Artificial Nesting Structure
APD	application for permit to drill
APHIS	Animal and Plant Health Inspection Service
ATV	all-terrain vehicle
AUM	Animal Unit Month
BA	Biological Assessment
BI	Beneficial Impact
BLM	Bureau of Land Management
BMP	Best Management Practice
C&MU	Classification and Multiple Use
CBNG	Coalbed natural gas
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CRM	Coordinated Resource Management
CRMP	Cultural Resource Management Plan
CSMG	Casper Solid Minerals Group
CSU	Controlled Surface Use
DDT	dichlorodiphenyltrichloroethane
DEQ	Department of Environmental Quality
EEA	Environmental Education Area
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FLPMA	Federal Land Policy Management Act
FUDS	Formerly Used Defense Sites
HMP	Habitat Management Plan
HMRRP	Hazard Management and Resource Restoration Program
INPS	Invasive nonnative plant species
LAA	Likely to Adversely Affect
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mph	miles per hour
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NE	No Effect
NEPA	National Environmental Policy Act
NHT	National Historic Trail
NI	No Impact
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
O_3	ozone
OHV	off-highway vehicle
PFC	Proper Functioning Condition
PM_{10}	particulate matters less than 10 microns in diameter
PMJM	Preble's meadow jumping mouse
PNC	potential natural community
PSD	Prevention of Significant Deterioration
R&PP	recreation and public purposes
RAMS	Risk Assessment and Mitigation Strategy
RMP	Resource Management Plan
ROW	rights-of-way
SEI	Sustainable Ecosystems Institute
SMA	Special Management Area
SO_2	sulfur dioxide
SRMA	Special Recreation Management Area
TCP	traditional cultural property
TLS	Timing Limitation Stipulation
USACE	United States Army Corps of Engineers
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
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WGFD	Wyoming Game and Fish Department
WOGCC	Wyoming Oil and Gas Conservation Commission
WSFD	Wyoming State Forestry Division
WYNDD	Wyoming Natural Diversity Database

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 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 (USFWS 2004a). 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 impacts to listed species and designated critical habitats.

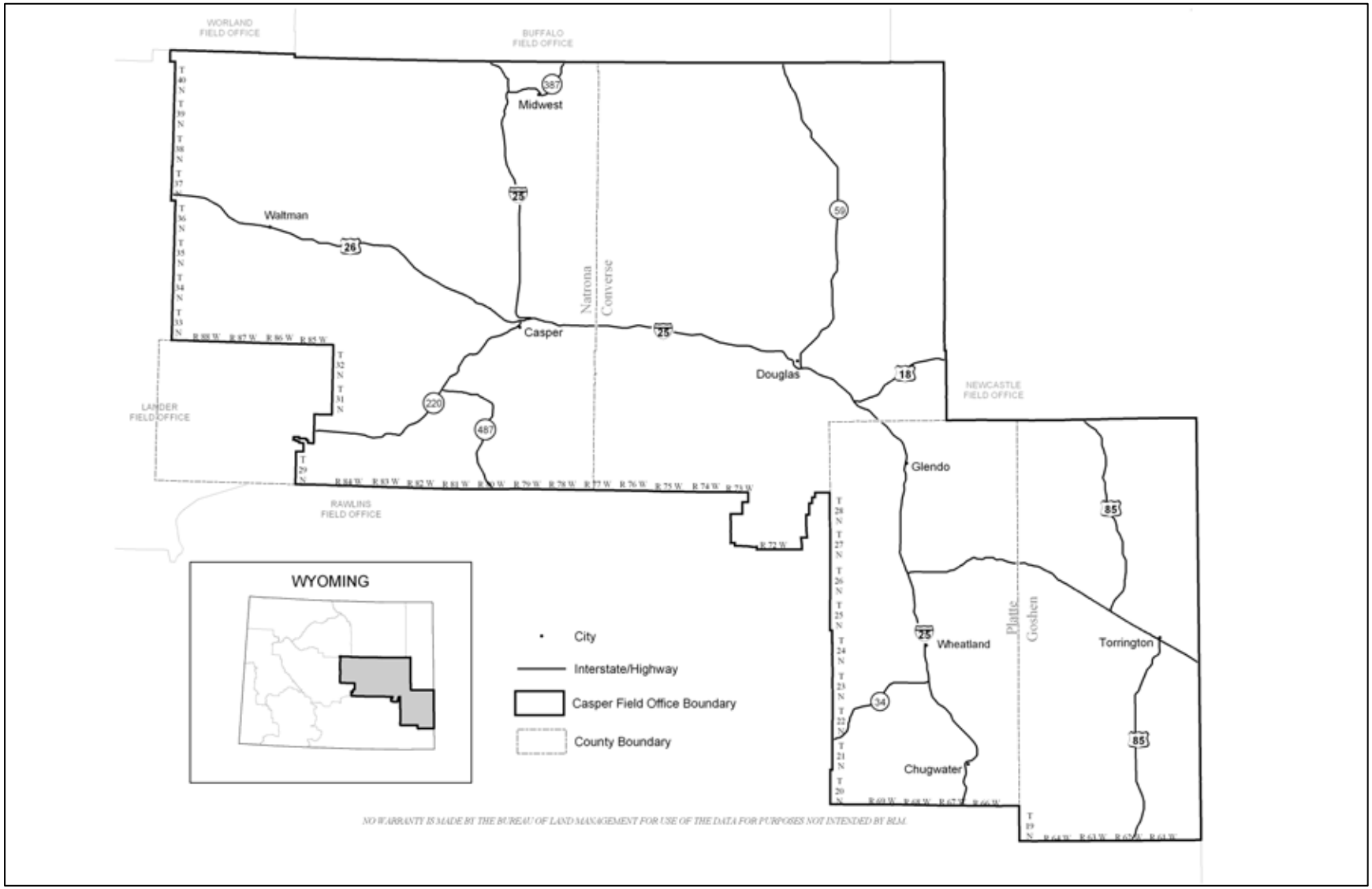
The BLM Casper Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) analyze the proposed action to revise the existing Platte River land use plan (i.e., RMP) for the Casper, Wyoming, planning area. The process for the development, approval, maintenance, and amendment or revision of an RMP and associated EIS is initiated under the authority of Section 202(f) of the Federal Land Policy and Management Act (FLPMA) of 1976 and Section 202(c) of the National Environmental Policy Act (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 Draft EIS analyzes the impacts of five alternative RMPs for the planning area, including the No Action Alternative, the agency Preferred Alternative, and three other action alternatives. Only the effects of the Preferred Alternative on species listed and proposed for listing are analyzed in the BA.

The Casper 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 vicinity of Casper, Wyoming, including portions of Natrona, Converse, Platte, and Goshen counties (Figure 1). The Casper RMP will provide future direction for managing approximately 1.4 million acres of public surface lands and 4.7 million acres of BLM-administered minerals managed by the BLM in the planning area.

The objectives of the Casper RMP are to provide specific management direction to prevent or address potential conflicts among energy resources development, recreational activities, livestock 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—Analysis of Management Actions and Effects—in this document briefly describes the actions for each major functional activity (i.e., air quality, cultural resources, livestock grazing, etc.), their interrelated and interdependent actions, and their general occurrence in the planning area.

Figure 1. Casper Field Office Planning Area



1.1 Preferred Alternative

The Preferred Alternative increases conservation of physical, biological, and heritage resources compared to current management, including restrictions against habitat fragmentation and designation of five newly established Special Management Areas (SMAs). The proposed action also emphasizes moderate constraints on leasing for oil and gas and other solid leasable minerals.

1.1.1 Physical, Biological, and Heritage Resources

Approximately 2,266 acres are identified as unacceptable for further consideration for coal leasing, and 59,694 acres are identified as acceptable for further consideration for coal leasing under the Preferred Alternative. The remaining 4,595,212 acres are unevaluated for coal leasing. Areas open to leasing for oil and gas and other solid leasable minerals with major, moderate, and standard stipulations are 843,139 acres, 2,506,530 acres, and 1,080,935 acres, respectively, under the Preferred Alternative. Approximately 226,568 acres are closed to leasing for oil and gas and other solid leasable minerals under the Preferred Alternative.

The Preferred Alternative does not allow occupancy or other surface disturbance on slopes greater than 25 percent without written authorization of the authorized officer and minimizes disturbance to highly erosive soils (256,240 acres of BLM-administered surface) by modifying proposed activities to avoid areas of highly erosive soils. The Preferred Alternative limits the season of use and intensity of prescribed fire on highly erosive soils. The use of pitless technology for oil and gas drilling operations is required when there is potential for adverse impacts to surface water, groundwater, or soils.

Habitat fragmentation restrictions for the Preferred Alternative occur for five intact large blocks of land and all allowed surface-disturbing activities within the blocks are subject to a controlled surface use (CSU) stipulation, minimizing surface disturbance to meet management objectives.

The Preferred Alternative manages mountain shrub (46,779 acres), sagebrush (630,183 acres), lotic (350 miles), and lentic (10,000 acres) communities toward desired plant community (DPC). The Preferred Alternative also constructs 100 acres of water sources for fish and waterfowl and improves 75 miles of floodplain connectivity within the planning area. The Preferred Alternative does not identify specific acreage to manage for potential black-footed ferret reintroduction or to eradicate salt cedar; however, under the Preferred Alternative, salt cedar is to be inventoried and a plan developed for eradicating this INPS over the life of the plan. The Preferred Alternative also designates the planning area into VRM Classes II, III, and IV. The acreages are as follows: Class II – 367,151 acres of BLM-administered surface and 816,310 acres of BLM-administered mineral estate, Class III – 433,799 acres of BLM-administered surface and 1,211,145 acres of BLM-administered mineral estate, and Class IV – 560,627 acres of BLM-administered surface and 2,629,717 acres of BLM-administered mineral estate.

1.1.2 Resource Uses and Support

The 78,935 acres of forests on BLM-administered surface land are to be inventoried and classified as commercial forestland or noncommercial woodland. Under the Preferred Alternative, forests are managed to achieve a sustainable flow of wood products with forestlands as the primary resource, while also managing for multiple uses (i.e., watershed health and stability, wildlife, recreation, livestock grazing, etc.). Approximately 2,822 acres of aspen are managed for DPC under the Preferred Alternative.

Livestock grazing is allowed on the large majority of the planning area. For stock driveways (SDWs), the Preferred Alternative requires review and recommendation for revocation of withdrawals for trails that are no longer active and incorporates these lands into adjacent allotments.

Under the Preferred Alternative, BLM maintains the four special recreation management areas (SRMAs) described in the existing plan and adds two SRMAs, the Poison Spider OHV Park and National Historic Trails. The remainder of the planning area is managed as an extensive recreation management area (ERMA). For BLM-administered surface land in the planning area, approximately 2,224 acres are closed to OHV use and 1,162,244 are limited to existing roads and trails for OHV use. The existing Poison Spider OHV Park (open to OHV use) is enlarged to 285 acres under the Preferred Alternative.

Under the Preferred Alternative, lands and realty program actions within the planning area include 224,834 acres for standard disposal, 5,453 acres for restricted disposal, and 1,131,290 acres for retention. Rights-of-way (ROW) exclusion and avoidance areas encompass 981,839 acres of BLM-administered surface. Designated ROW corridors encompass 115,885 acres of BLM-administered surface.

Under the Preferred Alternative, renewable wind-energy development is allowed in areas identified as having outstanding/superb (power classes 6 and 7) or fair/good/excellent (power classes 3, 4, and 5) potential. Wind-energy development is restricted in habitat fragmentation areas. The area of BLM-administered surface open to renewable wind-energy development subject to avoidance limitations is 458,006 acres. The area of BLM-administered surface open to renewable wind-energy development without use limitation is 324,013 acres.

1.1.3 Special Designations

The existing Jackson Canyon ACEC is retained and the Alcova Fossil Area ACEC is designated under the Preferred Alternative. The existing Salt Creek Hazardous ACEC is not retained under the Preferred Alternative. Five special management areas (SMAs) are established under the Preferred Alternative: (1) Bates Hole for greater sage-grouse and watershed values, (2) Salt Creek for oil and gas, (3) Sand Hills for sensitive soils, (4) South Bighorns/Red Wall for recreation and wildlife, and (5) Wind River Basin for oil and gas. The National Back Country Byways and National Historic Trails designations continue under the Preferred Alternative.

2.0 CONSULTATION AND BIOLOGICAL ASSESSMENT OBJECTIVES

Under provisions of the federal ESA of 1973, as amended (16 United States Code [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 Preferred Alternative 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 Draft BA provides documentation for the Preferred Alternative of the Casper 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 Casper RMP. The BLM will consult with the USFWS for activities authorized by the Casper 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 follow:

- 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., 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.

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3.0 OVERVIEW OF THE PLANNING AREA

The planning area comprises 1,361,577 acres of BLM-administered surface land and 4,657,172 acres of federal mineral estate in Converse, Goshen, Natrona, and Platte counties in eastern-central Wyoming. Except for Natrona County, most BLM-administered surface land in the planning area comprises scattered tracts intermingled with state and private lands.

The planning area encompasses the intersection of two physiographic regions—the Interior Plains to the east and the Rocky Mountain System to the west. The planning area generally is characterized as rangeland with low annual rainfall (less than 20 inches) and marginal farmlands. Most of the western portion of the planning area is included in the broad intermountain basins. This western part is classified as shrub-steppe dominated by sagebrush and interspersed with shortgrass prairie. As elevation increases, dominant vegetation transitions from sagebrush and grassland to mountain shrublands and, ultimately, to coniferous forests. Elevations in the planning area range from less than 4,000 feet above mean sea level (msl) in the North Platte River Basin to approximately 9,000 feet above msl in the Laramie Mountains.

Within the planning area, precipitation ranges from more than 30 inches annually in the mountains to as low as 10 inches in the rangelands. The driest location is southwestern Natrona County, where precipitation can fall below 10 inches. Summer temperatures average 67 degrees Fahrenheit (ºF); winter temperatures average 25 ºF.

3.1 Natrona County

Although most of Natrona County is rangeland, about 30,000 acres are wooded, approximately 35,000 acres are used for hay and pastureland, and fewer than 5,000 acres are planted with grain (USDA, SCS 1997). Reservoirs, mostly fed by the Platte River, include Pathfinder, Alcova, and Grey Reef. The landscape is crisscrossed with few paved and many unpaved and unimproved trails and roads. The North Platte River floodplain is a developed area. Sand and gravel deposits are prevalent near Casper (USDA, SCS 1997).

Natrona County includes portions of the Wyoming Basin, the Great Plains, and Middle Rocky Mountain Provinces. The Wyoming Basin includes the Granite Mountains and the Rattlesnake Hills. The Granite Mountain range is 90-miles long and 30-miles wide. It rises 6,000 to 7,000 feet above msl. These are rugged mountains with exposed bedrock as the prevailing landscape feature (USDA, SCS 1997). The Rattlesnake Hills, located northwest of the Granite Mountains, make up 150 square miles of the county. The range rises 7,200 to 8,200 feet above msl, with Garfield Peak rising to 8,244 feet above msl. The topography from the southeast to northwest is typical of the Wyoming Basin with rolling hills, badlands, and gullies (USDA, SCS 1983).

Northeastern Natrona County is in the Missouri Plateau of the Great Plains. This area comprises broad valleys, badlands, gullies, hills, and escarpments in the eastern portion of the county. Sand dunes cover 125-square miles north of the Platte River and east of Casper. A strip of dunes is also located in the central part of the county, east of the town of Powder River. This area is 2-miles wide by 25-miles long (USDA, SCS 1983).

The Middle Rocky Mountain Province in northwestern Natrona County is characterized by the southern tip of the Big Horn Mountains (USDA, SCS 1983). The Southern Rocky Mountain Province is present in the southeastern corner of Natrona County, south of the North Platte River. The north end of the Laramie Range is included in this area. This terrain features 6,000 to 8,000 foot mountains, steep slopes that rise from drainages, and narrow valleys. The Casper Arch makes up much of northern and central Natrona County. It is a low divide that trends to the northwest and connects the Big Horn Mountains to the

Laramie Range (USDA, SCS 1997). The Casper Arch separates the Powder River Basin to the east from the Wind River Basin to the west.

Natrona County comprises approximately 3,016,762 surface acres, of which the BLM administers approximately 1,124,485 acres of public lands. The BLM administers the mineral estate on approximately 2,362,582 acres in Natrona County. The Lander Field Office administers a portion of the southwest corner of Natrona County.

3.2 Converse County

Most of northern Converse County is rangeland suitable for year-round cattle and sheep grazing. Although water is scarce, small reservoirs and intermittent streams provide water. Fewer than 2,000 acres of grain and alfalfa hay are grown in this section of the county (USDA, SCS 1983). Northern Converse County includes the southern part of the northern High Plains and the southern terminus of the Powder River Basin. The Casper Arch and the Big Horn Mountains are located to the west, and the Black Hills to the northeast. This section of the county is characterized by expansive tablelands, broad low valleys, and centrally located shallow basins (USDA, SCS 1983). Drainages include the Dry Fork of the Cheyenne River and Wind River, Pronghorn, Sand, Bear, Dry, Box, Lightning, Walker, and Forty-mile creeks. North Platte River tributaries in the northwestern corner of the county include Cole, Sand, and Sage creeks (USDA, SCS 1983).

The northeastern uplands are characterized by ridged buttes, such as the Rochelle Hills, Red Hills, Cow Creek Buttes, Blizzard Heights, and the Cheyenne River Divide. Other upland divides include Dilts Flat, Ross Flat, and Highland Flat. The upland elevations range from 4,272 to 6,315 feet above msl (USDA, SCS 1983). To the west, the most prominent landform is the Pine Ridge Escarpment.

Converse County comprises approximately 2,727,850 surface acres, of which the BLM administers approximately 129,947 acres of public lands. The BLM administers the mineral estate on approximately 1,619,626 acres in the county.

3.3 Platte County

Farming and ranching dominate land use in Platte County. Primary crops include wheat, oats, corn, and barley. Varying mountain peaks, rolling hills, and expansive flats characterize Platte County. Major peaks within the county include Johnson Mountain, located in the west-central area of the county; Squaw Mountain, in the southwestern part of the county; and the Richeau Hills, in the south-southwestern part of the county. Flats associated with the county include the Bettelyoun Flats, located in the east-central portion of the county; Lewis Flat southeast of Johnson Mountain; Chugwater Flats, located in the southwestern part of the county; and Slater Flats, north of Chugwater Flats.

Major water sources for the county include the North Platte River, which runs southeast to northwest through the county and feeds the Guernsey and Glendo reservoirs, and the Laramie River, which runs east to west through the central portion of the county. Creeks include Sybille Creek, which runs north to south from the southwest corner of the county to feed Reservoir No. 1; Chugwater Creek, which runs north to south from the south-central area of the county; Cottonwood Creek, which runs west to east in the northwestern corner of the county; and Horseshoe Creek, which runs west to east in the northwest corner of the county.

Platte County comprises approximately 1,349,343 surface acres, of which the BLM administers approximately 81,965 acres of public land. The BLM administers the mineral estate on approximately 422,602 acres in Platte County.

3.4 Goshen County

Farming and ranching also dominate land use in Goshen County. Few acres are irrigated for crop yields. Canals include the North Platte, Torrington, Lucerne, Interstate, and Fort Laramie canals. Water also flows from the Pathfinder, Seminoe, Guernsey, and Glendo reservoirs. Crops raised on irrigated lands include sugar beets, corn, alfalfa, potatoes, hay, and grain (USDA, SCS 1971). More than 200,000 cattle are raised and marketed in Goshen County, making it the leading beef producer in the State of Wyoming.

The southern part of Goshen County is in the West Plains Province and comprises the west Nebraska and east Wyoming uplands and the Goshen Hole lowlands. The uplands and lowlands are separated by a 400- to 700-foot ridge (USDA, SCS 1971). The uplands feature rolling to steep-sided hills divided by narrow valleys. Runoff from these uplands drains into the North Platte River, the Laramie River, Six-Mile Creek, Deer Creek, and Cherry Creek. The North Platte River flows east to southeast through the North Platte River Valley, with its wide stream bottoms that range from hundreds of feet to 12-miles wide. Slopes and terraces are aligned on either side of the stream bottoms, becoming increasingly apparent as one travels north through the valley (USDA, SCS 1971).

The southwestern uplands are bisected by Bear Creek Valley (USDA, SCS 1971). The eastern end of the county is elevated and rugged, but elevations drop and the landscape flattens as the Goshen Hole lowlands are approached. North of Bear Creek is an area of expansive and rolling tableland that includes Bear Mountain. Steep escarpments lie to the north and northeast. Valleys, tableland, and hilly landscapes lie to the south of Bear Creek. The southeastern corner of the county includes steep hills and Sixty-six Mountain (USDA, SCS 1971). Goshen Hole is located south of the North Platte River. The landscape is a rolling plain with slopes descending from the surrounding rim. Buttes and upland remnants remain inside the depression.

Goshen County comprises approximately 1,427,392 surface acres, of which the BLM administers approximately 25,180 acres of public land. The BLM administers the mineral estate on approximately 252,362 acres in Goshen County.

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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 current list of threatened, endangered, proposed, and candidate species that may occur in the planning area. The USFWS letter dated March 22, 2004, contained the six species listed in Table 1 (USFWS 2004a). Because the BA was not completed within 180 days of receipt of the species list, the BLM contacted the USFWS to verify the completeness of the existing list and to request an updated list. No species proposed for listing or candidates for listing were identified by the USFWS as potentially occurring within the planning area.

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

Common Name	Scientific Name	Status[1]	Expected Occurrence
Bald eagle	*Haliaeetus leucocephalus*	Threatened	Found throughout state
Black-footed ferret	*Mustela nigripes*	Endangered	Prairie dog towns
Black-footed ferret	*Mustela nigripes*	Non-essential, Experimental Population	Shirley Basin Experimental Reintroduction Area [10(J) area] south and east of the North Platte River and West of the Laramie Range
Blowout penstemon	*Penstemon haydenii*	Endangered	Sand dunes
Colorado butterfly plant	*Gaura neomexicana coloradensis*	Threatened	Wet meadows in floodplains; designated Critical Habitat
Colorado butterfly plant Critical Habitat	*Gaura neomexicana coloradensis*	Designated	Designated Critical Habitat Unit 1, Teepee Ring Creek, Platte County (no public surface)
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Threatened	Riparian areas east of Laramie Mountains and south of North Platte River; designated Critical Habitat
Preble's meadow jumping mouse Critical Habitat	*Zapus hudsonius preblei*	Designated	Designated Critical Habitat Units NP1 and NP3, Converse and Platte Counties
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 feet in elevation.

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

In addition, the USFWS requested consideration of several listed species that inhabit the Platte River downstream and outside of the planning area. Because proposed actions in the Casper RMP have the potential to deplete water in the Platte River System, impacts to the following listed species, not listed in Table 1, inhabiting the downstream reaches of this system also are evaluated in this BA:

- Interior least tern (*Sterna antillarum*)
- Eskimo curlew (*Numenis borealis*)
- Pallid sturgeon (*Scaphirhynchus albus*)
- Piping plover (*Charadrius melodus*) and Designated Critical Habitats along the Platte River
- Western prairie fringed orchid (*Platanthera praeclara*)
- Whooping crane (*Grus americana*) and Designated Critical Habitats along the Platte River

Impacts to designated critical habitats for the piping plover and whooping crane also are considered in this BA. A description of the status, life history, habitat requirements, distribution, and threats to each

species identified by the USFWS for this BA are described below. Additional detail regarding each species can be found in the statewide BAs referenced at the end of each specie's status description.

4.1 Bald Eagle

4.1.1 Status

The bald eagle was listed as endangered on February 14, 1978, in all of the contiguous United States, with the exception of Minnesota, Wisconsin, Michigan, Oregon, and Washington, where it was classified as threatened (BLM 2003a). On July 12, 1995, the USFWS reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states (USFWS 1995). Most recently, on July 6, 1999, the bald eagle was proposed for delisting (USFWS 1999). This proposal has not been finalized or withdrawn to date. In Wyoming, the bald eagle's state conservation status is S3, meaning it is vulnerable (NatureServe 2006).

Wyoming BLM's *Statewide Programmatic Bald Eagle Biological Assessment* was completed in August 2003 (BLM 2003a). Consideration of effects identified and conservation measures in the *Statewide Programmatic Bald Eagle Biological Assessment* are included in this BA where appropriate.

4.1.2 Life History

The bald eagle is a large, long-living bird of prey. Adults have dark-brown bodies, white heads, and white tails. Characteristic adult plumage is not achieved until at least 4 years of age. Juveniles exhibit a series of plumages before they achieve adult coloration; in some plumages, the young may resemble adult golden eagles (*Aquila chrysaetos*).

Bald eagles are monogamous and build large nests that they might reuse and build upon year after year. On average, a bald eagle will lay two eggs, which hatch in 35 days. Both adults incubate, brood, and feed their young. The chicks fledge at about 11 to 12 weeks of age; however, the adults continue to care for the young birds for another 4 to 11 weeks (USFWS 2006a).

4.1.3 Habitat Requirements

Bald eagles typically nest in forested areas adjacent to large bodies of water. Nests are most often constructed in the tops of large trees, but can be built on cliffs or the ground in treeless areas. In addition to the distance to nearest water, other features that influence nest location can include diversity, abundance, and vulnerability of prey base; presence and proximity of shallow water; and absence of human development and disturbance (Buehler 2000). In Wyoming, groves of mature cottonwoods found along streams and rivers typically are used as bald eagle nesting habitats. Conifers also are commonly used for nesting.

Abundant, readily available food supplies in conjunction with one or more suitable night roost sites are the primary characteristics of occupied winter habitats. The majority of wintering bald eagles are found near open water, where they feed on fish and waterfowl, often taking those that are dead or vulnerable. When suitable conditions exist, particularly lack of human disturbance, wintering bald eagles will forage in terrestrial habitats capturing small and medium-sized mammals (such as prairie dogs and rabbits). Bald eagles also may scavenge carrion of roadkill, winter mortalities of big game or livestock, or livestock associated with ranching (BLM 2003a). The majority of bald eagle wintering range occurs along major river systems and large bodies of water. Roosts are commonly situated in riparian forests (cottonwoods or conifers) and upland conifer forests, particularly northeast-facing ponderosa pines.

The bald eagle typically hunts from perches or while soaring over suitable prey habitats. Prey is often taken on the wing and can include snatching fish from surface waters, snaring waterfowl on the wing, and

pouncing on small mammals. When it is available, carrion also is eaten. General foraging habitats include nearly all upland and aquatic habitats that support sufficient prey species. In Wyoming, suitable general foraging habitats can include grasslands, shrublands, streams, rivers, lakes, and reservoirs. Concentrated foraging habitats typically support high densities of prey species and often can be a reliable source of prey for wintering bald eagles. In Wyoming, concentrated foraging habitats can include big game crucial winter ranges, ice-free water bodies that support fish and waterfowl during the winter, cattle and sheep grazing operations, and road kill.

4.1.4 Regional and Local Distribution

Bald eagles occur year-round in Wyoming. Wintering bald eagles generally occur in areas associated with large, ice-free water bodies and near winter concentrations of ungulates, livestock, waterfowl, or fish. The distribution of bald eagle nesting and communal winter roosting areas is associated with habitat availability and intensity of human disturbance. Most open habitats with sufficient prey base in Wyoming can be utilized for foraging by bald eagles. Eagles also are sensitive to disturbances within foraging areas and their distribution patterns may be affected by human activity.

The largest nesting concentration of bald eagles in Wyoming is in the northwestern corner of the state in the Greater Yellowstone area. Bald eagle nesting also has been documented along several major drainages throughout the state (BLM 2003a). Results of annual surveys indicate bald eagle populations within the state are increasing and have exceeded management goals since 1987. In 1999, 97 bald eagle pairs produced 85 young in Wyoming (BLM 2003a).

Eleven bald eagle nests are known to occur within the planning area (BLM 2003a). None of these nests occur on lands administered by the BLM or are within a 2-mile radius of a BLM grazing allotment. These nests occur in riparian habitats associated with the North Platte River.

As reported in the *Platte River Resource Area and Jackson Canyon ACEC Habitat Management Plan* (BLM 1992) and confirmed by the Casper Field Office biologist (BLM 2003a), 11 communal winter roosting areas are known to occur within the planning area. Several bald eagle feeding concentration areas also have been identified along the North Platte River.

4.1.5 Threats

The decline of nesting bald eagle populations in the lower 48 states during the last century has been attributed to several factors, including habitat loss or alteration, environmental contamination, poisoning, shooting, and collisions and electrocutions. Each of these threats is described below in more detail.

Habitat loss includes the physical disturbance or removal of habitats and is typically associated with human development and (or) activities and natural disturbances (e.g., wildland fires, drought, insects, disease) that deter eagles from otherwise suitable habitats. Bald eagles are particularly sensitive to human activities near active nests and communal winter roosting areas. Unfamiliar or new activities near active nests also can be harmful during egg incubation and brooding periods. Disturbance can flush adults from nests and expose eggs or young to adverse weather conditions or deprive them of food, thus decreasing hatch rates and young survivability (USFWS 1995). Human activities near active communal winter roosting areas can cause eagles to abandon these habitats and expend energy finding other suitable roost areas. The additional energy used and the added stresses can lead to general deterioration in health and, possibly, affect survivability and reproductive success.

Before the use of pesticide dichloro-diphenyl-trichloroethane (DDT) was banned in the United States in 1972, bald eagle populations declined significantly. The use of regulated pesticides and poisons still

accounts for bald eagle deaths in western states, where these chemicals are used to control rodent populations and coyotes (USFWS 1995).

Long-term exposure to environmental contaminants also is a concern in the recovery of this species. Lead can poison bald eagles when they ingest prey that contain lead shot or fragments, or when the prey have assimilated lead into their own tissues. Mercury exposure also is a concern in some parts of the country. Exposure to high levels of mercury can result in neurological problems that affect flight and other motor skills and can alter and reduce hatching success in bald eagle eggs (USFWS 1995).

Illegal shooting still poses threats to individual bald eagles. Increased law enforcement and public awareness have reduced shooting deaths to a small fraction of the number of mortalities that once occurred in the early 1900s (USFWS 1995).

Eagles are susceptible to collision with, and electrocution from, aboveground utility lines. In open habitats, eagles may collide with new or unfamiliar support structures or electrical lines. Eagles also are susceptible to electrocution from contact with utility lines while they fly or perch on poles not engineered to minimize electrocution risks. In addition, eagles often scavenge carcasses along roadways. This behavior can lead to increased risks of vehicles colliding with bald eagles.

4.2 Black-footed Ferret

4.2.1 Status

The black-footed ferret (*Mustela nigripes*) was first listed as endangered on March 11, 1967, as a precursor to the ESA of 1973 (USFWS 2000a). No critical habitat is designated; however, a captive breeding program began in 1985 and continues today. Subsequently, the USFWS designated nonessential 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 (BLM 2005a). This designation allows for more flexibility in managing new populations. In Wyoming, the black-footed ferret's state conservation status is S1, meaning it is critically imperiled (NatureServe 2006).

On February 2, 2004, a block clearance letter and map were issued by the USFWS indicating that ferret surveys are no longer necessary in black-tailed prairie dog towns statewide or in white-tailed prairie dog (*Cynomys leucurus*) towns except those noted in an attachment to the letter (BLM 2005a). However, the USFWS also stated that the clearance from surveys must not be interpreted to mean that the area is free of all value to black-footed ferrets, and coordination with the USFWS is necessary to ensure the most recent information is assessed. This clearance from the need for surveys does not provide insight into an area's value for recovery of the species through future reintroduction efforts. Thus, while an action proposed in a cleared area needs no survey and is not likely to result in take of individuals, the action could have an adverse effect on the value of a prairie dog town as a future reintroduction site and should be evaluated to determine the significance of that effect.

Wyoming BLM's Final *Statewide Programmatic Biological Assessment: Black-footed Ferret (Mustela nigripes)* was completed in August 2005 (BLM 2005a). Consideration of effects and conservation measures identified in the *Statewide Programmatic Biological Assessment: Black-footed Ferret (Mustela nigripes)* are included in this BA where appropriate.

4.2.2 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 are the only ferret native to North America (USFWS 1988). Black-footed ferrets are nearly 60-centimeters (2-feet) long and weigh up to 1.1 kilograms (2.5 pounds) (USFWS 1988).

Black-footed ferrets generally are nocturnal carnivores (USFWS 1988), but occasionally are active aboveground during the day (USFWS 2000a). Black-footed ferrets are practically obligate predators of prairie dogs (USFWS 1988). Though prairie dogs make up the majority of the black-footed ferret's diet, these animals also feed on rabbits, mice, voles, ground squirrels, pocket gophers, birds, and insects (BLM 2005a).

Black-footed ferrets are solitary except during the breeding season or when females are caring for young. Breeding occurs in April or May. After a gestation period of 41 to 45 days, a litter of four or five young is born. The young come aboveground when they are 6-weeks old and remain with their mother until about mid-August (USFWS 2000a). From August through early September, the juveniles become more solitary, and by early October, they are able to take care of themselves (USFWS 2000a). The lifespan of the black-footed ferret in the wild is likely less than 5 years (BLM 2005a).

Predators of the black-footed ferret include great-horned owls (*Bubo virginianus*), golden eagles, 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*) (BLM 2005a).

4.2.3 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 utilize prairie dog burrows for shelter, breeding, and brood-rearing. The size and density of prairie dog towns may be the most important factors comprising suitable habitats for black-footed ferrets. Black-footed ferrets are not normally found in black-tailed prairie dog towns or complexes less than 80 acres in size, or in white-tailed prairie dog towns or complexes less than 200 acres in size (BLM 2005a).

4.2.4 Regional and Local Distribution

Historically, the black-footed ferret's range mirrored that of the prairie dog and occurred throughout the Great Plains from Texas to southern Saskatchewan, Canada (USFWS 2000a). The black-footed ferret's range extended from the Rocky Mountains east through the Dakotas and south through Nebraska, Kansas, Oklahoma, Texas, New Mexico, and Arizona.

In the 1970s, the only documented population of black-footed ferrets occurred in South Dakota. However, in 1981, a black-footed ferret population was discovered near Meeteetse, Wyoming (USFWS 2000a). During fall 1986 and spring 1987, the last of the black-footed ferrets were taken from the wild and placed in a captive breeding program (USFWS 2000a). The goal of the captive breeding program is to establish 240 breeding adults, then returning black-footed ferrets to the wild (USFWS 2000a). By 2010, the program hopes to have placed 1,500 black-footed ferrets in the wild (USFWS 2000a).

Black-footed ferrets were reintroduced to the Shirley Basin in central Wyoming in 1991. Reintroduction efforts in Wyoming were suspended in 1995 due to the sylvatic plague, which kills both prairie dogs and black-footed ferrets (USFWS 2000). However reintroductions have since continued and the population continues to expand. Other reintroduction areas within the planning area are currently being evaluated, but to date no black-footed ferrets have been released.

Currently, all black-tailed prairie dog towns in Wyoming are considered unlikely for occurrence of the black-footed ferret (BLM 2005a). Sixteen white-tailed prairie dog complexes in Wyoming are considered

to potentially contain black-footed ferrets. These complexes include Baxter Basin, Big Piney, Bolton Rach, Carter, Continental Divide, Cumberland, Dad, Desolation Flats, Fifteen Mile, Faming Gorge, Manderson, Moxa, Pathfinder, Saratoga, Seminoe, and Shamrock Hills (BLM 2005a). No prairie dog towns sufficient to support black-footed ferrets associated with these complexes are known or suspected to occur within the planning area.

Prior to its listing, there were five historic black-footed ferret sightings within the planning area: three from Natrona County in the mid-1970s, one from Converse County in 1917, and one from Platte County in 1964 (BLM 2005a). In addition, a portion of the planning area in southeastern Natrona County is within the Shirley Basin-Medicine Bow black-footed ferret experimental release area. Also of note is the Thunder Basin National Grasslands, which extends into northeastern Converse County in the planning area, is currently undergoing an evaluation as a potential black-footed ferret reintroduction area.

Extensive black-footed ferret surveys have been conducted within the planning area, primarily in conjunction with energy development. No black-footed ferrets have been found in the planning area as a result of these survey efforts, even though it is located within the historic range and includes both black-tailed and white-tailed prairie dog colonies (BLM 2005a).

4.2.5 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 (USFWS 2000a). 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. Black-footed ferrets also are susceptible to canine distemper, which can be fatal to infected individuals.

4.3 Blowout Penstemon

4.3.1 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 2005). The USFWS commissioned a recovery plan for blowout penstemon in the early 1990s (Fritz et al. 1992) and has been funding basic research into the life history and management needs of this species in Nebraska for nearly 2 decades (Fertig 2001a).

Wyoming BLM's *Statewide Programmatic Biological Assessment: Blowout Penstemon (Penstemon haydenii)* was completed in August 2005 (BLM 2005b). Consideration of effects and conservation measures identified in the *Statewide Programmatic Biological Assessment: Blowout Penstemon (Penstemon haydenii)* are included in this BA where appropriate.

4.3.2 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 30-centimeters (11.8-inches) tall with greenish-blue, waxy, linear to lanceolate, entire leaves 2.5- to 12-centimeters (1- to 4.75-inches) long and 0.3- to 1-centermeter (0.1- to 0.5-inches) wide (Fertig 2000a).

The inflorescence is 6- to 16-centimeters (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 23- to 25-centimeters (9- to 10-inches) long with tubular bi-lobed and faintly vanilla-scented corollas and glabrous linear sepals. Anther sacs are 1.8- to 2-millimeters

(0.07- to 0.08-inches) long and glabrous. Fruits are a capsule 13- to 16-millimeters (0.5- to 0.6-inches) long with light-brown, disk-shaped seeds (Fertig 2000a).

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 (Stubbendieck 2005).

Prolonged wet conditions and abrasion are required for breaking dormancy and seed germination. The plant is primarily an outcrosser (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 (Fertig 2000a).

4.3.3 Habitat Requirements

The blowout penstemon occurs in "blowouts," 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 (Fertig 2000a).

4.3.4 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 (Fertig 2000a). Currently, only 3,000 to 5,000 plants are found in Nebraska at approximately 13 sites (Stubbendieck 2005).

The Wyoming population was first discovered in 1996 (Fertig 2000a) and includes at least eight main subpopulations occupying about 32.4 hectares (80 acres) within a 12.9-square-kilometer (5-square-mile) area (BLM 2004d). Based on surveys in 2000, the total Wyoming population is estimated at 4,150 to 5,840 individuals (BLM 2004d). 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 (BLM 2004d). The Bradley Peak population, estimated at 300 to 500 plants in 1999 (Fertig 2000a), 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 (BLM 2004d). Intensive surveys were conducted by the Wyoming Natural Diversity Database (WYNDD) in potential habitats throughout the planning area during the 2002 and 2003 field seasons (BLM 2005b). No populations of blowout penstemon were found, or are known to occur, within the planning area.

4.3.5 Threats

No long-term trend data are available on the Wyoming population. The cause of the sharp decline in the Nebraska population is also unknown, although wildfire control, severe drought, improvements in range management, leveling of sand dunes, and outbreaks of pyralid moths (Family *Pyralidae*) have all been identified as potential causes (Stubbendieck 2005).

Some evidence indicates drought might be the primary threat to the existence of the species (Fertig 2000a). In years with lower than normal precipitation or in the end period of intensive grazing, livestock have been observed to closely graze almost every available plant when more favorable forage is limited. Fire and livestock grazing may benefit blowout penstemon or create favorable habitat conditions by controlling competing vegetation.

Oil and gas exploration and associated development have the potential to negatively impact the plant's habitats. However, these activities should be avoided in occupied habitat areas (BLM 2004d).

Invasive and noxious weeds could potentially threaten habitats and populations of penstemon due to weed competition. Weed-control activities have a negative affect on the penstemon, and use of pesticides could negatively affect the penstemon's pollinators (Fertig 2001b).

Off-highway vehicle (OHV) use may have both beneficial and negative impacts to 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 (Fertig 2001b).

4.4 Colorado Butterfly Plant and Designated Critical Habitat

4.4.1 Status

The USFWS listed the Colorado butterfly plant *(Gaura neomexicana* ssp. *coloradensis)* as threatened on October 18, 2000 (USFWS 2000b). At the time of the writing of this document, the USFWS had not developed a recovery plan for this species; however, critical habitat was designated on January 11, 2005 (USFWS 2005). In total, approximately 1,432 hectares (3,538 acres) along approximately 82 kilometers (51 miles) of streams fall within the critical habitat designation located in Laramie and Platte counties in Wyoming (USFWS 2005). The state conservation status of the Colorado butterfly plant is S1 – critically imperiled in Colorado and Nebraska, and S2 – imperiled in Wyoming (NatureServe 2005).

Wyoming BLM's Statewide Programmatic Biological Assessment: Colorado Butterfly Plant (*Gaura neomexicana* ssp. *coloradensis*) Including Designated Critical Habitat was completed in September 2005 (BLM 2005c). Consideration of effects and conservation measures identified in the Statewide Programmatic Biological Assessment: Colorado butterfly plant *(Gaura neomexicana* ssp. *coloradensis)* Including Designated Critical Habitat are included in this BA where appropriate.

4.4.2 Life History

The Colorado butterfly plant is a short-lived biennial herb (Fertig 2000b; 2000d) and has one or a few reddish hairy stems 50- to 80-centimeters (2- to 3-feet) tall. The lower leaves are lance-shaped with smooth or wavy-toothed margins and average 5- to 15-centimeters (2- to 6-inches) long, while those on the stem are smaller or reduced in number (Fertig et al. 1994; Fertig 2000b; 2000d). Flowers are arranged in a branched, elongate pattern above the leaves. Only a few flowers are open at any one time and these are located below the rounded buds and above the mature fruits. Individual flowers are 5- to 14-millimeters (¼- to ½-inch) long with four reddish sepals and four white petals that turn pink or red with age (Fertig 2000b; 2000d). The hard, nutlike fruits are four-angled and have no stalk (Fertig et al. 1994).

Flowering occurs from late June or early July until the first hard frost of fall (usually mid September to early October) (Fertig 2000d). The plant lives vegetatively for at least one year before bearing fruit once and then dying. Fruit is present from late July to early October (Fertig 2000d). It reproduces only by seed. Plants are self-fertile, but also outcross (Fertig 2000c). Flowers open at dusk and are pollinated by moths (Fertig 2000d; 2001c).

4.4.3 Habitat Requirements

This plant typically occurs on sub-irrigated alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations of 1,524 to 1,951 meters (5,000 to 6,400 feet) (USFWS 2000b). Colonies often are found in low depressions or along bends in wide meandering stream channels (USFWS 2000b). Most populations are found a short distance from the actual channel and may even occur at the base of low alluvial ridges at the interface between riparian meadows and drier grasslands. This plant occurs on

soils derived from conglomerates, sandstones, and tuffaceous mudstones and siltstones of the Tertiary Wind River, Arikaree, and Ogalalla formations (Fertig 2001c). The plant requires early- to mid-succession riparian habitats. It commonly occurs in communities dominated by redtop (*Agrostis stolonifera*) and Kentucky bluegrass (*Poa pratensis*) on wetter sites, and wild licorice (*Glycyrrhize lepidota*), Flodman's thistle (*Cirsium flodmanii*), curlytop gumweed (*Grindelia squarrosa*), and smooth scouring rush (*Equisetium laevigatum*) on drier sites (USFWS 2000b).

The Central Plains Region of the USFWS (USFWS 1996a) lists the Colorado butterfly plant as an obligate wetland plant species. As such, this species occurs in riparian/wetland habitats.

Habitats of the Colorado butterfly plant are typically open without dense or overgrown vegetation. The establishment and survival of seedlings appears to be enhanced at sites where tall and dense vegetation has been removed by some form of disturbance (USFWS 2000b). In the absence of occasional disturbance, the plant's habitats can be choked out by dense growth of willows (*Salix* spp.), grasses (including redtop and wiregrass [*Juncus balticus*]), and exotic plants (such as Canada thistle [*Cirsium arvense*] and leafy spurge [*Euphorbia esula*]), which prevent establishing new seedlings and replacing plants that have died. Coyote willow (*Salix exigua*) and Canada thistle may become dominant in Colorado butterfly plant habitats that are not periodically flooded or otherwise disturbed (USFWS 2000b).

4.4.4 Regional and Local Distribution

The Colorado butterfly plant is a regional endemic of southwestern Nebraska, southeastern Wyoming, and northcentral Colorado. In Wyoming, the Colorado butterfly plant is known only from the southeastern plains in Laramie and Platte counties between the boundary of the Medicine Bow National Forest and the Wyoming-Nebraska border. Recent surveys in Wyoming suggest that extant populations are probably stable, although population sizes may vary from year to year (Fertig 2001c).

There are documented populations of the Colorado butterfly plant on F.E. Warren Air Force Base and on private lands between the Medicine Bow National Forest boundary (Pole Mountain) and the Wyoming-Nebraska border on Middle Crow Creek, North Fork Crow Creek, South Branch Crow Creek, Lodgepole Creek, and Horse Creek. Two of the populations occur on F.E. Warren Air Force Base and three small populations are found partly or fully on Wyoming state school trust lands, which are managed mostly for agricultural uses (BLM 2004d).

Within the planning area one population of the Colorado butterfly plant is known to occur in Platte County. This population is found on private land with federal mineral estate. None of the private lands are formally protected through conservation easements or comparable designations.

4.4.5 Threats

In general, threats to the species across its range include haying, grazing, herbicide spraying, and urban expansion (USFWS 2000b). The primary threats to Colorado butterfly plant include the indiscriminate spraying of broadleaf herbicides and the disturbance of riparian areas due to agricultural conversion, water diversions, channelization, and urban development (Fertig 2000d). However, Fertig (2001c) also describes the primary threat as vegetative succession in the absence of periodic disturbances that makes habitats unsuitable for seedling establishment.

Competition from invasive nonnative plant species (INPS) can be a significant threat to the Colorado butterfly plant (Fertig 2001c). INPS can outcompete the Colorado butterfly plant and reduce population numbers. Efforts to chemically control Canada thistle and other INPS can pose a direct threat to the species. In addition, many chemicals are restricted for use within riparian zones. INPS often are spread

by livestock grazing and recreational activities, but also can be spread by other land management activities.

4.4.6 Designated Critical Habitat

Only one area of designated critical habitat, the Tepee Ring Creek unit (Unit One), occurs in the Casper RMP Planning Area. No critical habitat has been designated on BLM administered public surface within the planning area. The Tepee Ring Creek unit consists of 107 acres along 1.5 stream miles of Tepee Ring Creek in Platte County, Wyoming (USFWS 2004b). This unit is under private land ownership (USFWS 2004b). Approximately 10 acres of Federal mineral estate occurs within the 91 meter buffer delineating the designated critical habitat along Tepee Ring Creek.

4.5 Preble's Meadow Jumping Mouse & Designated Critical Habitat

4.5.1 Status

The Preble's meadow jumping mouse (PMJM) was designated as threatened on May 13, 1998. On February 2, 2005, the USFWS issued a 12-month finding on a petition to delist the PMJM and proposed to remove the PMJM from the federal list of threatened and endangered species. During this review process, the PMJM remains fully protected under the ESA. In Wyoming, the PMJM's state conservation status is S1, meaning it is critically imperiled (NatureServe 2006).

Critical habitat for the PMJM is designated within the planning area for portions of Cottonwood and Chugwater and some tributaries (USFWS 2003).

Wyoming BLM's *Draft Statewide Programmatic Biological Assessment for Preble's Meadow Jumping Mouse (Zapus hudsonius preblei)* dated October 2005 is currently in the final stages of completion. (BLM 2005d). Consideration of effects identified in the *Statewide Programmatic Biological Assessment for Preble's Meadow Jumping Mouse (Zapus hudsonius preblei)* are included in this BA where appropriate.

4.5.2 Life History

The PMJM is a small rodent with hind legs much longer than its forelegs and a tail longer than its body (BLM 2005d). The PMJM's tail is bi-colored, with the darker color on the top. A distinct dark, broad stripe on its back runs from head to tail and is bordered on either side by course gray to orange-brown fur. The belly is white and the fur is much finer in texture. PMJM are approximately 8- to 10-inches long, of which more than 60 percent of that length is its tail (USFWS 2006b).

The PMJM is a true hibernator, spending at least 7 months of the year in hibernation in underground burrows. Adults begin hibernation in early September, while juveniles enter hibernation from mid-September to late October. The PMJM emerges from hibernation in early May. Little is known about the food habits of PMJM (USFWS 1998b); however, this species has been known to feed on grasses, seeds, insects, and fungi.

4.5.3 Habitat Requirements

Typical habitats of the PMJM comprise well-developed plains; riparian vegetation with adjacent, relatively undisturbed grassland communities; and a nearby water source. The riparian areas should include a relatively dense combination of grasses, forbs, and shrubs. The PMJM is associated with brushy riparian systems along foothills and prairies. This species appears to prefer streamside habitats with structural diversity, including a dense herbaceous understory, shrubs, and trees (USFWS 2003).

4.5.4 Regional and Local Distribution

The PMJM occurs along the foothills of southeastern Wyoming south along the eastern edge of the front range to Colorado Springs, Colorado. This species occurs in Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, and Weld counties in Colorado; and in Albany, Laramie, Platte, Goshen, and Converse counties in Wyoming. There are 46 stream segments in southeast Wyoming where suspected PMJM have been captured (BLM 2005d). In the planning area, potential habitats for PMJM occur in Converse, Goshen, and Platte counties.

4.5.5 Threats

The primary threats to the species are habitat loss and degradation. The PMJM has declined in its range and populations within its remaining range have been lost (USFWS 1998b). Habitat loss and fragmentation from human land uses have adversely affected the PMJM. Habitat alteration in areas of southeast Wyoming and the Colorado Piedmont east of the Front Range has changed from prairie habitat with streams and associated riparian habitats to a more agricultural and urban setting (USFWS 1998b). Grazing, residential, commercial, industrial (including energy development), and recreational development has contributed to this change. In many areas, riparian habitats within the PMJM's range have been severely modified or destroyed by human activities. With current human population increases, loss and modification of PMJM habitats (i.e., riparian areas) are expected to continue. Other threats to the PMJM include changes in hydrology and groundwater flows, rock and sand extraction, bank stabilization and channelizing waterways, farming and ranching operations, recreational trail development and use, fire, exotic animals, and degradation of water quality (BLM 2005d).

4.5.6 Designated Critical Habitat

On June 23, 2003 the Final Rule on Designation of Critical Habitat for the PMJM was published in the Federal Resister (Federal Register / Vol. 68, No. 120 / Monday, June 23, 2003 / Rules and Regulations). Final designation for PMJM meadow jumping mouse includes 8 units of habitat totaling approximately 12,632 hectares (31,222 acres) found along 359.2 miles of rivers and streams in the state of Wyoming and Colorado.

Critical habitat for the PMJM includes approximately 201.3 kilometers (125.1 miles) of rivers and streams and 4,264 hectares (10,542 acres) of lands in Wyoming and approximately 376.8 kilometers (234.1 miles) of rivers and streams and 8,386 hectares (20,680 acres) of lands in Colorado. These habitats include varying widths (360 to 394 feet) from stream edge for portions of Cottonwood, Lodgepole, and Chugwater creeks and some tributaries (USFWS 2003).

Critical habitats for the PMJM are designated in four places along riparian areas in Converse and Platte counties within the planning area. Lands designated as critical habitat are under Federal, State, local government, and private ownership (BLM 2005d). In the planning area, the only segments of critical habitat occurring on BLM-administered lands include: Spring Creek (0.75-mile segment in T20N, R70W, Section 33); Preacher Creek (less than 0.25 mile in T27N, R70W, Section 20); Cottonwood Creek (2-mile section in T27N, R71W, Section 23); and Middle Chugwater Creek (1-mile section in T19N, R71W, Section 32).

Map Unit NP1[1]: This unit consists of 26.9 mi (43.4 km) of stream including Cottonwood Creek, [1]Spring Creek, North Cottonwood Creek, Preacher Creek, and Kloer Creek in Albany, Platte, and Converse Counties.

Map Unit NP3[1]: This unit consists of 85.3 mi (137.2 km) of stream including Chugwater Creek, South Chugwater Creek, Middle Chugwater Creek, South Chugwater Creek, Ricker Creek, and Strong Creeks in Albany, Laramie, and Platte Counties.

4.6 Ute Ladies'-Tresses

4.6.1 Status

Ute ladies'-tresses was listed as threatened under the ESA on January 17, 1992 (USFWS 1992). Ute ladies'-tresses is considered to be globally imperiled (G2) (NatureServe 2005), and critically imperiled (S1) in the State of Wyoming (Keinath et al. 2003; NatureServe 2005). The state conservation status for Ute ladies'-tresses outside of Wyoming is critically imperiled (S1) in Idaho, Nebraska, Utah and Washington; imperiled (S2) in Colorado and Montana; and possibly extirpated (SH) in Nevada (NatureServe 2005).

Wyoming BLM's *Statewide Programmatic Biological Assessment: Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* was completed in October 2005 (BLM 2005e). Consideration of effects and conservation measures identified in the *Statewide Programmatic Biological Assessment: Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* are included in this BA where appropriate.

4.6.2 Life History

Ute ladies'-tresses is a perennial forb 12- to 50-centimeters (4.8- to 19.7-inches) tall with linear, mostly basal leaves (Fertig et al. 1994). Its inflorescence is a loose spike 3- to 15-centimeters (1.2- to 5.9-inches) long with small white to ivory flowers arranged in a loose spiral (Fertig 2000c). Though the Ute ladies'-tresses may not bloom every year, when it does, the Wyoming populations are reported to typically bloom from early August to early September (Fertig 2000c). Pollinators of Ute ladies'-tresses in Utah and Colorado are reported to be bumblebees (*Bombus* sp.) (Fertig 2000c), though no direct observations of pollination in Wyoming have been made (Fertig 2000c). As with most orchids, the Ute ladies'-tresses has mycorrhizal symbionts to facilitate water and nutrient uptake (Fertig 2000c).

4.6.3 Habitat Requirements

Ute ladies'-tresses is endemic to moist soils in mesic or wet meadows near springs, lakes, or perennial streams (USFWS 1992; Fertig 2000c), and is considered to have a national wetland indicator status of facultative wetland (USFWS 1996a). In Wyoming it is reported to occur at elevations between 1,415 to 1,650 meters (4,650 to 5,420 feet), primarily on flat floodplain terraces or abandoned oxbows within 0.5 to 15 meters (1.6 to 50 feet) of a stream (Fertig 2000c). These sites are subirrigated or seasonally flooded and remain moist into the summer months (Fertig 2000c); however, the Converse County population is reported to occur on a relatively steep slope of a low terrace with a south-facing aspect (Fertig 2000c). The known occurrences of this orchid in Wyoming occur in moist meadows dominated by redtop, quackgrass (*Elymus repens*), wiregrass, switchgrass (*Panicum virgatum*), and foxtail barley (*Hordeum jubatum*) (Fertig 2000c). The vegetative cover of these meadows is reported to range between 75 and 90 percent, and is relatively short, less than 45-centimeters (18-inches) tall. Again, the Converse County population is anomalous in this regard, and occurs adjacent to a cattail marsh in tall, dense grasses (Fertig 2000c). Plant species commonly associated with the orchid in Wyoming are shown in Table 2.

[1]Refer to Special Status Species-Wildlife Map 30 in the Draft Environmental Impact Statement Volume 2.

Table 2. Plant Species Commonly Associated with Ute ladies'-tresses (*Spiranthes diluvialis)* in Wyoming

Common Name	Scientific Name
Horsetail	*Equisetum laevigatum*
Wild licorice	*Glycyrrhiza lepidota*
Yellow sweetclover	*Melilotus officinalis*
White sweetclover	*Melilotus albus*
Scratchgrass	*Muhlenbergia asperifolia*
Knotted rush	*Juncus nodosus*
Arrowgrass	*Triglochin maritimum*
Meadow lousewort	*Pedicularis crenulata*
Narrowleaf blue-eyed grass	*Sisyrinchium angustifolium*
Common three-square	*Scirpus pungens*

Source: Fertig 2000c

4.6.4 Regional and Local Distribution

Ute ladies'-tresses is known from sporadic occurrences in lower-elevation wet meadow habitats in the interior western United States (NatureServe 2004) including Colorado, Idaho, Montana, Nebraska, Nevada, Utah, Washington, and Wyoming (NatureServe 2005). Rangewide, it is known from 60 locations comprising at least 30 distinct populations (Fertig 2000c). Several historic populations in Nevada, Utah, and Colorado are presumed to be extirpated due to loss and degradation of riparian habitats caused by urbanization and stream channelization for agriculture and development (NatureServe 2005). Most surviving populations are small and appear to be relict in nature. Currently, the largest documented population occurs in Colorado (NatureServe 2005).

In Wyoming, Ute ladies'-tresses has been found in the southeastern portion of the state in Converse, Goshen, Laramie, and Niobrara counties (Keinath et al. 2003). Two of the four occurrences in Wyoming occur within the planning area. These occurrences are found in northwestern Converse County and southwestern Goshen County (Fertig 2000c). The population in Converse County is located on a tributary to Antelope Creek on public lands administered by the Casper Field Office, and in the year 2000, short-term trend data suggested a (questionably) stable population (Fertig 2000c). The population in Goshen County is located on Bear Creek on public lands administered by the State of Wyoming. In the year 2000, short-term trend data suggested a stable to increasing population (Fertig 2000c).

4.6.5 Threats

As of January 2000, none of the four known Wyoming populations of Ute ladies'-tresses was under conservation easements or other forms of protection from development (Fertig 2000c). According to Fertig (2000), the primary threats to this orchid throughout its range include the following:

- Habitat loss and (or) degradation due to urbanization
- Grazing, especially in late summer; however, some populations have persisted under grazing pressure for more than 75 years
- Mowing prior to fruit ripening or if the cutting height is too low; however, mowing after the fruits have ripened may be one of the best management tools for maintaining habitats for this species

- Flood control may negatively affect the Ute ladies'-tresses orchid because it allows dense shrub stands to become established
- Herbicides applied for broad-leaf weeds may affect *S. diluvialis*; in addition, insecticides may affect its bumblebee pollinators
- Noxious weed encroachment may displace this species
- Natural herbivory by voles
- Loss of pollinators by actions other than insecticides
- Recreation impacts to streambanks may impact habitat or individuals
- Collection/harvest by orchid hunters and others.

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

Several bird, one fish, and one plant species, occurring as residents or migrants in the Platte River watershed (inclusive of major tributaries), have experienced significant declines in abundance, distribution, and the availability of suitable habitats since the turn of the 20th 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, irrigation projects, wetlands, 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. Water depletion analyses assume all water used for drilling and completion of wells and evaporation from reservoirs within the North Platte watershed within the planning area contribute to surface flows of the Platte River or its tributaries.

For Platte River watershed species analyzed in this BA, the assessment area includes the portion of the planning area drained by the North Platte River, as well as areas of the Platte River watershed downstream of the planning area.

5.2 Eskimo Curlew

5.2.1 Status

The Eskimo curlew (*Numenius borealis)* is listed as endangered under the ESA of 1973. Although once numerous, the species is likely extinct; the last confirmed record was in 1963, but several unconfirmed records since then suggest a small population may still exist. If there is an existing population, it probably comprises less than 50 individuals (Brown et al. 2001). The state conservation status for Eskimo curlew in Wyoming is presumed extirpated (SX) (NatureServe 2006).

5.2.2 Life History

The Eskimo curlew was the smallest curlew in North America, about the size of a common pigeon. The typical brood size was four. Eskimo curlews were highly social and gathered in large flocks in migration and on the wintering grounds.

5.2.3 Habitat Requirements

The Eskimo curlew used open habitats, such as tundra and grasslands. On spring migration, this species stopped to rest and forage in Great Plains grasslands, including the Platte River country in Nebraska.

5.2.4 Regional and Local Distribution

The Eskimo curlew breeding grounds were on the tundra in the northern Northwest Territories in Canada. In late summer and early fall, the birds gathered on the coast of Labrador, Newfoundland, and northern New England to begin their long migration south to Argentina (Gill et al. 1998). During spring migration, they traveled up through Central America and the Great Plains.

5.2.5 Threats

Market hunting in the late 1800s was the primary cause of the species' dramatic decline. Habitat changes and agricultural conversion of the Great Plains grasslands also may have been contributors. Current threats to breeding grounds for the Eskimo curlew include mining and oil exploration. If present, a small population would be extremely susceptible to catastrophic events and genetic effects.

5.3 Interior Least Tern

5.3.1 Status

The interior population of the least tern is listed as endangered under the ESA of 1973. No state conservation status for interior least tern in Wyoming is designated (NatureServe 2006). A recovery plan for this species was signed in 1990 (USFWS 1990).

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. One to three eggs are laid in a simple, unlined depression, and incubate for about 20 days. Chicks are semi-precocial and fledge within 20 days (USFWS 1990). 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.

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 occur in Wyoming.

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 (Ehrlich et al. 1988). 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 (USFWS 1985). Human disturbance to nesting colonies is also a concern.

5.4 Pallid Sturgeon

5.4.1 Status

The pallid sturgeon was listed as endangered under the ESA of 1973 on September 6, 1990. The pallid sturgeon's state conservation status is S1—critically imperiled—in Arkansas, Illinois, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, North Dakota, South Dakota, and Tennessee (NatureServe 2006).

5.4.2 Life History

The pallid sturgeon is a large fish (up to 1.8 meters [6 feet] in length), yet little is known about the age and growth of this fish (NatureServe 2006; USFWS 1993). For males, sexual maturity is reached from 7 to 9 years and there may be 3 years in between spawns. Females reach maturity between 7 and 10 years of age and may have 10-year intervals between spawning. Pallid sturgeon may live up to 60 years or more. Information on basic parameters of reproduction and spawning activities of the pallid sturgeon, including spawning locations, substrate preference, water temperature, or time of year, are not documented (USFWS 1993). Pallid sturgeon feed on insects and fish.

5.4.3 Habitat Requirements

The pallid sturgeon resides on the bottom of large, turbid, free-flowing rivers and evolved in the Missouri and Mississippi rivers. Pallid sturgeon are found in water depths ranging from 1 meter to 7.6 meters (3.3 feet to 24.98 feet) and over areas with sand bottoms. They exist in water temperatures ranging from 0 °C (Celsius) to 30 °C (32 °F to 86 °F).

5.4.4 Regional and Local Distribution

Pallid sturgeons are one of the rarest fish in the Missouri and Mississippi river watersheds. Historically, the pallid sturgeon ranged from the middle and lower Mississippi River, the Missouri River, and the lower reaches of the Platte River, Kansas River, and Yellowstone River. Currently, populations of pallid sturgeons are fragmented due to dams on the Missouri River. This species is scarce in the upper Missouri River above Ft. Peck Reservoir, in the lower Missouri River and lower Yellowstone River between Ft. Peck Dam and Lake Sakakawea, in the Missouri River downstream of Gavins Point Dam, and in the Mississippi and Atchafalaya rivers (USFWS 2006c). The pallid sturgeon is not known to occur in Wyoming.

5.4.5 Threats

Destruction and alteration of habitats by human modification of the river system is the primary cause of pallid sturgeon decline (USFWS 1993). Additional reasons for decline of the pallid sturgeon include habitat loss, commercial harvest, pollution and contaminants, and hybridization. Between 1926 and 1952, approximately 36 percent of riverine habitat was eliminated on the Missouri River due to the construction of dams. Another approximately 40 percent of riverine habitat was channelized, and the remaining 24 percent altered due to changes in flow from dam operations (USFWS 1993). The dams also may have blocked migration routes.

5.5 Piping Plover

5.5.1 Status

Piping plovers are divided into three breeding populations: the Northern Great Plains, Great Lakes, and Atlantic Coast populations (USFWS 2002b). The Great Lakes population is listed as endangered under the ESA of 1973. 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 (WGFD 2004). Critical habitat for wintering piping plovers is designated.

5.5.2 Life History

Piping plovers are small shorebirds, approximately 6- to 7-inches long. They arrive on their breeding grounds in late March to early April (Haig 1992). Both sexes incubate the nest of 3 to 5 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.

5.5.3 Habitat Requirements

Piping plover 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.

5.5.4 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 (USFWS 2002b). 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 (USFWS 2001). 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 (Keinath et al. 2003).

5.5.5 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, the piping plover briefly recovered, then continued to decline due to habitat changes from human development (USFWS 2002b). 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 (Haig 1992). Stabilization of water levels also favors the development of woody shoreline vegetation, thereby creating unsuitable nesting habitats for the piping plover (USFWS 2002b).

5.6 Western Prairie Fringed Orchid

5.6.1 Status

The western prairie fringed orchid was designated as threatened under the ESA on September 28, 1989 (USFWS 1989). The western prairie fringed orchid's state conservation status is S1—critically imperiled—for Minnesota, Missouri, Kansas, Oklahoma, and Manitoba, Canada (NatureServe 2005). It is considered imperiled (S2) in Indiana, Nebraska, and North Dakota, and possibly extirpated (SH) from South Dakota (NatureServe 2005).

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 on the Platte River, it is not a target species for the Platte River Endangered Species Partnership (USBR and USFWS 2006). 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 (USFWS 1996b).

5.6.2 Life History

The western prairie fringed orchid is a perennial forb with large and showy inflorescences. Flowers are creamy white and hooded with the lower of the three petals being larger, three-lobed, and fringed (NatureServe 2005). Plants are generally 38- to 45-centimeters tall and have thickened, smooth, lance-shaped to slightly rounded leaves with sheathing stems (NatureServe 2005). 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. The species is self-compatible, but pollination is required for fruit and seed production (USFWS 1989). The western prairie fringed orchid is adapted to pollination by hawkmoths (USFWS 1989). Seedling establishment depends on mycorrhizae fungi (USFWS 1989).

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 (USGS 2005; USFWS 1996b). 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 (USFWS 1996b).

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 (NatureServe 2005). The western prairie fringed orchid is believed to be extirpated from South Dakota (NatureServe 2005). There are 172 population sites remaining in seven states and one population complex in Manitoba, Canada (NatureServe 2005). The largest populations occur in Manitoba and on the Sheyenne National

Grassland in North Dakota (USFWS 1996b). 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 (USGS 2005). 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 (USFWS 1996b).

5.7 Whooping Crane

5.7.1 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 (USFWS 2004c). The USFWS has designated the reach of the Central Platte River from Lexington to Shelton, Nebraska, as critical habitat for the whooping crane. No critical habitat is designated in Wyoming (BLM 2002).

5.7.2 Life History

Whooping cranes are large wading birds nearly 5-feet tall (Lewis 1995). They are long-living, slow to mature, and do not breed until 3 to 5 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 (Ehrlich et al. 1988). 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. The whooping crane diet is variable and includes crustaceans, fish, insects, berries, and grains (BLM 2002).

5.7.3 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 (USFWS 1978).

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.

5.7.4 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 four counties of the planning area (Keinath et al. 2003).

5.7.5 Threats

Historically, the population decline of whooping cranes was due to habitat loss and shooting in the late 1800s (USFWS 1978). Current threats are wetlands loss, coastline development on their winter range,

human disturbance on the breeding grounds, and accidental shooting. Because of the small population, the genetic integrity and persistence of whooping cranes are uncertain.

5.8 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 Preferred Alternative 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 water impoundments, springs, and wells for livestock, fish, and wildlife are anticipated to deplete water in the North Platte watershed. Table 3 summarizes the estimated average annual depletion for select actions identified for the Preferred Alternative of the Casper RMP.

Table 3. Projected BLM Actions and Potential Water Depletions in the North Platte Watershed During Implementation of the Casper Field Office Resource Management Plan

Projected Action[a]	Number	Average Annual Depletion (acre-feet)
Conventional Oil and Gas Drilling	268	27
Livestock Water Impoundments[b]	12	51
Livestock Water Wells and Springs	23	0
Fish and Wildlife Water Impoundments[b]	9	192
Total		**270**

[a]Key assumptions made for calculating projected water depletion in the North Platte watershed over the life of the RMP include the following:

(1) All wells, springs, and reservoirs projected for development over the life of the RMP are constructed and completed in year 1.

(2) Water depletions associated with conventional oil and gas drilling are calculated using an average depletion of 2 acre-feet per well occurring in the North Platte watershed by alternative. Oil and gas well numbers were derived from the Reasonable Foreseeable Develop Scenario for Oil and Gas (BLM 2005f).

(3) Livestock wells and reservoirs projected for grazing allotment Categories I and M re included in water depletion calculations even when only a minor component of the allotment boundaries occurred in the North Platte watershed.

(4) Reservoir evaporative loss calculations are based on 45" annual pan evaporation, average pan coefficient of .70, and annual precipitation of 12.1" (based on a 30-year average of six recording stations) for the planning area.

(5) Potential water depletion for fire management is not included in calculations due to the nonpredictive nature of unplanned fire and the negligible water depletion associated with planned fire.

[b]Depletions calculated on projected construction and operation of the acreage projected for 9 new water impoundments.

Based on the project water depletions in Table 3, implementation of the Casper RMP *may affect, and is likely to adversely affect (LAA)* the whooping crane, interior least tern, piping plover, Eskimo curlew, pallid sturgeon, western prairie fringed orchid, and designated critical habitats of the whooping crane and piping plover. All other activities (listed in Section 7 below) not listed in Table 3 above are not anticipated to deplete waters from the Platte River system and will therefore result in a *no effect (NE).*

5.9 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).

5.10 Best Management Practices

When developing or improving water sources in the North Platte River watershed, the BLM considers development designs, such as water wells and guzzlers, rather than surface impoundments to minimize impacts to surface water hydrology.

6.0 METHODS AND CONTEXT OF THE ANALYSIS

The Preferred Alternative of the Casper Draft RMP and EIS were 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 Wyoming BLM Statewide Programmatic BAs. In some cases, ground surveys and inventories were conducted by the BLM, the USFWS, the Wyoming Natural Diversity Database (WYNDD), the Wyoming Game and Fish Department (WGFD), and other consultants as part of other planning documents or projects. Moreover, species recovery plans were reviewed for further information on habitats, occurrences, life histories, and conservation measures.

6.1 Activity Description

Each major resource program (i.e., air quality, cultural resources, livestock grazing, etc.) occurring on the public lands in the planning area where management actions are identified is briefly described in Section 7.0 of this document.

6.2 Effects Analysis

The 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 those 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 those effects on the species or its habitat caused by an action occurring later in time or further removed in distance than direct impacts, but which are still reasonably foreseeable. The analysis of all impacts includes the effects of interrelated and interdependent actions.

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

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

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

6.3 Effects Determinations

There are no species in the planning area that are proposed or candidates for listing under the ESA. Determinations for each resource program (i.e., air quality, cultural resources, livestock grazing, etc.) are based on the impacts of the management actions, the proposed protections for these actions, and conservation measures committed to by the BLM. BMPs would provide an additional level of protection, but are not considered in the effects determination.

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: (1) that "suitable habitat" or the species does not exist in the analysis area; (2) 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 listed species or its critical habitats are expected to be completely beneficial (-b), or insignificant (-i), or discountable (-d). Beneficial effects have contemporaneous positive 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: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur (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 "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires formal section 7 consultation with the USFWS.

A summary of the effects determinations of this BA is shown in Section 9.0 of this document.

6.4 Coordination and Conservation Measures

Section 7(a)(1) of the ESA requires the federal agency (i.e., 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, 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, and (3) identifying and recommending studies aimed at improving the understanding of a specie's biology or ecology.

Management of listed threatened and endangered species is addressed in four primary ways:

- Through conservation measures identified as part of a species listing package, as reasonable and prudent measures recommended in the BO from the USFWS in response to a BA, and through species protection measures determined through collaborative interagency and multidiscipline efforts.
- The BLM-Wyoming Field Offices incorporate the *Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities*. These guidelines state that prior to conducting activities in known or suspected critical or essential habitats, the lessee or permittee is required to

conduct inventories or studies in accordance with the BLM and (or) USFWS guidelines to verify the presence or absence of federally listed threatened and endangered species. 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.

- The BLM incorporates the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming* (BLM 1998). 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 the natural resources, appropriate management actions aimed at these resources, monitoring and evaluation of the effectiveness of these management actions, and land management adjustments as necessary.
- *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 in the Conservation Measures Common to All Species section of this document are intended to minimize adverse impacts likely to result from implementation of the management actions provided in the Casper RMP. Conservation measures can take three forms: first, the existing conservation measures in the Casper RMP (Proposed Protections); second, BLM-implementation of additional conservation measures that would reduce impacts to listed species; and third, 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 of this document.

1. The *Wyoming BLM Mitigation Guidelines for Surface Disturbing Activities*, Appendix I (2)(d) (BLM 1990), 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 (BLM 1990).
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 federally listed species of concern and other state-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 (BLM 1998).
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, mineral, and forage supplements for livestock will not be allowed on areas inhabited by special status plant species.
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. To avoid collision and electrocution of raptors and other avifauna, power lines will continue to be constructed in accordance with standards outlined in the *Avian Protection Plan Guidelines* (APLIC and USFWS 2005).
8. 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.
9. In areas where power lines go over wetland habitats, the observability of the lines will be enhanced for avian species, including bald eagles and whooping cranes, through the addition of "flappers" or other visibility enhancing devices attached to the lines.
10. New power line construction or communication towers with guy lines over or adjacent to wetland habitats will not be allowed.
11. The BLM will participate with the development of species specific recovery plans in coordination with the USFWS and other agencies. Populations and habitats on BLM-administered lands will be monitored to determine if recovery objectives are being met.
12. In the event a dead or injured threatened or endangered species is discovered during project activities the BLM would notify the USFWS Ecological Field Office (307-772-2374) or Law Enforcement Office (307-261-6365) within 24 hours of the discovery.

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

14. The Statewide Programmatic Biological Assessments and Biological Opinions authorized for each species, including all reasonable and prudent measures and terms and conditions, will be implemented for the Casper Field Office Planning Area.

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7.0 ANALYSIS OF PROPOSED MANAGEMENT ACTIONS AND EFFECTS

The following program analyses follow a linear process that starts with the resource activity description and runs through to 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. Following the resource activity description are conservation strategies. These conservation strategies are divided into three categories: (1) proposed protections identified for the Casper RMP, (2) conservation measures currently committed to by the BLM, and (3) BMPs. The proposed protections identified in the Casper RMP are those protections for the resource that will benefit threatened and endangered species. The conservation measures currently committed to by the BLM identify other conservation measures the BLM currently practiced or committed to by the BLM that are not identified in the Casper RMP. The BMPs include standard BLM BMPs that could further protect that resource. This information provides the basis for the impacts analysis and effect determinations presented by species and their respective habitats, and the potential direct, indirect, and cumulative effects of the activity. In this document, Section 10.0 identifies existing species specific protections, conservation measures, and BMPs.

Designated Critical Habitat "No Effect" and "Not Likely to Adversely Affect" Analysis

Critical habitat is designated in the planning area for the Colorado butterfly plant and the PMJM. Critical habitat for the Colorado butterfly plant occurs only on private surface land in the planning area. A relatively small portion of designated critical habitat for the Colorado butterfly plant occurs on federal mineral estate in the planning area. However, no mineral development is planned within the designated critical habitat. Further, a "No Surface Occupancy" stipulation has been placed on all parcels occurring in designated critical habitat areas. There is one 40 acre parcel of BLM administered public land located within the same pasture containing the Designated Critical Habitat (DCH) on Tepee Ring Creek. Within the 6100 acre pasture (1525 AUMs) containing the DCH, the BLM authorizes livestock grazing for approximately 10 AUMs. Implementing all BLM-authorized actions, except livestock grazing, will have *no effect (NE)* on designated critical habitat for the Colorado butterfly plant. Implementing livestock grazing actions *may affect, but is not likely to adversely affect*, critical habitat for the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the Bureau authorizing 10 AUMs within the pasture containing designated critical habitat and the unlikely event Bureau authorized livestock grazing could reach the level of adverse modification of designated critical habitat.

Critical habitat for the PMJM occurs primarily on private surface land in the planning area. Federal mineral estate is present in designated critical habitat for the PMJM within the planning area; however, no mineral development is planned within the designated critical habitat. Further, a "No Surface Occupancy" stipulation has been placed on all parcels occurring in designated critical habitat areas. All BLM-authorized actions, except livestock grazing, will have *no effect (NE)* on designated critical habitat for the PMJM, because these actions are not expected to occur within the designated critical habitat, given the limited acreage which occurs within the planning area. Livestock grazing, *may affect, but is not likely to adversely affect*, critical habitat for the PMJM due to *discountable effects (NLAA-d)*. This determination is based on a grazing management program which will follow The BLM Standards and Guidelines for Livestock Grazing, and would provide for the protection of the species and its critical habitat. Further, regular assessment of range conditions would target important habitat areas and adjust grazing management as necessary to ensure the habitat values are maintained or enhanced for this species.

Non-Essential, Experimental Shirley Basin Black-footed Ferret Population Analysis

The analysis must address whether the activities described in the Casper RMP could jeopardize the continued existence of the black-footed ferret, rather than potential impacts to individuals. With this higher threshold, the analysis results in the conclusion that all of the BLM programs evaluated in this document present "**No Jeopardy**" to the species, as none of the actions would jeopardize the continued existence of the species. This will serve for the Shirley Basin population of black-footed ferrets, and will not be repeated for each program. Further, this population would be conserved through the designation of the Bates Hole SMA.

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 management actions.

The planning area is located in a semi-arid midcontinental climate typified by dry windy conditions, limited rainfall, and long cold winters (Trewartha and Horn 1980). Air quality in the planning area generally is considered to be good based on the limited amount of air quality monitoring currently being conducted in the area. The planning area has no regions designated as nonattainment for National Ambient Air Quality Standards (NAAQS) or Wyoming Ambient Air Quality Standards (WAAQS).

Pollutant concentration refers to the mass of pollutant present in a volume amount of air. The BLM supports ambient air quality monitoring programs within Wyoming for criteria pollutants, visibility, and air quality-related values in Class I pristine areas. The BLM works cooperatively with several other federal agencies to measure visibility with the Inter-Agency Monitoring of Protected Visual Environments (IMPROVE) network. The IMPROVE station operating in the Class I area nearest to the planning area, approximately 90 miles to the west, is in the Bridger Wilderness Area. Atmospheric deposition refers to processes in which air pollutants are removed from the atmosphere and deposited into terrestrial and aquatic ecosystems. Much of the concern about deposition is due to secondary formation of sulfur and nitrogen compounds, which may contribute to acidification of lakes, streams, and soils and affect other ecosystem characteristics, including nutrient cycling and biological diversity.

Hazardous Air Pollutants (HAPs) include air pollutants that can produce serious illnesses or increased mortality, even in low concentrations. HAPs are compounds that do not have established federal ambient standards, but they may have thresholds established by some states and are typically evaluated for potential chronic inhalation and cancer risks. Existing sources of HAPs within the planning area include (1) fossil fuel combustion that emits HAPs, such as formaldehyde, and (2) oil and gas operations that emit volatile organic compound (VOCs) and may emit hydrogen sulfide (H_2S). These data show that the main contributors to emissions include oil and gas development and production, salable minerals, locatables, and coal mines.

7.1.1 Proposed Protections for Air Quality in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- The BLM will consider implementing mitigations within its authority to reduce emissions from current levels in the planning area, by choosing alternatives with smaller aerial coverages, fewer units, or lesser ground-disturbing activities within the planning area; choosing alternatives with improved project designs that minimize air emissions; and performing dispersion modeling analyses to determine the potential effects of proposed air emission mitigations.
- The BLM will facilitate discussions with the stakeholders to implement mitigations beyond BLM's authority to reduce emissions from current levels in the planning area, such as considering a program to offset emissions proposed by the RMP and reducing emissions from existing sources (through techniques such as more stringent Best Available Control Technologies).

7.1.2 Conservation Measures Currently Committed to by the BLM

Site selection is initiated by the Air Quality Specialist in the BLM Wyoming State Office. BLM specialists in the Casper Field Office are contacted by the Air Quality Specialist and the preferred site undergoes a preliminary analysis to determine if there will be a significant impact to important resource values. Concurrent with the preliminary analysis, a records check will be performed to identify any concerns relating to listed species or habitat that may be in the area of the proposed location. If there is no indication of the presence of species or habitats that will be affected, a clearance will be issued for the project by the BLM.

7.1.3 Best Management Practices

No specific BMPs apply to air quality management.

7.1.4 Impact Analysis and Effect Determinations

Bald Eagle – Temporary disturbance of bald eagles from human activity during air quality station construction or periodic monitoring conceivably could have a minimal impact on eagles near the station. However, because air quality stations typically are not located in riparian areas, this is unlikely. No air quality stations are located in bald eagle habitat. In addition, an NSO restriction is implemented from ¼ to 1 mile from known or discovered bald eagle nests, such that construction of an air quality monitoring station is unlikely to occur. Implementing BLM air quality management will result in *no effect (NE)* to bald eagles. This determination is based on no air quality stations located in bald eagle habitat.

Black-footed Ferret – No black-footed ferrets currently are known to occur within the planning area. The construction and maintenance of air quality monitoring stations 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 air monitoring equipment could provide a perch for avian predators of the ferret. However, no plans to construct an air quality monitoring system in black-footed ferret habitat exist. Implementing air quality management actions will result in *no effect (NE)* to the black-footed ferret. This determination is based on the absence of air quality monitoring stations in black-footed ferret habitat and the lack of plans to construct an air quality monitoring station in black-footed ferret habitat.

Blowout Penstemon – No known populations of blowout penstemon occur in the planning area and no air quality monitoring stations occur within any potential blowout penstemon habitat in the planning area. Placement of air quality monitoring stations is not likely in the sandy habitat of the blowout penstemon due to the lack of stable foundation for the station. Actions related to air quality management will not

result in negative impacts to blowout penstemon or its potential habitat. Implementing air quality management actions will have *no effect (NE)* on the blowout penstemon. This determination is based on the absence of the blowout penstemon in the planning area and it is not expected that air quality management actions will occur in blowout penstemon habitat.

Colorado Butterfly Plant – No air quality monitoring stations occur within or near Colorado butterfly plant habitats. Actions associated with dust abatement could potentially occur near Colorado butterfly plant habitats, reducing the dust settling on these plants and benefiting the plants through improved photosynthesis and pollination success. Implementing air quality management actions will have *no effect (NE)* on the Colorado butterfly plant. This determination is based on the absence of the Colorado butterfly plant on BLM-administered surface, the absence of air quality monitoring stations near Colorado butterfly plant habitats, and the limited dust abatement activities near Colorado butterfly plant habitats. In addition, secondary beneficial effects may be realized for the Colorado butterfly plant through dust abatement actions.

Preble's Meadow Jumping Mouse – Currently no air quality monitoring stations exist in PMJM habitats. Typically air quality monitoring stations are not located in riparian habitat. An air quality monitoring station constructed in upland habitat adjacent to riparian habitat could adversely impact the PMJM because this species may feed or rest in these upland habitats. If no riparian habitats are lost due to these actions, no long-term impacts are anticipated to the PMJM. However, no air quality monitoring stations are planned to be constructed in PMJM habitat. Implementing air quality management actions will result in *no effect (NE)* to the PMJM. This determination is based on absence of air quality monitoring stations in PMJM habitat and that there are no plans to construct an air quality monitoring station near PMJM habitat.

Ute Ladies'-Tresses – Currently no air quality monitoring stations exist in Ute ladies'-tresses habitats. Typically air quality monitoring stations are not located in riparian habitat. Actions associated with dust abatement could potentially occur near Ute ladies'-tresses habitats, reducing the dust settling on these plants and benefiting the plants through improved photosynthesis and pollination success. However, these effects will be localized and, overall, minimal to the populations. No air quality monitoring stations are anticipated to be constructed near Ute ladies'-tresses habitat. Implementing air quality management actions will result in *no effect*. This determination is based on the absence of air quality monitoring station in riparian habitat, the lack of plans to construct an air quality monitoring station near Ute ladies'-tresses habitats, and the limited dust abatement activities occurring near habitat for this species.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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, local, 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. Moreover, no cause and effect has been established between projected emission levels and adverse impacts to threatened and endangered species in the planning area.

7.2 Cultural Resources

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. These activities are analyzed in this section for their potential impacts to threatened and endangered species in the planning area.

The BLM normally conducts cultural resource inventories in response to other surface-disturbing activities, such as the following. From 1967 to 2003, approximately 4,029 cultural resource investigations or other similar projects were conducted within the planning area (BLM 2004a). Surveys have been conducted on approximately 192,000 acres, or about 5 percent of the planning area. In addition to 3,841 Class I, Class II, and Class III inventories, 85 monitoring projects, 59 testing and evaluation projects, and 17 major excavations or other mitigation projects have occurred. Most recently, the BLM completed a Class I regional overview of the planning area that reviewed and summarized past cultural resources investigations, the numbers and kinds of recorded resources, and cultural resources management directions (BLM 2004a). Currently, 7,844 known cultural resources and one Native American traditional cultural property (TCP), known as the Cedar Ridge complex, exist in the planning area.

The BLM performs a variety of actions to preserve, protect, and restore cultural and historical resources. During inventory actions, the BLM inventories, categorizes, and preserves cultural resources, conducts field actions, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. Data collection actions are used for documenting and developing mitigation plans prior to surface-disturbing activities of other resource programs. Inventory actions commonly entail the use of hand tools, power tools, or heavy machinery. Land management actions associated with cultural resources involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface-disturbing activities; and preparing interpretive materials. The BLM also seeks listing of eligible sites on the National Register of Historic Places (NRHP), installs protective fencing of trail segments, stabilizes deteriorating buildings, acquires access to sites when necessary, performs certain surface-disturbing activities, pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets historic trails.

Surface-disturbing and other activities associated with the cultural resource program include, but are not limited to, the following actions: record cultural resources; inventory cultural resources; develop interpretive sites; use hand tools, power tools, and heavy machinery; stabilize deteriorating buildings and resources; fence cultural resources; and construct temporary campgrounds.

7.2.1 Proposed Protections for Cultural Resources in the Casper Draft RMP and EIS

No proposed protections for cultural resources management program that would benefit threatened and endangered species are identified.

7.2.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to cultural resource management.

7.2.3 Best Management Practices

No BMPs for cultural resources management are identified.

7.2.4 Impact Analysis and Effect Determinations

Bald Eagle – Actions associated with cultural resource management could adversely impact bald eagles in the planning area by causing bald eagles to avoid or abandon areas where management actions are implemented. Surface-disturbing activities associated with cultural resource investigations can vary in size and degree of disturbance. Impacts to bald eagles 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 types of bald eagle habitats affected. Although surface disturbance is restricted in nesting areas and winter communal roosts, terrestrial foraging habitats could be disturbed or destroyed by cultural resource investigations. As with any surface-disturbing activity, a pre-construction assessment of bald eagle presence will be conducted in potentially suitable habitats prior to authorization. Direct and indirect effects to bald eagle habitats will be avoided as a consequence of the pre-construction assessment and the BLMs implementation of appropriate buffer zones and conservation measures. Implementing cultural resource management actions *may affect, but is not likely to adversely affect,* the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of cultural resource management actions to harassing or displacing bald eagles and the requirement to conduct a pre-construction assessment for presence of threatened and endangered species.

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 pre-construction 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 and suspend activities immediately if ferrets are found outside of the reintroduction area. Developing interpretive sites will, of necessity, 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.

Blowout Penstemon – No known populations of blowout penstemon occur in the planning area. Cultural resource management could affect potential habitats for the blowout penstemon 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 to the blowout penstemon 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 types of habitats affected. Disturbance to potential blowout penstemon habitats are likely to occur only if large-scale excavation takes place in suitable habitats where the species is present. Implementing cultural 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 no known populations of blowout penstemon occurring in the planning area and the unlikely event that these management actions will occur in potential blowout penstemon habitats. In addition, the BLM requires surveys to determine the presence or absence of the blowout penstemon if surface disturbance is planned in potential habitats. If cultural resources are found in potential blowout penstemon habitats, restrictions protecting the cultural resources may benefit the blowout penstemon.

Colorado Butterfly Plant – Cultural resource management could affect the Colorado butterfly plant through soil excavation 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 to the Colorado butterfly plant 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 types of habitats affected. Disturbance to potential Colorado butterfly plant habitats are likely to occur only if large-scale excavation takes place. Implementing cultural resource management actions *may affect, but is not likely to adversely affect,* the Colorado butterfly plant 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 Colorado butterfly plant habitats. If cultural resources are found in potential Colorado butterfly plant habitats, restrictions protecting the cultural resources may benefit the Colorado butterfly plant.

Preble's Meadow Jumping Mouse – If removal of a cultural resource occurs, with approved mitigation, the potential for adverse impacts to PMJM habitats is possible during the removal of the cultural resources. However, the potential for occurrence of cultural resources in PMJM habitats is unlikely. Implementing cultural resources management actions *may affect, but is not likely to adversely affect,* the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that these management actions will occur in potential PMJM habitat. In addition, surveys to determine the presence of the PMJM are required prior to surface disturbance in potential PMJM habitat.

Ute Ladies'-Tresses – 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 to 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. 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, local, 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 and therefore not result in a significantly adverse affect on threatened and endangered species.

7.3 Fire Management and Ecology – Unplanned/Wildland Fire

The BLM coordinates its fire management program with the USFS, Wyoming State Forestry Division (WSFD), County Fire Departments, and local fire protection districts. The BLM fire management program focuses on two categories of fires: unplanned (or wildland fire) and planned (or prescribed fire). Unplanned or wildland fire occurs as the result of an act of nature, such as lightning, human accident, or by intent to cause damage. Unplanned fires in the planning area from 1990 to 2003 affected an average of 1,936 acres per year. Vegetative communities and their respective fire regimes vary throughout the planning area. Planned or prescribed fire is used in a controlled manner for specific purposes, such as improving habitats and plant community health and reducing hazardous fuels. From 1985 to 2003, prescribed fires in various vegetation types burned approximately 408 acres per year.

An essential component of the fire management program in the planning area is protection of the public and property from the adverse impacts of wildland fires. Fire suppression on public lands is guided by objectives in the existing plan and clarified by the annually updated Fire Management Plan for the Wyoming Eastern Zone (BLM 2004b). The 2003 Risk Assessment and Mitigation Strategy (RAMS) exercise recently refined the Fire Management Plan. The Healthy Forests Initiative, Healthy Forest Restoration Act (USC 2003), and the National Fire Plan 2000 also influence the BLM's approach to forest health and fire management in the planning area.

The BLM has identified site-specific fire management practices for multiple sites within the planning area. These practices vary from site to site, but generally identify the acreage designated for full fire suppression, limited fire suppression, and sites designated for prescribed burns. Full suppression is a strategy requiring immediate and aggressive attack of the fire and typically relies heavily on mechanized equipment on or off roads. In contrast, limited suppression is a less aggressive strategy, generally used to keep a fire within a specified area.

Fire suppression activities depend on the severity and size of the fire and the resources determined to be in danger from the fire. Initial attack of a wildland fire will consist of a ground crew (or smoke-jumper crew if the fire was in a remote location) dispatched to the site to evaluate the fire and estimate the suppression requirements needed. Ground access to the site may be by road or trail, cross-country, by vehicle, or on foot. If the fire is small, the crew will immediately extinguish the fire using hand and power tools (e.g., pulaskis, shovels, and chainsaws), and sometimes water from an engine pumper unit, or backpack pumps. If additional firefighting resources are needed, more personnel and equipment will be dispatched to the site. Additional work may include building fire lines by scraping a line down to mineral soil around the fire with hand tools. Hand-built fire lines (hand lines) typically are about 2-feet wide and generally surround the fire perimeter. If the fire increases in size or burns across the hand line, additional measures may be taken, including cutting trees, constructing wider fire lines with mechanized equipment, filling water pumper trucks from water bodies and spraying the water onto burning vegetation, water drops from helicopter buckets with water obtained at the nearest source accessible to helicopters, or air tanker drops of chemical retardant (a slurry of water, chemical fertilizers, and a binding agent, such as clay). If additional personnel are required to fight the fire, a camp will be established in a safe location close enough to the fire to allow efficient movement of personnel and equipment. Camps may require areas large enough to accommodate personnel, cooking facilities, equipment areas, and sufficient area for storage of supplies and equipment needed to suppress the fire. Following containment and control of the fire, “mop-up” operations will begin and continue until the fire is declared extinguished. Mop-up is a tactic to extinguish burning materials that could cause a fire to spread beyond the control lines. During mop-up operations, hazardous snags within the fireline are felled, and all remaining burning embers are extinguished until cold. Rehabilitation currently is conducted on a case-by-case basis in the planning area.

7.3.1 Proposed Protections for Wildland Fire in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- No heavy equipment use is allowed in the following areas without first consulting a resource advisor: areas of cultural resource sensitivity, riparian and wetland habitats, big game crucial winter ranges, greater sage-grouse leks, bald eagle nests or roosts, other habitats occupied by threatened or endangered species, and areas of highly erosive soils.
- Fire retardant or foam will be prohibited within 300 feet of surface-water sources.
- No trees will be cut during fire suppression activities within 200 yards of bald eagle nests or roosts.
- In areas that are neither unlimited nor limited, suppression tactics will be determined based on threats to values and resources at risks. In areas with high values, heavy equipment will be limited to or immediately adjacent to existing roads and trails.
- In regards to rehabilitation and stabilization following wildland fires, the BLM will evaluate all fires and rehabilitate as needed for suppression and fire-severity impacts. Rehabilitation will include chemical treatment where INPS (e.g., cheatgrass) are present.

7.3.2 Conservation Measures Currently Committed to by the BLM

The BLM is committed to the following conservation measures:

- Due to the immediacy of fire suppression operations, site-specific ESA Section 7 consultation prior to a wildland fire is not performed. Moreover, effects determinations for species are made after the emergency fire suppression action has occurred. Emergency consultation with the USFWS is initiated as soon as practicable during or following a wildland fire to determine if necessary measures need to be implemented to avoid adverse impacts to listed species both during suppression efforts, and during rehabilitation efforts. The BLM uses the "Emergency Consultations for Wildfire Activities" memorandum (USFWS 2004d) when establishing operating guidelines for emergency consultation.
- Coordination between BLM biologists and fire-suppression crews through the fire resource advisor will help promote exchanges of knowledge regarding known threatened and endangered species and their habitats at a fire location.

7.3.3 Best Management Practices

- Utilize Minimum Impact Suppression Tactics

7.3.4 Impact Analysis and Effect Determinations

Bald Eagle – Wildland fires could potentially occur in habitats occupied by bald eagles and may affect bald eagle behavior by causing the eagles to abandon or avoid habitats. Foraging, nesting, and communal winter roosting habitats are not expected to be impacted by suppression activities from hand tools, OHVs, and heavy machinery. Implementing fire-management actions *may affect, but is not likely to adversely affect* the bald eagle 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 adversely affect this species.

Black-footed Ferret – Wildland fires are not expected to directly affect the black-footed ferret because such fires typically do not occur in prairie dog towns where vegetation and fuels to support a fire are limited. Heavy machinery associated with fire suppression and fire prevention could potentially destroy habitats and burrows; however, because wildland fires in prairie dog towns are rare events, this type of impact is unlikely to occur. Implementing wildland 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 current absence of ferrets in the planning area and the unlikely event of fire or fire suppression activities in prairie dog towns.

Blowout Penstemon – Direct impacts to the blowout penstemon from wildland fires are not anticipated because the habitats in which the blowout penstemon occur typically are steep, sparsely vegetated sand dunes. Where they do occur, wildland fires may enhance blowout penstemon habitats by removing sand-stabilizing vegetation. Blowout penstemon habitats could be altered from the equipment used for wildland fire suppression activities. Implementing fire-management actions *may affect, but is not likely to adversely affect*, the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is made based on the low potential for fires to occur in blowout penstemon habitats and the low probability that fire equipment will be used in an area that contains blowout penstemon habitats. In addition, fire may be beneficial to the blowout penstemon by decreasing competing vegetation.

Colorado Butterfly Plant – Direct impacts to the Colorado butterfly plant from wildland fires are not anticipated because the habitats in which the Colorado butterfly plant occur are sub-irrigated, alluvial soils on level or slightly sloping floodplains, which are typically less prone to fire due to higher moisture

content compared to terrestrial habitat. Where they do occur, wildland fire may enhance Colorado butterfly plant habitats by removing late successional vegetation and INPS. Colorado butterfly plant habitats could be altered from the equipment used for wildland fire-suppression activities, but is unlikely due to the rarity of wildland fire events in these habitats. Implementing fire-management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of a wildland fire suppression activities occurring in potential Colorado butterfly plant habitat.

Preble's Meadow Jumping Mouse – Direct impacts to the PMJM from wildland fires are not anticipated because of the riparian habitats in which the PMJM occurs. Wildland fire is infrequent in these areas due to the presence of surface and subsurface water and the lack of significant fuel. PMJM habitats could be altered from the equipment used for wildland fire suppression activities, but is unlikely due to the rarity of wildland fire events in these habitats. Implementing fire-management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that wildland fire suppression activities will occur in PMJM habitat.

Ute Ladies'-Tresses – Direct impacts to the Ute ladies'-tresses from wildland fires area not anticipated because the habitats in which the Ute ladies'-tresses occur are is sub-irrigated, alluvial soils. Wildland fire is infrequent in these areas due to the presence of surface and subsurface water and the lack of significant fuel. Ute ladies'-tresses habitats could be altered from the equipment used for wildland fire suppression activities, but is unlikely due to the rarity of wildland fire events in these habitats. Implementing 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 wildland fire suppression activities occurring in Ute ladies'-tresses habitat.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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.

7.4 Fire Management and Ecology – Planned/Prescribed Fire

Prescribed, or planned, fire (as well as some wildland fires) is a management tool 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, seedbed preparation, reduction of hazardous fuel, control of disease or insects, grazing management, thinning, or plant species manipulation.

Prior to conducting a prescribed burn, fuel loads are identified and a burn plan is developed as to how the burn will be conducted and what safeguards must be in place to keep the fire under control. Vegetation thinning is sometimes used to reduce the fuel levels before a prescribed fire. Prescribed fire sites are usually accessed by road. The burn site is typically prepared prior to the actual prescribed fire by construction of firebreaks (often by black lining) and sometimes the windrowing or piling of the fuels to be burned within the firebreak. Fire engines generally are stationed on the site for emergency fire control if needed, and for mop-up operations. Qualified fire personnel conduct the prescribed fire under stringent guidelines of temperature conditions, humidity, and wind speed and direction to minimize the chance of the fire escaping. If all site conditions are favorable, and the weather forecast for the time of the burn is

favorable, the fuels to be burned are ignited and burned in small increments until the desired area is burned over. Once the fire burns out, or is extinguished, the area is monitored to be sure the fire is out and will not start up again or spread to areas not included in the burn plan.

7.4.1 Proposed Protections for Prescribed Fire in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Prescribed burning will be used to achieve objectives for other resources within the watershed. The resources include, but are not limited to, forestry, wildlife, range, vegetation, and watershed.
- The BLM will utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or resources values defined as, but not limited to, urban and industrial interface areas, developed recreation areas, commercial timber areas, wildlife habitats, range improvement facilities, communication sites, and municipal watersheds.

7.4.2 Conservation Measures Currently Committed to by the BLM

- The BLM is committed to the following conservation measures:
- Coordination will take place between the Fire Management Officer and BLM biologists during the planning process to ensure the most desirable effects for wildlife habitats will be realized and to reduce possible negative results to wildlife or habitat values.
- Prescribed burning is implemented to meet resource management objectives, but is not permitted from November 1- March 31 within bald eagle winter roost areas.
- Prescribed fire is prohibited within 1 mile of known or discovered occupied nests from February 1 to August 15. Prescribed fire is allowed ½ mile from a bald eagle nest outside of the nesting season.
- Surface disturbing activities are not allowed within ½ mile of delineated feeding concentration areas (North Platte River) from November 1 through March 31.
- Prior site selection for water collection locations will be conducted with BLM biologists for the conservation of threatened and endangered species and their habitats.
- If reseeding is necessary for rehabilitation, native grass and forb species will be used for reclamation.

7.4.3 Best Management Practices

- Utilize Minimimum Impact Suppression Tactics.

7.4.4 Impact Analysis and Effect Determinations

Bald Eagle – Actions associated with prescribed fire are not expected to occur in habitats occupied by the bald eagle. Implementing prescribed fire-management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event a prescribed fire will be conducted in bald eagle habitat and the conservation measures in place to protect the bald eagle and its habitats.

Black-footed Ferret – Prescribed fire, if planned in suitable occupied habitats (e.g., prairie dog towns), may impact black-footed ferrets. It is unlikely that prescribed fires will be planned in these habitats,

however, because prairie dog towns typically do not have the necessary fuel loading to successfully carry a fire. 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 current absence of ferrets in the planning area and the unlikely event of prescribed fire in prairie dog towns.

Blowout Penstemon – Direct impacts to the blowout penstemon from prescribed fires are not anticipated because the habitats in which the blowout penstemon occur typically are steep, sparsely vegetated sand dunes. Prescribed fires may enhance blowout penstemon habitats by removing sand-stabilizing vegetation. Actions associated with prescribed fire have the potential to improve blowout penstemon habitats. Implementing prescribed fire-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 unlikely event a prescribed fire is conducted in potential blowout penstemon habitat and the lack of known occurrences of this species in the planning area.

Colorado Butterfly Plant – Actions associated with prescribed fire have the potential to improve Colorado butterfly plant habitats. Implementing prescribed fire management actions *may affect, but is not likely to adversely affect,* the Colorado butterfly plant due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event that prescribed fire-management actions will take place in potential Colorado butterfly habitats.

Preble's Meadow Jumping Mouse – Prescribed fire is not common in PMJM riparian habitats due to the presence of surface and subsurface water and the lack of significant fuel in these areas. However, prescribed fire could occur in adjacent upland habitats. Prescribed fire could be beneficial to PMJM by maintaining habitats in necessary successional stages. Implementing prescribed fire-management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of prescribed fire occurring in PMJM habitats. Secondary beneficial impacts could occur from prescribed fire by maintaining necessary successional stages.

Ute Ladies'-tresses – Prescribed fire is not common in Ute ladies'-tresses habitats due to the presence of surface and subsurface water and the lack of significant fuel in these areas. Actions associated with fire suppression could destroy habitats and individual plants; however, this type of impact is unlikely due to the rare occurrence of prescribed fire in these areas. 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 occurring in Ute ladies'-tresses habitat.

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

7.5 Fish and Wildlife Resources

Through wildlife and fisheries habitat management, the BLM seeks to maintain and enhance habitats for a diversity of fish and wildlife species and provide habitats for threatened, endangered, candidate, proposed, and special status species in compliance with the ESA, approved species recovery plans, and BLM Manual 6840. The BLM wildlife habitat management program supports population objective levels in the WGFD strategic plan. Big game crucial winter range is an important component of habitat management in the planning area. There are 1,124,830 acres of designated crucial winter range in the planning area, 25 percent (281,158 acres) of which are on BLM-administered lands.

Wildlife program actions may include inventory and monitoring, habitat improvement projects, developing habitat management plans (HMPs), developing stipulations and protective measures, and acquiring land and easements. Table 4 summarizes the name, approximate size, and management focus of HMPs for the planning area. The goal of the HMPs is habitat protection and improvement for all wildlife and fisheries; some HMPs focus on particular wildlife groups, such as waterfowl and upland game.

Table 4. Habitat Management Plans for the Casper Planning Area

Habitat Management Plan	Acres	Management Focus
33-Mile Reservoir HMP (BLM 1974)	149	Waterfowl and shorebird habitats
Bald Eagle HMP for the Platte River Resource Area and Jackson Canyon ACEC (BLM 1992)	3,938	Bald eagle habitats
Bates Creek Aquatic HMP (BLM 1973)	1,350	Fisheries habitats
Bates Creek Reservoir HMP (BLM 1972a)	1,823	Waterfowl habitats
Bishop Waterfowl HMP (BLM 1972b)	119	Waterfowl habitats
Bolton Creek Action Plan (BLM 1988)	437	Riparian habitats
Goldeneye Wildlife and Recreation Area (BLM 1978)	894	Fisheries, wildlife, and recreation
Laramie Peak Bighorn Sheep HMP (BLM 1995)	Approximately 10,000	Bighorn sheep habitats
Teal Marsh Reservoir HMP (BLM 1974b)	117	Waterfowl habitats

Acreage includes lands administered by the BLM only.
ACEC Area of Critical Environmental Concern
BLM Bureau of Land Management
HMP Habitat Management Plan

The BLM develops stipulations and protective measures for fish and wildlife resources, including the authorization of withdrawals of some areas from mineral entry; limiting access of OHV use, snowmobiles, horseback riders, and pedestrians; prohibiting surface development; and implementing road closures. Habitat improvement projects include, but are not limited to, developing water sources; constructing and maintaining fences; managing other resource programs to conserve forage and protect habitats; improving forage production and quality of rangelands; and treating vegetation (e.g., prescribed fires; mechanical, chemical, and biological treatments; and cutting, thinning, planting, seeding, and pitting).

Other wildlife management actions include monitoring habitats; developing habitat islands; managing access; authorizing agricultural entry and disposal; using surface protection mitigations; modifying existing projects; constructing artificial nesting structures; using heavy equipment and hand tools; documenting resource damage; allowing new prairie dog towns to become established; improving aquatic and riparian habitat; reestablishing willows; implementing stream improvement practices; developing cooperative agreements to facilitate species transplants; chemically controlling pests; exotic fish removal; construction of instream barriers to protect species from non-native invaders; installation of revetments and fish passage structures; installation of log overpours; macroinvertebrate sample analysis; cabling of junipers; gabion baskets; and placement of large boulders for instream fish habitats. BLM wildlife educational programs include the distribution of information to landowners, the public, and lessees, and developing public education programs.

7.5.1 Proposed Protections for Fish and Wildlife Resources in the Casper Draft RMP and EIS

The following list contains proposed protections in the Casper Draft RMP and EIS:

- Restore 33 miles of incised streams for fisheries by using various methods including in-stream structures.
- Develop 100 acres of surface water for fish, waterfowl, and special status species waterfowl.
- Allow no surface development on all crucial big game winter ranges from November 15 to April 30. The Authorized Officer is able to grant exceptions on a case-by-case basis.
- Within big game crucial winter ranges, BLM will evaluate use by all livestock and wildlife and require adjustment to herd/flock size, length of grazing season, season of use, and extent of use, which benefits desired future conditions in crucial winter ranges.
- Develop utilization plans in future activity level management plans (e.g., HMPs or Allotment Management Plans [AMPs]) within the Bates Hole and Rattlesnake Hills big game crucial winter ranges.
- Implement timing limitation stipulations (TLS) to protect sage and sharp-tailed grouse and raptors.
- Continue the existing management of the BLM and the WGFD cooperatively managed Table Mountain, Springer/Bump-Sullivan, and Rawhide wildlife habitat areas. These areas will be turned over to the WGFD by disposal within 5 years. If these lands are not disposed of to the WGFD within this 5-year period, these areas will then be available for disposal to other agencies/organizations, which will manage the lands for upland game birds and waterfowl habitat/production. The existing Classification and Multiple Use (C&MU) classification on Table Mountain and Springer/Bump-Sullivan will be terminated and minerals will be withdrawn from locatable mineral entry.
- Revise and consolidate the Bates Creek Reservoir, Bates Creek Aquatic Plan/Kerfoot Creek, and Bolton Creek HMPs into a consolidated Bates Hole HMP.
- Revise and consolidate the Railroad Grade Reservoir, Camel Hump Reservoir Wildlife and Recreation Area, Teal Marsh Reservoir, and 33-Mile Reservoir HMPs into a consolidated 33-Mile HMP. BLM will evaluate future reservoirs in the 33-Mile area for fishery/riparian potential. High potential reservoirs meeting the criteria for fishery/riparian habitats will be incorporated into the consolidated 33-Mile HMP.

7.5.2 Conservation Measures Currently Committed to by the BLM

The BLM is committed to the following conservation measure:

- In addition to the conservation measures identified throughout this document, all projects will be evaluated for the presence of threatened and endangered species and the associated impacts.
- In the event a dead or injured threatened or endangered species is discovered during project activities the BLM would notify the USFWS Ecological Field Office (307-772-2374) or Law Enforcement Office (307-261-6365) within 24 hours of the discovery.
- Each year the BLM shall verify the status of known threatened and endangered species habitats on lands administered by the BLM within the planning area. As a matter of maintaining inventory information the BLM shall coordinate annually with the USFWS, WGFD, and other

appropriate entities to determine the status. Known threatened and endangered species habitats will be assumed active if the status has not been verified.

7.5.3 Best Management Practices

The following is a list of BMPs:

- The BLM should continue monitoring game, non-game, raptor, and special status species and their habitats on an annual basis.
- The BLM should continue prairie dog town inventory on at least a 10-year cycle.
- The BLM should continue to monitor for the occurrence of sylvatic plague, West Nile virus, and other epizootic disease outbreaks.

7.5.4 Impact Analysis and Effect Determinations

Bald Eagle – Actions associated with fish and wildlife management have the potential to occur in habitats occupied by the bald eagle. If fish and wildlife management occurs in occupied bald eagle habitat, these actions may affect bald eagle behavior. Developing surface water for fish and waterfowl could beneficially affect the bald eagle. The number of people associated with the activity, time of year, duration of actions, use of heavy machinery, and the type of bald eagle habitat affected will influence the severity of the impact to bald eagles. However, surface disturbance restrictions around bald eagle nests and roosts will minimize effects or make the effects unlikely. In the long-term, these actions will likely have positive effects by improving or maintaining bald eagle habitat conditions, benefiting bald eagles and their prey. Implementing fish and wildlife management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *insignificant effects (NLAA-i)*. This determination is based on the limitations to surface disturbance around bald eagle nests and roosts. In addition, bald eagles may benefit from habitat enhancements for fish and wildlife species.

Black-footed Ferret – Wildlife habitat management may influence potential habitats for black-footed ferrets. Protection of greater sage-grouse breeding areas and big game crucial winter range could benefit ferret prey by protecting associated prairie dog habitats. Limiting access to specific areas for OHVs, horseback riding, and pedestrians; prohibiting surface development; and imposing road closures could benefit black-footed ferret prey by protecting prairie dog habitats and reducing human access, which will reduce shooting. Implementing wildlife habitat 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 protection of, and potential improvements to, black-footed ferret habitats.

Blowout Penstemon – Direct effects to the blowout penstemon are not anticipated because no known populations of this species occur in the planning area. Fish and wildlife management may influence potential habitats for the blowout penstemon and potential impacts from these actions will depend on the time of year, duration of field actions, use of heavy machinery, and the types of habitats affected. Fish and wildlife management actions may have positive effects in the long-term by maintaining or improving potential blowout penstemon habitats, especially actions that restrict development. Some wildlife species (i.e., mule deer, elk, and pronghorn) eat blowout penstemon. Implementing 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 unlikely event that fish and wildlife management actions will take place in potential habitats for the blowout penstemon. In addition, fish and wildlife management actions that restrict development, may benefit the blowout penstemon by avoiding disturbance of suitable habitats.

Colorado Butterfly Plant – Direct effects to the Colorado butterfly plant are not anticipated because no known populations of the Colorado butterfly plant occur on BLM-administered surface in the planning area. Fish and wildlife management actions may influence Colorado butterfly plants and habitats; however, potential impacts depend on the number of people involved in the activity, the time of year, duration of field actions, use of heavy machinery, and the types of habitats affected. BLM actions that deplete groundwater may adversely impact the Colorado butterfly plant. Implementing fish and wildlife management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on absence of known populations of the Colorado butterfly plant on BLM-administered lands and the unlikely event that fish and wildlife management actions will take place near known populations of the Colorado butterfly plant.

Preble's Meadow Jumping Mouse – Enhancement of riparian areas could improve habitats for the PMJM and efforts to conserve habitats for species occupying similar habitats as the PMJM, such as the bald eagle and the Ute ladies'-tresses, could also benefit the PMJM. Vegetation management or habitat improvement projects that use heavy machinery could impact the PMJM. These types of projects are rarely permitted in PMJM habitats. If they were permitted, surveys for PMJM would be conducted to determine presence or absence of the species. Implementing fish and wildlife management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of fish and wildlife management actions using heavy machinery being permitted in PMJM habitats and the conservation measures already in-place to protect this species.

Ute Ladies'-Tresses – Fish and wildlife management actions may influence potential habitats for the Ute ladies'-tresses. Wildlife projects are expected to be developed in areas outside of occupied habitat. Fish and wildlife management actions are not expected to deplete groundwater which may impact the Ute ladies'-tresses. Positive effects, including maintaining and improving existing habitat conditions for the Ute ladies'-tresses, may also occur. Potential impacts depend on the time of year, duration of field actions, use of heavy machinery, and the types of habitats affected. Implementing 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 protections of and potential improvements to the Ute ladies'-tresses habitats, implementing conservation measures, and the lack of actions planned within or near Ute ladies'-tresses habitats.

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

7.6 Forests, Woodlands, and Forest Products

The BLM administers approximately 66,005 acres of forests and 98,999 acres of woodlands. Forest species include lodgepole pine (*Pinus contorta*), ponderosa pine (*Pinus ponderosa*), and Douglas-fir (*Pseudotsuga menziesii*). Woodlands encompass quaking aspen (*Populus tremuloides*), limber pine (*Pinus flexilis*), and Rocky Mountain juniper (*Juniperus scopulorum*). Commercial harvest primarily occurs in the forest communities; however, no active forest management occurred from 1990 to 2001, except in the Muddy Mountain Environmental Education Area (EEA).

The BLM manages its forest resources to achieve optimal stand health, productivity, and biological diversity, while also providing a balance of natural resource benefits and uses, including a sustainable flow of wood products, watershed health and stability, wildlife, recreation, and livestock grazing. Under the Preferred Alternative, the BLM will manage for desired forest conditions where all age classes are

represented, insects are endemic rather than epidemic, and sanitation cuts are used to remove trees infected with mistletoe and blister rust. Silvicultural treatments could include thinnings, clearcutting, shelterwood, seed tree cutting, release cutting, improvement and salvage cuttings, prescribed fire, chemical treatments, and planting/seeding. Clearcuts will be limited to 20 acres or less with meandering boundaries. Ponderosa pine stands will be managed to achieve a sustainable flow of wood products. Forest treatments will be allowed within bald eagle roost areas to manage the stands for old growth; any constructed roads and trails will be closed and reclaimed following harvest. Within the Muddy Mountain EEA, 100 thousand board feet annually will be allowed where wildlife and recreation objectives are met.

Forest management involves timber harvesting, cutting and removal of diseased trees, disease treatment by spraying, and the spraying of grasses and shrubs. The BLM allows precommercial thinning, chaining, and shearing. The BLM allows timber harvesting, permits clearcuts, ensures slash disposal, allows commercial thinning, logging, and skidder-type yarding, as well as cable yarding. The BLM permits the construction of roads and landings for use in timber harvesting operations. Slash is lopped and scattered, roller chopped, or burned. The BLM also permits helicopter logging. Noncommercial timber harvest involves collecting and cutting of firewood, Christmas trees, posts, poles, and wildlings. During restoration efforts following forest management, the BLM ensures site regeneration and stand replacement, fences regeneration areas, and conducts rehabilitation surveys. The BLM also assesses effects of prescribed burning and grazing and manages forests for recreation, livestock grazing, and wildlife habitats. Forest management actions that the BLM engages in that involve all uses of the forest include acquiring easements, pursuing legal access, allowing road development, and installing drain culverts and water bars.

In summary, surface disturbance and other actions associated with the forestry management program include, but are not limited to, the following actions: rehabilitation surveys; timber harvesting; artificial regeneration (e.g., planting harvested areas, including new seedlings); fencing regenerated areas; clearcuts (including stand replacement); selective cutting; slash disposal; site regeneration (natural); precommercial thinning; collection of firewood, posts, poles, Christmas trees, and wildings; commercial thinning; skidder-type yarding; logging operations; cable yarding; road and landing construction; shearing; installing drain culverts, water bars, or ditches; cutting and removing diseased trees; lopping, scattering, roller chopping, or burning slash; helicopter logging; disease treatment sprayings; and spraying of grasses and shrubs.

7.6.1 Proposed Protections for Forests, Woodlands, and Forest Products in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- During management of ponderosa pine, mixed conifer, and lodgepole pine stands, selected snags will be left for wildlife nesting, perches, and sources of food and cover.
- Wherever silvicultural practices, road construction, or any other surface-disturbing activities occur, the Wyoming silvicultural BMPs will be utilized to prevent, limit, and mitigate erosion, sedimentation, and water degradation, and, as needed, to control spread of INPS.

7.6.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Coordination occurs between BLM forestry personnel and BLM biologists on forestry management plans and projects.
- The speed limit on all project roads will not exceed 35 miles per hour (mph), where possible.

- Timing stipulations to reduce the impacts to species during nesting, roosting, or flowering seasons will be used.

7.6.3 Best Management Practices

- Wyoming silvicultural BMPs will be utilized to prevent, limit, and mitigate erosion, sedimentation, and water degradation, and, as needed, to control spread of INPS.

7.6.4 Impact Analysis and Effect Determinations

Bald Eagle – Bald eagles in the planning area typically are associated with cottonwood forests in riparian areas for nesting and roosting and use open upland habitats for foraging. Forest management actions are restricted to coniferous trees in the planning area. Because forest management actions will not occur in bald eagle habitats, bald eagles are not expected to experience detrimental effects from forest management actions. Nesting and roosting bald eagles may be disrupted or displaced by increased levels of human activity. Implementing forest management actions *may affect, but is not likely to adversely affect* the bald eagle due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event of forest management actions being permitted in occupied bald eagle habitat and the BLM committed conservation measures.

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

Blowout Penstemon – Forest management actions are restricted to coniferous trees in the planning area. The blowout penstemon is associated with steep slopes and sparsely vegetated sand dunes, which are not areas targeted for forest management. Potential blowout penstemon habitats are not expected to experience any detrimental effects from forest management actions. Implementing forest management actions has *no effect (NE)* on the blowout penstemon. This determination is based on the absence of forest management areas in potential blowout penstemon habitats.

Colorado Butterfly Plant – The Colorado butterfly plant is associated with grassland riparian areas, which are not areas targeted for forest management. Potential Colorado butterfly plant habitats are not expected to experience any effects from forest management actions. Implementing forest management actions has *no effect (NE)* on the Colorado butterfly plant. This determination is based on the absence of forest management areas within or near Colorado butterfly plant habitats.

Preble's Meadow Jumping Mouse – The PMJM is associated with riparian areas, which are not areas targeted for forest management. However, there is the possibility of PMJM movement into forested areas adjacent to suitable riparian habitat along permanent water. If forest management actions occur when PMJM are active, effects could occur to the PMJM. These types of projects are rarely permitted in PMJM habitats. Implementing forest management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of forest management actions being permitted in PMJM habitats and the BLM committed conservation measures.

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 areas within or near Ute ladies'-tresses habitats.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Forest management on nonfederal lands in winter roosting areas could affect bald eagles and their habitats.

7.7 Health and Safety

The BLM is required to address hazards that create safety risks to visitors to BLM lands. The Hazard Management and Resource Restoration Program (HMRRP) is designed to manage hazards on public lands to reduce risks to visitors and employees, restore contaminated lands, and carry out emergency-response actions. Actions directed toward health and safety concerns in the planning area primarily encompass the following three main areas: Abandoned Mine Lands (AML), Formerly Used Defense Sites (FUDS), and hazardous materials and waste. The BLM coordinates with appropriate regulatory agencies to reduce hazards associated with AML. The five FUDS on BLM-administered lands in the planning area are managed in cooperation with the U.S. Army Corps of Engineers (USACE).

The HMRRP provides warnings; secures and disposes of hazardous waste discharged on public lands; reports, secures, and cleans up public lands contaminated with hazardous wastes; uses precautionary measures; establishes precautions; and responds to emergencies. HMRRP seeks to protect public and environmental health and safety on BLM-administered public lands, comply with federal and state laws, prevent waste contamination due to any BLM-authorized actions, minimize federal exposure to the liabilities associated with waste management on public lands, and integrate hazardous materials and waste management policies and controls into all BLM programs. Hazardous waste sources may be from illegal dumping, mine tailings, and abandoned waste.

7.7.1 Proposed Protections for Health and Safety in the Casper Draft RMP and EIS

No proposed protections for health and safety that would benefit threatened and endangered species are identified.

7.7.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Due to the immediacy of hazardous materials (HAZMAT) emergency incident operations, site-specific ESA section 7 consultation prior to an incident will not performed. Effects determinations for species will be made after the emergency HAZMAT incident action has occurred. Emergency consultation with the USFWS will be initiated as soon as practicable during or following an incident to determine if necessary measures need to be implemented to avoid adverse impacts to listed species both during cleanup efforts and during rehabilitation efforts.
- For HAZMAT sites that are <u>not</u> addressed as <u>emergency actions</u> under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), routine ESA Section 7 consultation is required, in addition to adherence to other federal and state regulatory procedures.
- If revegetation is necessary after a HAZMAT cleanup activity, species native to the adjacent area will be seeded.

7.7.3 Best Management Practices

No BMPs for health and safety are identified.

7.7.4 Impact Analysis and Effect Determinations

Threatened and Endangered Species – There are no known FUDS or AML sites occurring within any potential threatened and endangered species habitat. HAZMAT situations occurring on public lands are non-discretionary events in which the clean-up of such an event would be handled under emergency consultation in the event they occurred near threatened and endangered species habitat. Implementing health and safety management actions will have *no effect,* on any threatened or endangered species within the planning area.. This determination is based on the BLM having no discretionary authority over these activities and there are no known FUDS or AML project areas within potential threatened or endangered species habitat.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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.

7.8 Invasive Nonnative Plant Species and Pest Control

The BLM works cooperatively with the State of Wyoming and the Converse, Goshen, Natrona, and Platte County weed control districts through the cooperative weed and pest management program to conserve and enhance all resources within the planning area. The Animal and Plant Health Inspection Service (APHIS) is currently the BLM's agent for pest control.

INPS are plants that are invasive and not indigenous to the planning area. Typically, INPS are detrimental to native ecosystems and human welfare. Noxious weeds are undesirable native or nonnative plants that have either been "designated" by the State of Wyoming or "declared" by the county weed control districts. For the purpose of this discussion, nonnative noxious weeds are a subset of INPS.

With the exception of vascular plants classified as INPS, a pest can be any biological life form that poses a threat to human or ecological health and welfare. To date, and only occasionally, the Casper Field Office has dealt with grasshoppers, Mormon crickets, prairie dogs, and predator control.

There are 24 designated and prohibited noxious weeds on the State of Wyoming Weed and Pest Control Act Designated List (Wyoming Weed and Pest Council 2005). BLM's resource users prepare pesticide-use proposals incorporating district INPS control guidelines (BLM 2003b). The primary species targeted in the planning area include Russian knapweed (*Acroptilon repens*), spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*Centaurea diffusa*), leafy spurge (*Euphorbia esula)*, dalmation toadflax (*Linaria genistifolia* ssp. *dalmatica*), Canada thistle (*Cirsium arvense)*, Scotch thistle (*Onopordum acanthium*), musk thistle (*Carduus nutans*), houndstongue (*Cynoglossum officinale* L.), field bindweed (*Convolvulus arvensis*), and puncturevine (*Tribulus terrestris*). These species are typically found in sagebrush and grassland, desert shrub, and riparian and wetland community types.

INPS often out-compete native plant species and, therefore, are considered a detriment to native vegetation. Spread of INPS in the planning area has contributed to economic loss and the loss of rangeland productivity, reduced structural and species diversity, and degraded and fragmented wildlife habitats. Based on observations and reports by county weed control districts, INPS control measures are limiting population sizes in some cases, but not in others. Inventory and monitoring for INPS have been initiated, but currently the data are insufficient to project the rate or spread of INPS in the planning area.

BLM is participating fully with five Coordinated Resource Management (CRM) working groups formed to address INPS. Four of these are located in Natrona County (South Bighorns Weed CRM, Bates Hole Weed CRM, Badwater Weed CRM, and Rattlesnake Hills Weed CRM) and one is located in Goshen

County (Goshen County Weed CRM). The CRM groups are initiating educational efforts, contemplating preventative measures, applying for outside funding, and increasing organized control efforts.

Methods used to control INPS population size and reduce density across the planning area include chemical or a combination of chemical and biological treatments. With the exception of insects that target musk thistle, spotted knapweed and diffuse knapweed, biocontrol agents exhibited limited success, especially when used exclusively (BLM 2003b). Some nonnative organisms introduced as biological control agents are known to diminish native biological diversity and may adversely affect populations of special status species, such as federally listed threatened or endangered species, species proposed or candidates for listing under the ESA, or Wyoming BLM's Sensitive Species List. Biological control agents that diminish native biological diversity and (or) may adversely affect populations will not be used within the planning area.

Pest control primarily includes controlling prairie dogs and outbreaks of insects, particularly Mormon crickets and grasshoppers. The U.S. Department of Agriculture (USDA)-APHIS is the only authorized agent for controlling predators, treating epizootic outbreaks, and controlling prairie dogs and insect infestations. These actions are subject to established procedures and policies as outlined in the national and state level MOUs between BLM and USDA-APHIS. The BLM cooperates with USDA-APHIS to assist with inspections of BLM-administered lands where potential outbreaks may occur and assists in developing and implementing control plans. When outbreaks occur, USDA-APHIS conducts control operations and is reimbursed for its expenses on BLM lands when these expenses exceed funding available to USDA-APHIS for this work. Prairie dogs may be controlled where public health and safety risks are documented; BLM works with adjacent landowners on a case-by-case basis to prevent prairie dog degradation of private land.

7.8.1 Proposed Protections for INPS and Pest Control in the Casper Draft RMP and EIS

The following list contains proposed protections in the Casper Draft RMP and EIS:

- Management actions will comply with Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming (BLM 1998).
- The BLM will cooperate with other agencies in the prevention, control or eradication of diseases which threaten the health of humans, wildlife, livestock, and vegetation.
- The BLM will cooperate with other agencies in establishing, controlling, or eradicating unauthorized nonnative animals that pose a threat to the health of natural ecosystems.
- The BLM will continue to develop a comprehensive INPS management program.
- The BLM will inventory and develop a treatment plan to reduce or eliminate salt cedar stands over the life of the plan.
- The BLM Authorized Officer may require a 72-hour flush period for livestock if the livestock are likely carrying ingested INPS seeds in a Level I weed management area.

7.8.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM.

- Application of chemicals will be in accordance with EPA guidelines and follow the U.S. Department of the Interior's (USDI) restricted chemical use list. Only chemicals approved by the USDI for use on public land will be authorized.
- Chemical applications will be timed so that they will not occur during nesting, brooding, or roosting seasons.
- Where possible, chemicals will be chosen that will have *no effect (NE)* to other species in the area, such as birds or mammals.
- Buffer zones along waterways and riparian areas will preclude the use of herbicides unless the chemical is safe for use in these areas.
- The Casper Field Office manager will meet annually with the local USDA-APHIS Wildlife Services supervisor to review the proposed animal damage management program actions for the coming year and assure they are in compliance with the RMP.
- The BLM requires the local USDA-APHIS wildlife services supervisor to provide the Casper Field Office manager with a report of the actions conducted for the prior year. The Casper Field Office manager is responsible for reviewing this document and assessing whether actions are in compliance with applicable laws, regulations, and agreements.
- The Casper Field Office manager is responsible for ensuring that the USDA-APHIS wildlife service is consulting with the USFWS for animal damage control actions on public lands within the planning area.

7.8.3 Best Management Practices

No BMPs for INPS management are identified.

7.8.4 Impact Analysis and Effect Determinations

Bald Eagle – Control of INPS on BLM-administered lands and the development of a comprehensive INPS management program could improve habitats for bald eagle prey species. Chemical control of prairie dogs is not likely to occur within Bald Eagle foraging areas on public lands, as both the white-tailed and black-tailed prairie dog are listed as WY BLM State Director Listed Sensitive Species, which under the BLM 6840 manual requires the conservation of these species. Implementing INPS and pest control management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the likelihood that INPS control measures and pest control will not occur in bald eagle habitats.

Black-footed Ferret – No Black-footed ferrets are believed to exist within the Casper Planning Area. Control of INPS on BLM-administered lands and the development of a comprehensive INPS management program could improve habitats for the black-footed ferret and prairie dogs. Chemical control of prairie dogs is not likely to occur on public lands in areas identified for ferret reintroduction, as both the white-tailed and black-tailed prairie dog are listed as WY BLM State Director Listed Sensitive Species, which under the BLM 6840 manual requires the conservation of these species. Implementing INPS and pest control 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 current absence of ferrets in the planning area and the conservation of prairie dog species.

Blowout Penstemon – No direct effects are anticipated to occur from INPS and pest control because the blowout penstemon is not known to occur in the planning area. It is unlikely that INPS management actions will occur in potential blowout penstemon habitats, but if they did, these actions have the potential to improve blowout penstemon habitats by reducing competition from INPS. Implementing INPS and pest control 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 absence of the blowout penstemon in the planning area and the unlikely event that these management actions will occur in potential blowout penstemon habitats. Existing conservation measures and INPS control management actions may benefit potential blowout penstemon habitats by maintaining and improving habitats.

Colorado Butterfly Plant – No known populations of the Colorado butterfly plant occur on BLM-administered surface lands in the planning area. INPS control measures will be limited in wetland and riparian habitats due to the establishment of buffers for application of herbicides in these areas. INPS control measures could increase suitable habitat for the Colorado butterfly plant. The development of a comprehensive INPS management program could improve habitat for the Colorado butterfly plant. Implementing INPS and pest control management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of the Colorado butterfly plant from BLM-administered surface lands and protections for riparian and wetland habitats and the existing Colorado butterfly plant conservation measures.

Preble's Meadow Jumping Mouse – Control of INPS on BLM-administered lands and the development of a comprehensive INPS management program could improve habitats for the PMJM. However, due to the protections afforded to wetland and riparian areas and the establishment of buffers for herbicide application, INPS control in these areas is anticipated to be minimal. Implementing INPS and pest control management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the protections for riparian and wetland habitats, the limited INPS control anticipated in these habitats, and the development of an INPS management program. In addition, INPS control and existing conservation measures could have beneficial effects by improving habitats for the PMJM.

Ute Ladies'-Tresses – INPS control measures will be limited in wetland and riparian habitats as buffers for application of herbicides are established, protecting the Ute ladies'-tresses from herbicides. In areas where habitats are unsuitable for the Ute ladies'-tresses because of INPS, INPS control measures may benefit the Ute ladies'-tresses by improving habitats. Developing a comprehensive INPS management program could improve habitats. Implementing INPS 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 and wetland habitats and the conservation measures for the Ute ladies'-tresses.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Surface-disturbing activities and soil disturbance contribute to the spread of INPS. While much of the surface disturbance from non-BLM actions is anticipated to be reclaimed, the potential for spread of INPS remains from both short-term and long-term impacts. Surface disturbance is anticipated to continue on nonfederal lands. The spread of INPS could affect threatened and endangered species habitats, making them unsuitable for these species.

The long-term effectiveness of INPS 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 INPS could overwhelm attempts at control and substantially impact fire management and ecology, biological resources, livestock grazing (by reducing rangeland productivity and animal unit

months [AUMs]), and recreation (by impacting wildlife habitats and scenic quality) throughout the planning area.

7.9 Lands and Realty

The Casper Field Office lands and realty program is aimed at managing the underlying land base that hosts and supports all resources and management programs. The key actions of the lands and realty program include (1) land use authorizations (e.g., leases and permits, airport leases); (2) land tenure adjustments (e.g., sales, exchanges, donations, purchases); and (3) withdrawals, classifications and other segregations. The BLM works cooperatively to execute the Casper Field Office lands and realty program with federal agencies, the State of Wyoming, counties and cities, and other public and private landholders.

Land sales are disposals or transfers of public lands through desert land entry, public sale, exchange, State of Wyoming indemnity selection, or recreation and public purposes (R&PP) leases or patents. The BLM administers 12 R&PP conveyances covering approximately 2,849 acres and 14 R&PP leases covering approximately 626 acres. Under the Preferred Alternative, approximately 1,131,290 acres are identified for retention, 224,834 acres are identified for disposal, and 5,453 acres are identified for restricted disposal.

In its lands and realty management program, the BLM implements stipulations and protective measures. These actions include processing stock driveway withdrawals and locatable mineral entry withdrawals; establishing protective withdrawals; and developing stipulations.

Under the lands and realty program, the BLM pursues cooperative agreements, develops recreation site facilities, considers offsite mitigation, minimizes access in wildlife habitats, fences revegetation sites, blocks linear rights-of-way (ROW) to vehicle use, considers temporary use permits, considers new withdrawals, and leases acres for landfills.

Withdrawals are used to preserve sensitive environmental values, protect major federal investments in facilities, support national security, and provide for public health and safety. Withdrawals segregate a portion of public lands and suspend certain operations of the public land laws, such as desert land entries or mining claims. Numerous withdrawals are in place throughout the planning area, many of which transferred federal land to other agencies for specific purposes

In addition, the lands and realty program authorizes renewable energy development, primarily wind and solar energy. In the planning area, wind-energy development will be allowed on 1,145,597 acres rated as outstanding/superb and good/excellent for wind-energy potential. Wind turbines authorized by the BLM typically are up to 180 feet in height with an 80-foot turbine diameter. Each turbine will encompass about 1.2 acres. Ancillary uses will include meteorological towers, roads, and power lines. Although the demand for solar energy is currently low in the planning area, the BLM will evaluate solar energy development on a case-by-case basis.

Most ROWs granted by the BLM for access roads, pipelines, communication sites, irrigation ditches, and electrical distribution lines are associated with oil and gas wells and production facilities. These ROWs may be temporary or extended for 2 years or longer. At the end of 2002, there were more than 1,000 existing ROWs in the planning area, 8 designated ROW corridors, and 1 designated communication site window with three sites. The BLM currently administers one special land use permit on 200 acres issued to the Wyoming Army National Guard for military training near Camp Guernsey. Under the Preferred Alternative, five new communication site windows will be designated in accordance with 43 Code of Federal Regulations (CFR) 2806.

7.9.1 Proposed Protections Lands and Realty in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Parcels identified for restricted disposal may be disposed of under the R&PP Act by exchange, may limit the disposal to a particular type of entity capable of preserving the resource values, or may include the use of covenants in the deed or land sale patent to ensure the resource values are protected.
- Retention lands are intended to remain in public ownership. However, retention lands may be disposed of under the R&PP Act or through land exchange to meet public needs or to enhance management of the public lands and resources in these areas. Land sales within retention areas will be considered on a case-by-case basis to meet community expansion or other public needs, or to resolve resource management concerns.
- Future corridor adjustments and new corridor designations will be made only when facility placement within an existing designated corridor is incompatible, unfeasible, or impractical, and when the environmental consequences can be adequately mitigated. Problems of technical compatibility between facilities and spacing of facilities in corridors will be solved on a case-by-case basis.

7.9.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Coordination will take place between BLM realty staff and BLM biologists to identify land exchanges that will benefit listed species or their habitats.
- The BLM must conduct surveys for threatened and endangered species prior to disposal of any BLM-administered lands.

7.9.3 Best Management Practices

The following BMP has been identified.

- Speed limits on access roads will be limited to 35 mph, where possible.

7.9.4 Impact Analysis and Effect Determinations

Bald Eagle – Actions from the lands and realty management program may impact the bald eagle or its habitats. Before disposal, lands are evaluated for unique characteristics, including suitability for bald eagles. Lands identified as suitable habitats for bald eagles will not be available for disposal. Lands not administered by the BLM that contain suitable bald eagle habitats may be targeted for acquisition by the BLM, benefiting bald eagle habitats. However, power lines, communication towers, pipelines, and roads typically occur within ROW and are known to injure and cause mortalities to bald eagles from collisions and electrocutions. Construction of roads within ROW may open new areas to human activity that may cause bald eagles to avoid or abandon otherwise occupied habitats. Implementing the lands and realty program management actions *may affect, is likely to adversely affect (LAA)*, the bald eagle. This determination is based on the potential for infrastructure within ROW to result in take. Land acquisition could benefit the bald eagle by acquiring suitable bald eagle habitats. Existing conservation measures should minimize the effects of lands and realty program activities on bald eagle habitats.

Black-footed Ferret – Land disposal and transactions for recreation, exchanges, and disposal and establishment of corridors for utility/transportation systems may adversely impact black-footed ferret

habitats if such actions occur near prairie dog towns. Although possible, the BLM rarely conveys properties with high resource value, such as those with known threatened, endangered, or sensitive species. 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 *discountable effects (NLAA-d)*. 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. Existing conservation measures should minimize the effects of lands and realty program activities on bald eagle habitats.

Blowout Penstemon – No direct effects to the blowout penstemon are anticipated because no known populations of this species occur in the planning area and extensive surveys have failed to document any populations within the planning area. Due to the typical habitats (i.e., steep slopes with stable substrate), blowout penstemon occurs in, it is unlikely new utility systems will be sited in potential blowout penstemon habitats. Lands and realty management actions are not anticipated to have any impact on the blowout penstemon. Implementing lands and realty program management actions will result in *no effect* to the blowout penstemon. This determination is based on the absence of blowout penstemon in the planning area.

Colorado Butterfly Plant – No known populations of Colorado butterfly plant occur on BLM-administered surface in the planning area. Land disposal and establishment of corridors for utility or transportation systems may adversely impact Colorado butterfly plant habitats. A ¼ section of BLM-administered land located within ½ mile of a known Colorado butterfly plant population is identified for disposal, which could impact the Colorado butterfly plant. Potential habitats for the Colorado butterfly plant located on lands not currently administered by the BLM could be targeted for acquisition, benefiting the Colorado butterfly plant by implementing additional protection that may not be available under non-BLM ownership. Implementing lands and realty program management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of Colorado butterfly plant populations located on BLM-administered surface in the planning area and existing conservation measures.

Preble's Meadow Jumping Mouse – In general, PMJM habitats (i.e., riparian areas) typically are ROW exclusion or avoidance areas. If exchanges or acquisitions of lands involve efforts to preserve or enhance watershed or riparian areas, beneficial effects could occur for the PMJM. Leasing or selling of land in PMJM habitats is unlikely. Implementing the lands and realty program management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event of leasing or selling land in PMJM habitats and existing conservation measures for this species.

Ute Ladies'-Tresses – Land disposal, exchanges, and establishment of corridors for utility or transportation systems may impact Ute ladies'-tresses habitats. However, the BLM rarely conveys properties with high resource values, especially those with known threatened or endangered species. Land acquisitions and protective withdrawals may benefit the Ute ladies'-tresses by providing conservation measures for threatened and endangered species and their habitats. Implementing the lands and realty program 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 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, local, 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 (refuse), luring predators (foxes, skunks, raccoons, etc.) that could prey on black-footed ferrets and compete for prairie dogs. Wind farms and utility systems could also cause additive mortality to avifauna, including migrating bald eagles, which could adversely affect threatened or endangered species.

7.10 Livestock Grazing

Approximately 1.4 million surface acres of public land is available for grazing within 514 grazing allotments on the planning area. Grazing allotments typically contain a combination of federal, state, and private lands and range in size from approximately 12 acres to 116,538 acres, with the average allotment size being approximately 8,768 acres. The BLM administers 462 grazing leases, allowing approximately 182,479 AUMS of livestock forage. Actual AUM use in the planning area is considered to correspond with authorized AUM use. A 1-percent decrease in the amount of AUMs authorized in the current plan is expected under the Preferred Alternative. Currently, approximately 6,016 acres of BLM-administered public land are closed to grazing and will remain so under the Preferred Alternative.

Grazing systems used on public lands within the planning area fall into the following six categories: yearlong, season long, early season, late season, split season, and rotation (i.e., deferred rotation, rest rotation, and time-controlled grazing systems). Most grazing leases authorize yearlong use, which is a reflection of the intermingled land pattern that exists across the planning area, as well as the small percentage of public land found in the majority of allotments. Cattle are the predominant class of livestock grazed on the planning area, but sheep, horses, goats, and bison also are authorized.

A number of categories of actions make up the BLM's livestock management program. These categories are livestock management actions, range management, fencing, water management, detrimental impacts management, and lease management.

Livestock management includes converting to new types of livestock and authorizing livestock grazing, and adjusting season of use, distribution, kind, class, and number of livestock. One method that livestock producers can use to change the distribution of livestock is to provide salt or mineral supplements in specified areas. Range management actions include using prescribed fire, vegetation manipulation projects, changing composition of existing vegetation, using noxious weed control, using mechanical or biological vegetative treatments to improve forage production, using heavy equipment, and herbicide treatment of sagebrush. Fencing actions include fence construction and repair, designing and implementing grazing systems, and building livestock exclosures for important riparian habitats. Water management actions include developing reservoirs, springs, pipelines, and wells, and providing access to these developments. Managing detrimental impacts include documenting, treating, and preventing resource damage. Potential detrimental impacts include the degradation of streambanks, the introduction and spread of INPS, increasing soil erosion, and a reduction in cottonwood tree recruitment. Lease management actions include conducting monitoring studies, performing project work to enhance and improve riparian zones, designating stock trails, managing leases, developing management plans and agreements, and canceling or changing livestock driveways.

7.10.1 Proposed Protections for Livestock Grazing in the Casper Draft RMP and EIS

The following list describes the proposed protections in the Casper Draft RMP and EIS:

- The Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the State of Wyoming, approved August 12, 1997

(BLM 1998), will be implemented when authorizing livestock grazing use and related actions in the planning area. BLM staff work closely with operators to determine the most appropriate guidelines for achieving the standards.

- Rangeland monitoring will follow the guidelines laid out in the Casper Field Office Monitoring Plan.
- The BLM will keep existing management plans (i.e., AMPs, HMPs, etc.) current and will implement new management plans where and when needed.
- Water developments and placement of salt, mineral, and forage supplements for livestock will not be allowed on areas inhabited by special status plant species or other sensitive areas.
- Maintenance feeding of forage will not be authorized on public lands.
- Water developments will be constructed by the BLM and maintained by the user on a case-by-case basis.
- Grazing will continue to be authorized on 1.4 million acres, unless identified for closure to grazing due to specific resource values.
- Livestock grazing will be managed to maintain a protective cover of vegetation and litter with emphasis on the condition of allotments with significant acreage of highly erosive soils.
- Yearling conversions will be consistent with management objectives and wildlife, watershed, riparian, vegetative values, and other resource values.

7.10.2 Conservation Measures Currently Committed to by the BLM

The following list describes the conservation measures currently committed to by the BLM:

- Use stipulations will be applied when grazing permits come up for renewal.
- 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 (*Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the State of Wyoming* [BLM 1998]).
- 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 habitats or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats (*Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the State of Wyoming* [BLM 1998]).
- BLM will utilize livestock grazing, mowing/haying, and prescribed burning as management tools to maintain favorable habitat conditions for Ute ladies'-tresses, where feasible. Mowing and grazing, with proper timing and intensity, reduces the native and exotic plant competition for light and possibly for water, space, and nutrients.
- Salt, mineral, or forage supplements will not be allowed within ¼ mile of water, wetlands, and riparian areas, unless written analysis shows that watershed, riparian, wetlands, wildlife, and vegetative values will not be adversely affected. Forage supplements will be required to be certified weed-free.

- Coordination will occur between BLM biologists and range conservationists prior to authorizing grazing actions.

7.10.3 Best Management Practices

The following BMPs have been identified.

- Riparian corridors should be surveyed for cottonwood regeneration; areas where grazing is impacting the regeneration of cottonwoods should be fenced.
- When developing or improving water sources for livestock in the North Platte River watershed, the BLM should consider development designs, such as water wells and guzzlers, rather than surface impoundments to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

7.10.4 Impact Analysis and Effect Determinations

Bald Eagle – Improvements to grazing allotments intending to increase available forage and installation of stock ponds may involve the use of heavy equipment and alter the composition of existing vegetation. These actions are unlikely to take place within occupied bald eagle habitat. Livestock grazing in riparian areas could increase soil erosion, degrade streambanks, and introduce INPS, potentially degrading the habitats for bald eagle prey species. Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management would minimize the impacts to bald eagle habitat. Implementing livestock grazing management actions *may affect, but is not likely to adversely affect* the bald eagle due to *discountable* effects *(NLAA-d)*. This determination is based on the implementation of existing conservation measures and the placement of range improvement projects outside of occupied bald eagle habitat.

Black-footed Ferret – If an undiscovered population of black-footed ferrets is found on an allotment, the use of vehicles or OHVs for livestock 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. However, the conservation measures will preclude such a location for these actions. Livestock grazing is generally compatible with prairie dog habitat and can also provide a positive effect if managed correctly. Grazing reduces vegetation height, thereby improving habitat for prairie dogs. 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 current absence of the black-footed ferret in the planning area; the unlikely event of a black-footed ferret colliding with a vehicle or 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.

Blowout Penstemon – Direct effects to the blowout penstemon are not anticipated because no known populations occur in the planning area. Livestock grazing could occur in potential blowout penstemon habitats. In other areas of Wyoming, livestock grazing does occur to a small extent in known populations of blowout penstemon, but this species is not preferred forage for livestock and blowout penstemon habitat is generally avoided by livestock. Fencing of potential blowout penstemon habitats is not feasible due to the shifting nature of sand dunes that comprise this specie's habitats. Implementing 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 the absence of blowout penstemon in the planning area and the unlikely event that livestock grazing will occur in potential blowout penstemon habitats in the planning area and the incorporation of existing conservation measures.

Colorado Butterfly Plant – No known populations of the Colorado butterfly plant occur on BLM-administered surface lands. In addition, very little potential habitats (i.e., riparian areas) for the Colorado butterfly plant occur on lands administered by the Casper Field Office in Platte and Goshen counties. Within these counties, a typical grazing lease is comprised of several small parcels (Taylor Grazing Act, Section 15 parcels) of unconnected public lands. Most of the pastures are comprised of private lands. Many of the Section 15 parcels are not fenced and livestock can travel from one land ownership to another unimpeded. However, 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 impacts to riparian areas. In addition, current literature suggests that light to moderate grazing can provide some benefit to the species by reducing competing vegetation and allowing seedlings to become established (USFWS 2000b).. Implementing livestock grazing management actions *may affect, likely to adversely affect*, the Colorado butterfly plant *(LAA)*. This determination is based on livestock foraging or trampling individual plants in previously unsurveyed habitats, potentially reducing their reproductive fitness or survival. If the plant is found on BLM-administered lands, conservation measures will be implemented to protect the plant and its habitats (BLM 2005c).

Preble's Meadow Jumping Mouse – Livestock grazing is allowed in PMJM habitats and can impact PMJM through loss of vegetation, trampling of vegetation, and degradation and erosion of streambanks. However, 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 protect riparian areas. Conversely, grazing improvement projects that create additional wetland habitats and open water sites can improve PMJM habitats. Other enhancements to PMJM habitats could include reductions in livestock numbers, changes in type of livestock, and changes in timing of grazing. Livestock may transport INPS into PMJM habitats, adversely impacting the PMJM. Monitoring of grazing conditions occurs on a continual basis, but overgrazing of riparian areas can still occur. Livestock grazing, *may affect, but is not likely to adversely affect*, critical habitat for the PMJM due to *discountable effects (NLAA-d)*. This determination is based on a grazing management program which will follow The BLM Standards and Guidelines for Livestock Grazing, and would provide for the protection of the species. Further, regular assessment of range conditions would target important habitat areas and adjust grazing management as necessary to ensure the habitat values are maintained or enhanced for this species.

Ute Ladies'-Tresses – Livestock grazing in riparian areas could increase soil erosion, streambank degradation, and the spread of INPS; however, implementing the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the State of Wyoming* (BLM1998) 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 to riparian areas. Implementing livestock grazing management actions *may affect, likely to adversely affect (LAA)*, the Ute ladies'-tresses. This determination is based on the Bureau authorized livestock foraging or trampling individual plants, reducing their reproductive fitness or survival. Scientific literature regarding this species indicates that properly managed livestock grazing may benefit the species by reducing competing vegetation (Arft 1995, Moseley 1998). If the plant is found on BLM-administered lands, conservation measures will be implemented to protect the plant and its habitats (BLM 2005e).

Cumulative Effects – Cumulative effects include future state, tribal, local, 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 streambank 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 these species.

7.11 Mineral Resources – Locatable

The BLM's mineral development program is divided into three categories: locatable, leasable, and salable minerals. Leasables are further divided into coal, geothermal, oil and gas, and other solid leasables.

All public lands are open to exploration for locatable minerals, except those withdrawn to protect other resource values and uses or those lands with acquired mineral status. The BLM has limited management authority over mining claim operations for locatable minerals conducted under the General Mining Law of 1872. These operations are managed using the surface regulations in 43 CFR 3809. Activity authorized under the General Mining Law is not subject to many of the special stipulations that are used in the salable and leasable mineral programs to protect sensitive resources from surface disturbance caused by mineral development. Under the Preferred Alternative, 627,653 acres are withdrawn from locatable mineral entry. Of these 627,653 acres, 578,999 acres are BLM withdrawals and 48,954 acres are other federal agency withdrawals.

Potentially locatable metallic (e.g., gold, silver, lead, platinum, copper, uranium, and chromite), and nonmetallic (e.g., talc, mica, white marble, building stone, fluorspar, chemical-grade limestone, gypsum, and bentonite) minerals exist in the planning area. Precious and semiprecious stones that exist or potentially exist include jade, diamond, iolite, ruby, sapphire, helidor beryl, and kyanite. The BLM considers common varieties of sand, gravel, stone (e.g., decorative stone, limestone, and gypsum), clay (e.g., shale and bentonite), limestone aggregate, borrow material, clinker (scoria), and leonardite (weathered coals) to be salable minerals.

The 12 permitted mining operations on federal mineral estate include uranium (five mines in Natrona and Converse counties), chemical-grade limestone (Bass and Brush Creek quarries in Platte County), marble (White Marble and Silvergreen quarries in Platte County), bentonite (two mines in Natrona County), and jade (Lone Tree Mine in Natrona County). Converse County with 3,954 claims has most of the 5,766 active claims (as of February 2006). Natrona County has 1,972, Platte County has 45, and Goshen County has 16. In FY 2004, claimants filed 6 notices and 18 plans of operation to work on their claims.

Actions associated with commercial locatable minerals include surface disturbance for mining, reclamation, and construction of access roads, buildings, and utility lines. Small scale mining may occur in the planning area, but individual casual use actions do not require an environmental assessment unless actions become significant. All lands must be reclaimed after closure of the mine.

7.11.1 Proposed Protections for Locatable Minerals in the Casper Draft RMP and EIS

The following protection is proposed in the Casper Draft RMP and EIS:

- The BLM will manage locatable minerals on all BLM-administered lands within the planning area while minimizing impacts to other resources.

7.11.2 Conservation Measures Currently Committed to by the BLM

- All bald eagle roosts are withdrawn from location and appropriation under mining laws.

- To protect bald eagle feeding areas, surface development is prohibited within ¼ mile of the North Platte River on a year-round basis.

- To protect bald eagle foraging areas, surface disturbing activites within ½ mile of the river are not allowed from November 1 through March 31.

7.11.3 Best Management Practices

The following BMPs have been identified:

- Speed limits will not exceed 35 mph on all project roads, where possible.
- Regular removal of road-killed animals along project roads will be encouraged.

7.11.4 Impact Analysis and Effect Determinations

Bald Eagle –. All mining projects are subject to specific stipulations and regulations that limit surface activities by season and proximity to specific resources, including active bald eagle nests and communal winter roosting areas. Surface disturbance is prohibited within ½ to 1 mile of known or discovered bald eagle nests (BLM 2003a). In addition, NSO or development is allowed around bald eagle communal roosts. All bald eagle roosts are withdrawn from locatable mineral entry. These measures will help to minimize the adverse effects of mineral development on bald eagles. Implementing management actions associated with locatable minerals *may affect, but is not likely to adversely affect*, the bald eagle due to *insignificant effects (NLAA-i)*. This determination is based on withdrawal of bald eagle roosts from locatable mineral entry and the incorporation of existing conservation measures.

Black-footed Ferret – If prairie dogs and black-footed ferrets were present, they could be displaced by human actions of mining, or their habitats could be destroyed by the extraction operations. It is conceivable that any black-footed ferrets present could be run over by vehicles, though being nocturnal decreases the chances of this event. A slight increase in avian predation is possible due to the use of extraction and ancillary facilities as perches by raptors. All of the above events are unlikely to occur due to the relatively small acreage of mineral extraction actions compared to areas of suitable habitats for the black-footed ferret. 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 current absence of black-footed ferrets in the planning area, the unlikely event of locatable minerals actions occurring in prairie dog habitats suitable for the black-footed ferret, the current clearance requirements, project review, and current conservation and protection measures.

Blowout Penstemon – No direct effects to the blowout penstemon are anticipated from actions associated with locatable minerals because there are no known populations of blowout penstemon in the planning area. In addition, construction of roads and other infrastructure that could destroy or degrade potential habitats is unlikely due to the steep slopes and unstable substrate typical of blowout penstemon habitats. Implementing management actions associated with locatable minerals will have *no effect* on blowout penstemon. This determination is based on the absence of the blowout penstemon in the planning area and potential habitat does not occur in areas containing locateable minerals.

Colorado Butterfly Plant – Direct effects to the Colorado butterfly plant are minimized by the application of conservation measures to the mining plan prior to BLM authorization Conservation measures are anticipated to avoid the growing and flowering periods, minimize erosion, and specify when dust abatement and INPS control can be conducted. Implementing management actions associated with locatable minerals *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that locatable mineral entry will take place in known populations or habitats of the Colorado butterfly plant.

Preble's Meadow Jumping Mouse – Direct effects to the PMJM are minimized by the application of conservation measures to the mining plan prior to BLM authorization. Conservation measures are anticipated to minimize erosion, and specify when dust abatement occurs and INPS control can be conducted. Implementing management actions associated with locatable minerals *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that locatable mineral entry will take place in known populations or habitats of the PMJM.

Ute Ladies'-Tresses – Direct effects to the Ute ladies'-tresses are minimized by the application of conservation measures to the mining plan prior to BLM authorization. Conservation measures are anticipated to avoid the growing and flowering periods, minimize erosion, and specify when dust abatement and INPS control can be conducted Implementing management actions associated with locatable 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 unlikely event that locatable mineral entry will take place in known populations or habitats of the Ute ladies'-tresses. In addition, conservation measures for the Ute ladies'-tresses will help to protect known and yet undiscovered populations.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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 and endangered species by further fragmenting the habitats, increasing road densities, spreading INPS, and degrading habitats for these species.

7.12 Mineral Resources – Leasable – Coal

Wyoming produces approximately one-third of all coal produced in the United States. The Powder River Basin, which extends into the planning area in northern Converse County, contains some of the largest low-sulfur coal deposits in the world. Two other coal fields, the Goshen Hole Coal Field of the Denver Basin and the Wind River Coal Field of the Wind River Basin, also extend into the planning area; however, neither of these is currently producing in the planning area (BLM 2004c). The Preferred Alternative will consider coal leasing on all BLM-administered lands outside the coal development potential area, if coal development potential is shown to exist on these lands.

The leasable minerals resource program allows coal exploration on all federal mineral lands within the planning area. Exploration on federal mineral lands is subject to the requirements and conditions of the coal exploration license process, the result being a set of project-specific stipulations and conditions designed to limit impacts from exploration on other resources. Before the area can be considered for leasing, the amount of overburden, volume and quality of coal, and other information needed to plan a mine must be gathered. The Casper Solid Minerals Group (CSMG) manages all leasing and administrative activity related to federal coal reserves in the Wyoming portion of the Powder River Basin, including inspection and enforcement.

Coal in Wyoming generally is extracted using surface mining methods, although in the past, some coal was mined underground. Surface mining involves the use of large equipment, such as draglines, shovels, and haul trucks. Small drill rigs are used for exploration to determine the location and thickness and to obtain cores (for determining quality). Extracting coal using surface mining methods often results in large areas of surface disturbance from road construction, removal of topsoil and overburden, and stock piling of these materials. Once an area is mined out, reclamation begins and includes recontouring as closely to the original landscape as possible, reconstruction of drainages, and reseeding and monitoring to ensure the habitats are useable.

7.12.1 Proposed Protections for Coal Resources in the Casper Draft RMP and EIS

The following protection is proposed in the Casper Draft RMP and EIS:

- The BLM will manage coal leasing and exploration on BLM-administered land within the planning area, while minimizing impacts to other resource values.

7.12.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of coal resources.

7.12.3 Best Management Practices

The following BMPs have been identified:

- Speed limits on all project roads will not exceed 35 mph, where possible.
- Encourage removal of road-killed animals as soon as practicable.

7.12.4 Impact Analysis and Effect Determinations

Bald Eagle – Human activity associated with mining actions, surface disturbance, and development of roads and ancillary facilities is not expected to occur in bald eagle habitats. All mineral development projects are subject to specific stipulations, conservation measures and regulations that limit surface activities by season and proximity to specific resources, including active bald eagle nests and communal winter roosting areas. Surface disturbance is prohibited within 1/2 to 1 mile of known or discovered bald eagle nests. In addition, public surface and federal mineral estate is withdrawn from location and appropriation around bald eagle communal roosts. These measures will minimize the impacts of mineral development on bald eagles. Implementing management actions associated with leaseable minerals *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the low potential of mining actions to occur in occupied bald eagle habitat and the incorporation of existing conservation measures.

Black-footed Ferret – Mining actions, surface disturbance, and development of roads and ancillary facilities could occur in occupied prairie dog habitats. However, no black-footed ferrets are presently believed to exist within the planning area. Mining actions could result in habitat loss and alteration. New road development could result in increased human access and, thereby, create a potential increase in recreational shooting, the probability of distemper being transferred from a domestic dog to a ferret, and the potential for a black-footed ferret to be run over by a vehicle. An increase in avian predation on prairie dogs and black-footed ferrets could occur due to the use of extraction and ancillary facilities as perches by raptors. However, these impacts are anticipated to be minimal due to the stipulations and conservation measures that limit surface disturbing activities. Implementing coal 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 for new or existing BLM-approved coal development actions to impact black-footed ferrets directly by mortality from collisions with vehicles or mortality by distemper and the stipulations and conservation measures associated with surface-disturbing activities.

Blowout Penstemon – No effects to the blowout penstemon are anticipated from coal development actions because there are no known populations of blowout penstemon in the planning area. Construction of roads and other infrastructure could destroy potential habitats, but this is unlikely due to the steep slopes and unstable substrate typical of blowout penstemon habitats. Implementing management actions

associated with locatable minerals will have *no effect* on the blowout penstemon. This determination is based on absence of known populations of this species in the planning area and that coal development would not occur in potential habitat.

Colorado Butterfly Plant – No effects to the Colorado butterfly plant are anticipated from coal development actions because there are no known populations of Colorado butterfly plant in the planning area. Construction of roads and other infrastructure could destroy potential habitats, but this is unlikely due to the steep slopes and unstable substrate typical of Colorado butterfly plant habitats. Implementing management actions associated with locatable minerals will have *no effect* on the Colorado butterfly plant. This determination is based on absence of known populations of this species in the planning area and that coal development would not occur in potential habitat.

Preble's Meadow Jumping Mouse – Coal reserves are not found in PMJM habitats. Implementing coal development management actions will result in *no effect (NE)*. This determination is based on coal reserves not being located in PMJM habitats and, therefore, no adverse impacts will occur to the PMJM or its habitat.

Ute Ladies'-Tresses – Direct effects to the Ute ladies'-tresses are minimized by the incorporation of conservation measures applied to mineral development in areas of threatened and endangered species. In addition, consulting with the USFWS will occur, and if needed, stipulations applied to the lease to protect individual plants. Indirect effects to the Ute ladies'-tresses may occur, including increased human use in the area, potential spread of INPS, elevated dust levels, and degradation or loss of the habitat. Implementing coal development management actions *may affect, and is likely to adversely affect*, the Ute ladies'-tresses *(LAA)*. This determination is based on the proximity of known populations of Ute ladies'-tresses to potential coal development areas (BLM 2004c). In addition, conservation measures for the Ute ladies'-tresses will help to protect known and yet-to-be discovered populations.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Coal mine operations occur on both state and private lands. These large mines remove habitats for prairie dogs and black-footed ferrets.

7.13 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 three areas of natural thermal springs in the planning area: the Alcova Hot Springs in southern Natrona County (now under Alcova Reservoir), the Douglas Warm Spring south of the town of Douglas in southeastern Converse County, and Immigrants Washtub in east central Platte County. A bathing

facility constructed in 1961 near the Douglas Warm Spring is the only commercial use of thermal waters in the planning area (BLM 2004c). In addition, the BLM has authorized a thermal water well and associated pond under the R&PP Act in the Salt Creek area for year-round scuba diving use.

There are no identified geothermal resources within the planning area with sufficiently high temperatures to produce steam to generate electricity (BLM 2005g). Several areas of anomalously high geothermal gradients have the potential for producing hot water for direct use. Because the most likely use of geothermal resources will be in direct use applications, usage is likely to be local to the project and will probably not result in large areas of additional surface disturbance (BLM 2005g).

7.13.1 Proposed Protections for Geothermal Resources in the Casper Draft RMP and EIS

No proposed protections for geothermal resources that would benefit threatened and endangered species are identified.

7.13.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of geothermal resources.

7.13.3 Best Management Practices

No BMPs for geothermal management are identified.

7.13.4 Impact Analysis and Effect Determinations

Threatened and Endangered Species – There are no geothermal leases or planned within the Casper Planning Area. The RFD did not identify any geothermal resources within the Casper Planning Area with sufficiently high temperatures to produce steam to generate electricity (BLM 2005g). Therefore, geothermal leasing management actions will have *no effect*, on any threatened or endangered species within the planning area.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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.

7.14 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 a specific order has been issued to close an area. Oil and gas exploration and development is one of the major industries in the planning area. Under the Preferred Alternative, 1,080,935 acres of federal oil and gas lease mineral estate are open to leasing consideration with standard constraints; 2,506,530 acres are open with moderate constraints; 843,139 acres are open with major constraints; and 843,139 acres are closed to leasing.

Geophysical exploration is a tool of the oil and gas industry that bounces shock waves off subsurface rock layers to determine their thickness and geometry. Shock waves are produced by an energy source and instruments record the waves when they return to the surface. The energy typically comes from the detonation of explosives in a shallow drill hole or from a heavy weight either dropped or vibrated on the ground surface. Sensors pick up the resulting shock waves through a line of sensors, or geophones, connected to a recording truck. Seismic operations use existing roads when feasible, but also require off-

road travel. Geophysical exploration (primarily three-dimensional) is expected to continue through the life of the plan.

The BLM is responsible for authorizing and administering geophysical exploration operations on all public surface lands within the planning area, while the Wyoming Oil and Gas Conservation Commission (WOGCC) is responsible for authorizing all operations on state and private surface land. Once acreage in the planning area is nominated by the public to be included in an oil and gas lease sale, the acreage description is sent to the Casper Field Office via the parcel list to be reviewed and stipulated by the Casper Field Office for protection of wildlife and other sensitive resources. These stipulations become part of the lease.

After an oil and gas lease is acquired, and prior to development, an application for permit to drill (APD) must be filed with the WOGCC and the Casper Field Office if the well is located on a federal oil and gas lease in the planning area. Within the planning area, Natrona has the largest number of APDs filed—8,508 as of mid-February 2005, followed by Converse County with 4,357 applications filed, Goshen County with 249 filings, and Platte County with 97 applications filed since the WOGCC began keeping records (WOGCC 2005). Once the permit is approved, the company may proceed with drilling according to the conditions of the permit's approval. A total of 170 oil and gas fields have been found and named within the planning area. At the end of 2004, 119 of these fields were still producing.

Coalbed natural gas (CBNG) has become one of the largest contributors to the total natural gas production in Wyoming and the coals of the Powder River Basin are the largest source of CBNG. Of the 336 billion cubic feet (Bcf) of natural gas produced in the Powder River Basin in 2004, 298 Bcf (almost 89%), was CBNG. Development of CBNG resources in the planning area is limited, with 6 wells completed on federal land and 33 completed on state or fee (private) acreage (WOGCC 2005).

Ancillary development involves allowing the construction of roads, pads, and other facilities and allowing the construction of new aboveground power lines. Stipulations involve implementing leases with NSO or controlled surface use (CSU) restrictions, TLS, or with other standard surface protection restrictions; negotiating mitigated impacts between lessees and the Authorized Officer; and deciding mitigation measures and limitations, as well as reclamation. Reclamation involves correcting any disturbance made by the oil and gas operation. Reclamation actions take place following the expiration of the lease. Reseeding, reshaping, or road destruction are all actions involved with oil and gas reclamation.

Surface-disturbing and other activities associated with the minerals program include, but are not limited to, the following actions: applying dust-control measures; restricting flaring of natural gas; controlling or limiting emissions; constructing and reclaiming well pads, access roads, and reserve pits; constructing reservoirs associated with water disposal; constructing compressor stations, product enhancements. and disposal facilities; building pipelines associated with leases or units; installing power lines associated with leases or units; building wind-power facilities and turbines associated with leases or units; and conducting geophysical exploration.

7.14.1 Proposed Protections for Oil and Gas in the Casper Draft RMP and EIS

The following is a list of proposed protections in the Casper Draft RMP and EIS:

- Manage oil and gas leasing, exploration, operation, and development within the planning area, while minimizing impacts to other resource values.
- The BLM will consider lease applications on a case-by-case basis. Leases will be issued with the least restrictive stipulations needed to protect other resource values. Stipulations to protect

important resource values will be based on interdisciplinary review of individual proposals and environmental analysis.

- Federal oil and gas lease mineral estate closed to leasing encompasses 226,568 acres.
- OHV use for geophysical use on public land is subject to OHV designations unless determined to be acceptable through site-specific NEPA analysis.

7.14.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Ensure the completion of oil and gas conditions of approval prior to authorizing an APD and enforcement of site-specific APD condition of approval.
- All bald eagle roosts are protected by a "No Surface Occupancy Stipulation".
- Surface development is prohibited within ½ to 1 mile of a known or discovered bald eagle nest.
- To protect feeding concentration areas, surface development is prohibited within ¼ mile of the North Platte River on a year-round basis.
- Surface-disturbing activities within ½ mile of the North Platte River are not allowed from November 1 through March 31.
- All new power lines must be constructed in conformance with APLIC standards (BLM 2003a).

7.14.3 Best Management Practices

The following BMPs have been identified:

- BLM Instruction Memorandum No. 2004-194 regarding *Integration of BMPs into APD Approvals and Associated ROWs* will be considered in all NEPA documents and on-the-ground actions to mitigate anticipated impacts to surface and subsurface resources. Oil and gas operators will be actively encouraged to consider adopting acceptable BMPs as part of their application and operations.
- Speed limits on all project access roads will not exceed 35 mph, where possible.
- Encourage removal of road-killed animals on access or project roads as soon as practicable.

7.14.4 Impact Analysis and Effect Determinations

Bald Eagle – Human activity associated with oil and gas development may impact the bald eagle. Existing terrestrial habitats may be altered by construction of roads, well pads, and other facilities. New aboveground power lines may result in increased collisions with the power lines and electrocutions of bald eagles. To reduce these collisions and electrocutions, devices will be installed on new power lines in the planning area. All mineral development projects are subject to specific stipulations and conservation measures that limit surface activities by season and proximity to specific resources, including active bald eagle nests and communal winter roosting areas. Surface disturbance is prohibited within ½ to 1 mile of known or discovered bald eagle nests. In addition, NSO or development is allowed around bald eagle communal roosts. These measures will help to minimize the adverse effects of mineral development on bald eagles. Implementing management actions associated with oil and gas development *may affect, is likely to adversely affect (LAA)*, the bald eagle. This determination is based on the potential for oil and gas

development to result in take. Existing conservation measures should minimize the effects of oil and gas development activities on bald eagle habitats..

Black-footed Ferret – No black-footed ferrets are currently believed to exist within the planning area. If prairie dogs and black-footed ferrets were present in an oil and gas development area, they may be displaced, or their habitats degraded by the extraction of these resources. It is conceivable that any black-footed ferrets present could be run over by vehicles, though being nocturnal decreases the chances of this event. A slight increase in avian predation is possible in developed areas. Oil and gas development may result in the reduction of potential future reintroduction sites due to habitat loss and alteration, and changes in prey abundance, thus compromising successful recovery of the black-footed ferret. Implementing management actions associated with oil and gas development *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 current absence of black-footed ferrets in the planning area, the unlikely event of oil and gas development actions occurring in prairie dog habitats suitable for the black-footed ferret, the current clearance requirements, project review, and existing conservation measures.

Blowout Penstemon –No direct effects to the blowout penstemon are anticipated from oil and gas development actions because there are no known populations of blowout penstemon in the planning area. Construction of roads and other infrastructure could destroy potential habitats. However, road construction in potential blowout penstemon habitat is unlikely due to the steep slopes and unstable substrate typical of this habitat. Implementing oil and gas 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 absence of known populations in the planning area and the unlikely event of locating oil and gas development infrastructure in potential blowout penstemon habitats.

Colorado Butterfly Plant –Effects to the Colorado butterfly plant are minimized by the NSO restriction applied to mineral development in designated critical habitat for threatened and endangered species. Additionally, this species has only been found in southern Platte County within the planning area, which is considered to be of low oil and gas development potential. If a well was authorized within potential habitat, consultation with the USFWS will occur and, if needed, stipulations derived from conservation measures would be applied to the permit. Stipulations like these are anticipated to avoid growing and flowering periods, minimize erosion, and specify when dust abatement and INPS control can be conducted. Implementing oil and gas development management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that oil and gas development actions will take place in known populations or habitats of the Colorado butterfly plant and the existing conservation measures for this species.

Preble's Meadow Jumping Mouse – Effects to the PMJM are minimized by the NSO restriction applied to mineral development in designated critical habitat for threatened and endangered species. Additionally, this species has only been found in southern Converse County, and Platte and Goshen Counties within the planning area, which is considered to be of low oil and gas development potential. If a well was authorized within potential habitat, consultation with the USFWS will occur and, if needed, stipulations derived from conservation measures would be applied to the permit Stipulations like these are anticipated to minimize erosion and specify when INPS control can be conducted. Implementing oil and gas development management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that mineral development will take place in known populations or habitats of the PMJM and existing conservation measures for this species.

Ute Ladies'-Tresses – Oil and gas development near riparian areas could increase soil erosion, streambank degradation, and the spread of INPS; however, implementing the *Wyoming Standards for*

Healthy Rangelands (BLM1998) and *Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disputive Activities* should reduce these impacts. Oil and gas development may adversely impact the Ute ladies'-tresses through surface discharge of produced water into drainages occupied by the species. Implementing oil and gas development actions *may affect, likely to adversely affect (LAA)*, the Ute ladies'-tresses. This determination is based on the potential for populations of Ute ladies'-tresses to occur in the same area as proposed oil and gas development. In addition, conservation measures for the Ute ladies'-tresses will help to protect known and yet-to-be discovered populations.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Oil and gas development on private lands is expected to continue. Although most energy development in the planning area occurs on federal mineral estate, there are opportunities for this activity on state and private (fee) mineral estate, potentially impacting threatened and endangered species.

7.15 Mineral Resources – Leasable – Other Solid Leasables

Other leasable minerals include sodium (trona), phosphates, and oil shale. Uranium, bentonite, gypsum, limestone, and any other "hardrock minerals" occurring on acquired public lands that are not closed to mineral leasing can be developed under a leasing system only. Access to BLM-administered leasable minerals is at the BLM's discretion.

Under the Preferred Alternative, federal mineral estate is open to leasing of other solid leasable minerals, except in areas identified as necessary for the protection of specific resource values or uses. At this time, there are no federal leases for other solid leasable minerals in the planning area, and future development of these minerals is anticipated to be infrequent (BLM 2006a).

7.15.1 Proposed Protections for Other Solid Leasables in the Casper Draft RMP and EIS

The following list includes proposed protections in the Casper Draft RMP and EIS:

- Manage the leasing and development of other minerals on acquired lands within the planning area, while minimizing impacts to other resource values.

- Base stipulations to protect sensitive resource values on interdisciplinary review of individual proposals and environmental analysis.

7.15.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of other solid leasables.

7.15.3 Best Management Practices

No BMPs for other solid leasables are identified.

7.15.4 Impact Analysis and Effect Determinations

Bald Eagle – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the unlikely potential for this type of development to occur in the planning area and existing conservation measures.

Black-footed Ferret – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) *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 current absence of black-footed ferrets and leases for these minerals in the planning area and existing conservation measures.

Blowout Penstemon – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) *may affect, but is not likely to adversely affect*, the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the current absence of the blowout penstemon and leases for these minerals in the planning area and existing conservation measures.

Colorado Butterfly Plant – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) may *affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely potential for this type of development to occur in the planning area and the conservation measures that will be implemented for this species.

Preble's Meadow Jumping Mouse – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely potential for this type of development to occur in the planning area and existing conservation measures.

Ute Ladies'-Tresses – Implementing management actions associated with other solid leasables (e.g., sodium, phosphate, and oil shale) *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 potential for this type of development to occur in the planning area and the conservation measures that will be implemented for this species.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Mineral development of other solid leasables on nonfederal lands in the planning area could adversely impact threatened or endangered species.

7.16 Mineral Resources – Salable

Salable mineral mining is authorized under the Materials Act of 1947, as amended, and, as such, are discretionary actions. Salable minerals, also known as mineral materials, include common variety materials, such as sand, gravel, stone, (e.g., decorative stone, limestone, and gypsum), clay (e.g., shale and bentonite), limestone aggregate, borrow material, clinker (scoria), and leonardite (weathered coal). Lapidary quality agates and jaspers are found in Platte and Natrona counties. Access to federal salable mineral estate is at BLM's discretion and by either free use permit or sales contract. Much of what the BLM sells in the planning area is from established community pits. From time to time, a proposal is received requesting an exclusive sale or exclusive free use permit.

Under the Preferred Alternative, all BLM-administered mineral estate is open to the disposal of mineral materials, except areas identified as necessary for the protection of specific resource values or uses. Under this alternative, 665,570 acres are not available for disposal of mineral materials. The areas closed to disposal of mineral materials include within ¼ mile of the North Platte River between Pathfinder Dam and the Natrona/Converse county line; South Bighorns/Red Wall SMA; Cedar Ridge TCP; habitat fragmentation blocks 3, 5, 8, 11, and 16, as adjusted; and the Sand Hills SMA.

In terms of volume produced and value, borrow material was the most important mineral material in the planning area in fiscal year 2003, followed by sand and gravel, leonardite, and specialty stone. Other salable minerals produced include riprap and shale (clay).

In the planning area, borrow material is used primarily for remediation cleanup. Sand, gravel, limestone aggregate, and riprap are used as construction materials. Leonardite is used as an additive to drilling mud. Specialty stone can include flagstone, moss rock, and landscape boulders. Riprap is used in soil stabilization projects.

Most salable minerals are common construction materials; demand for these materials is linked to the area's economy. Planning area demand generally coincides with activity in the oil and gas industry, highway construction, and urban use near Casper, Douglas, and smaller towns. Additional demand for construction materials is tied to activity associated with any future proposals for new mines (e.g., coal and uranium). Leonardite demand depends on oil and gas drilling activity. The BLM maintains three "community" mineral material pits to provide sand, moss rock, flagstone, and boulders to the public.

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

7.16.1 Proposed Protections for Salable Minerals in the Casper Draft RMP and EIS

The following list includes proposed protections in the Casper Draft RMP and EIS:

- Manage salable mineral permitting and development on BLM-administered lands within the planning area, while minimizing impacts to other resource values.
- Base stipulations to protect important resource values on interdisciplinary review of individual proposals.

7.16.2 Conservation Measures Currently Committed to by the BLM

Conservation measures currently committed to by the BLM follow:

- Stipulations or conditions will 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.
- Reclamation plans will be developed to restore disturbed areas to conditions as close to pre-disturbance conditions as possible.
- If crucial wildlife habitats are disturbed, these disturbed areas will be reclaimed to approximate original conditions (i.e., topography, vegetation, hydrology, etc.) after completion of actions in the area, in part to ensure suitable habitats are present on the reclaimed landscape. Reclamation will attempt to return the plant community to the pre-existing condition as soon as possible.
- All reclamation proposals must conform to federal and state agency permit requirements and be approved by the BLM.

- Prohibit the sale and disposal of salable minerals in areas occupied by threatened and endangered species.
- Within bald eagle roost areas, mineral materials are not available for disposal.
- Surface development is prohibited within ½ to 1 mile of a known or discovered bald eagle nest.
- To protect feeding concentration areas, surface development is prohibited within ¼ mile of the North Platte River on a year-round basis.
- Surface-disturbing activities within ½ mile of the North Platte River are not allowed from November 1 through March 31.

7.16.3 Best Management Practices

The following BMPs have been identified:

- Encourage the removal of road-killed animals on project access roads.
- Enforce speed limits of no greater than 35 mph, where possible, on access and project roads.

7.16.4 Impact Analysis and Effect Determinations

Bald Eagle – Human activity associated with salable minerals may impact the bald eagle by altering potential habitat. All mineral development projects are subject to specific stipulations and conservation measures that limit surface activities by season and proximity to specific resources, including active bald eagle nests and communal winter roosting areas. Surface disturbance is prohibited within 1/2 to 1 mile of known or discovered bald eagle nests. These measures will help to minimize the adverse effects of mineral development on bald eagles. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the low potential of mining actions in occupied habitat areas and existing conservation measures protecting these species.

Black-footed Ferret – Within occupied black-footed ferret habitat, the sale and disposal of salable minerals is prohibited. Salable mineral mining actions, surface disturbance, and development of roads and ancillary facilities could occur in occupied prairie dog habitats. However, no black-footed ferrets are presently believed to exist within the planning area. Mining actions could result in habitat loss and alteration. New road development could result in increased human access and, thereby, create a potential increase in recreational shooting and the probability of distemper being transferred from domestic dogs. An increase in avian predation on prairie dogs and black-footed ferrets could occur due to the use of extraction and ancillary facilities as perches by raptors. However, these impacts are anticipated to be minimal due to the stipulations and conservation measures that limit surface disturbing activities. Implementing salable mineral 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 for new or existing BLM-approved salable mineral development actions to impact black-footed ferrets directly by mortality from collisions with vehicles or mortality by distemper and the stipulations and conservation measures associated with surface-disturbing activities.

Blowout Penstemon – Within occupied blowout pensemon habitat, the sale and disposal of salable minerals is prohibited. Effects to blowout penstemon are not anticipated because no known populations of blowout penstemon occur in the planning area. Construction of roads and other facilities could alter potential habitats; however, due to the steep slopes and sandy areas typical of blowout penstemon

habitats, however, these types of impacts are unlikely. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect*, the blowout penstemon due to *discountable effects (NLAA-d)*. This determination is based on the lack of known blowout penstemon populations in the planning area and existing conservation measures protecting the species.

Colorado Butterfly Plant – Within occupied Colorado butterfly plant habitat, the sale and disposal of salable minerals is prohibited. Effects to the Colorado butterfly plant are minimized by the application of conservation measures to the salable mineral permit prior to BLM authorization. Conservation measures are anticipated to avoid the growing and flowering periods, minimize erosion, and specify when dust abatement and INPS control can be conducted. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that salable mineral entry will take place in known populations or habitats of the Colorado butterfly plant and the implementation of conservation measures to protect the species.

Preble's Meadow Jumping Mouse – Within occupied PMJM habitat, the sale and disposal of salable minerals is prohibited. Effects to the PMJM are minimized by the application of conservation measures to the salable mineral permit prior to BLM authorization. Conservation measures are anticipated to minimize erosion, and specify when dust abatement occurs and INPS control can be conducted. Implementing management actions associated with salable mineral minerals *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that salable mineral entry will take place in known populations or habitats of the PMJM.

Ute Ladies'-Tresses – Within occupied Ute Ladies-tresses habitat, the sale and disposal of salable minerals is prohibited. Effects to the Ute ladies'-tresses are minimized by the NSO restriction applied to mineral development in areas of threatened and endangered species. In addition, consulting with the USFWS will occur and, if needed, stipulations applied to the permits, such as specifying the time of year the disturbance will take place. Indirect effects to the Ute ladies'-tresses may occur, including increased human use in the area, potential spread of INPS, and elevated dust levels. Implementing management actions associated with salable minerals *may affect, but is not likely to adversely affect*, the Ute ladies'-tresses due to *discountaqble effects (NLAA-d)*. This determination is based on the unlikely potential for populations of Ute ladies'-tresses in the same area as proposed salable minerals. In addition, conservation measures for the Ute ladies'-tresses will help to protect known and yet-to-be discovered populations.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Cumulative effects from sand and gravel operations along major river corridors on nonfederal lands could occur which may impact federally listed species.

7.17 Off-Highway Vehicles

For legislative purposes, 42 CFR 480 defines an OHV "any motorized vehicle capable of or designated for, travel on or immediately over land, water, or other terrain." Road networks within the planning area include a series of county roads, BLM-maintained roads, two-track trails, and snowmobile trails. The use of these travel ways is an integral part of public land management, as these roads are used for both recreational and nonrecreational purposes. Typical recreational OHV actions within the planning area include enduro races, trial competitions, all-terrain vehicle (ATV) and motorcycle trail riding, and snowmobiling. OHVs also provide access for nonmotorized recreational purposes, such as fishing, hiking, mountain biking, horseback riding, and primitive camping. Nonrecreational OHV use of the planning area includes agricultural management, energy development, and land management activity.

The OHV use designations for the majority of public lands within the planning area are either "limited to existing roads and trails" or "limited to designated roads and trails." While these designations provide for a wide variety of OHV use and there are a number of travel routes on public lands throughout the planning area, the majority of recreational OHV use occurs in areas with legal and physical access in conjunction with large blocks of public lands. In the planning area, the majority of OHV use is currently located in the South Bighorns Mountains, in and around the Muddy Mountain EEA, along the North Platte River, and in areas of Bates Hole. The Poison Spider OHV Park is popular for local OHV enthusiasts and is open to all forms of OHVs. In some areas, seasonal closures are often used to protect important resource values (e.g., big game crucial winter range). The Preferred Alternative designates 1,162,244 acres as limited to existing roads and trails, 196,824 acres as limited to designated roads and trails, 285 acres as open, and 2,224 acres as closed to OHV use.

BLM actions concerning OHV use include designating closed, limited, or open areas for OHV use; posting signs and developing maps or brochures; permitting OHV rallies, cross-country races, and outings; monitoring OHV use; and performing necessary tasks requiring OHV use. Under normal conditions and when OHV travel is limited, there is no significant surface disturbance associated with OHV use. However, excessive use, cross-country travel, or use in sensitive habitats (e.g., wet soils) can result in soil compaction and erosion, increased stream sedimentation, increase and spread of INPS, habitat fragmentation, and disruption to visual resources.

7.17.1 Proposed Protections for OHVs in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Specific roads are seasonally closed to motor vehicles to protect important resource values (November 15 to April 30), except Jackson Canyon is closed November 1 to May 31.
- Motor vehicle travel in the majority of the planning area will be limited to existing roads and trails (1,162,244 acres).
- Motor vehicle travel will be limited to designated roads and trails in the following areas (196,824 acres): Sand Hills, Jackson Canyon, North Platte River, Alcova Fossil Special Management Area (SMA), South Bighorns, and Bates Hole.
- In Muddy Mountain EEA, snowmobiles will be limited to 4.5 miles of designated trails. Roads and trails may be developed for forest management, but will be closed and reclaimed following harvest.

7.17.2 Conservation Measures Currently Committed to by the BLM

Listed below are conservation measures currently committed to by the BLM:

- If relatively high OHV use is documented in any location on public land, an analysis to determine if the area needs special designation to protect listed species or their habitats will be performed.
- Site management plans will be developed for high-intensity OHV use areas.
- Areas will be closed to off-road travel if sensitive areas are identified that require this protective measure.
- No new roads or other surface developments will be authorized in bald eagle roost areas.

7.17.3 Best Management Practices

No BMPs for OHV management are identified.

7.17.4 Impact Analysis and Effect Determinations

Bald Eagle – Actions associated with OHV use have a limited potential to impact bald eagle behavior and habitats. No bald eagle nests are known to occur on BLM administered public lands and known winter roosts occur in remote portions of the planning area, not normally accessible to the public. OHV use is limited to an existing network of roads and trails throughout the planning area and Jackson Canyon is closed to OHV in the winter. Impacts from OHV use in areas of bald eagles would be unlikely to impact bald eagles due to the dispersed nature of this activity. Implementing OHV management actions *may affect but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the potential disturbance from OHV use on designated roads and trails in areas where bald eagles occur.

Black-footed Ferret – No black-footed ferrets are known to presently exist within the planning area. OHV use, where authorized, is restricted to existing roads and trails or designated routes, except within the Poison Spider OHV Park. Since OHV use will be restricted to existing or designated routes it is highly unlikely that impacts to black-footed ferrets would occur. Two-track roads through prairie dog towns could result in a ferret being killed; however, this is highly unlikely since ferrets are nocturnal. Implementing OHV use 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 current absence of the ferret in the planning area and the existing protections and conservation measures.

Blowout Penstemon – Although not known to occur in the planning area, OHV use could impact potential blowout penstemon habitats. OHV users may spread INPS by unintentionally carrying seeds into potential habitat areas. However, the continued disturbance and erosion due to OHV use could benefit blowout penstemon habitats by creating the sparse habitats required by this species. Throughout most of the planning area, OHV use is limited to existing roads and trails, which generally protects potential blowout penstemon habitats. Implementing OHV use 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 absence of blowout penstemon in the planning area and the unlikely event of these actions taking place in potential blowout penstemon habitats.

Colorado Butterfly Plant – No known populations of Colorado butterfly plant occur on BLM-administered surface lands in the planning area. OHV use may affect potential Colorado butterfly habitats by compacting and eroding soil. The prohibition of OHV use in riparian and wetland habitats may benefit the Colorado butterfly plant. OHV users may unintentionally spread INPS into potential Colorado butterfly plant habitats. Implementing OHV use management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that OHV use will take place in known populations or habitats of the Colorado butterfly plant, the prohibition of OHV use in riparian and wetland habitats, and existing conservation measures.

Preble's Meadow Jumping Mouse – Throughout most of the planning area, OHV use is limited to existing roads and trails, which generally protects PMJM habitats from direct effects of OHV use. In addition, OHV use is prohibited in wetland and riparian areas. However, OHV use on roads and trails adjacent to PMJM habitats may lead to the spread of INPS in PMJM habitats, reducing the suitability of the habitats for the PMJM. Implementing OHV use management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the prohibition of OHV use in riparian and wetland areas and existing conservation measures..

Ute Ladies'-Tresses – No OHV use is allowed in riparian and wetland areas, thereby protecting Ute ladies'-tresses habitats. However, OHV use on roads and trails adjacent to riparian areas may lead to the

spread of INPS, 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. Implementing OHV use 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 prohibition of OHV use in Ute ladies'-tresses habitats and existing conservation measures in place to protect this species.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. OHV use on nonfederal lands and unauthorized use on federal lands could contribute to disturbance of soils, removal of vegetation, and the spread of INPS. These actions could contribute to degradation of habitats for threatened and endangered species.

7.18 Paleontology

Paleontological resources, usually thought of as fossils, include the bones, teeth, body remains, traces, or imprints of plants and animals preserved in the earth through geologic time. Within the planning area, rocks as old as 3 billion years are exposed, but presently known fossil deposits date to about 200 million years. Nearly all the major fossil-bearing formations identified within Wyoming have been found in the planning area, but they are not as extensively distributed as in other areas. The major formations known to produce dinosaur or marine reptile remains in the planning area include the Chugwater (including the Alcova Limestone), Sundance, Morrison, Cloverly, and Lance formations. The Wind River and White River formations are the main units that produce mammal fossils and other small nonmammalian vertebrates.

The BLM performs a variety of actions to preserve, protect, and restore paleontological resources. During inventory actions, the BLM inventories, categorizes, and preserves paleontological resources, conducts field actions, performs excavations, maps and collects surface materials, researches records, and photographs sites and paleontological resources. Inventory data-collection actions are used for documentation and development of mitigation plans prior to surface-disturbing activities of other resource programs. Inventory actions commonly entail the use of hand tools, power tools, or heavy machinery. Management actions involve managing sites for scientific and public use, developing interpretive sites, restricting certain land uses, closing certain areas to exploration, prohibiting some surface-disturbing activities, stabilizing erosion (e.g., bury exposed sites), preparing interpretive materials, allowing hobby collection of common invertebrate or plant fossils, and permitting collecting for scientific research.

Presently, 17 active paleontology permits (16 survey permits and 1 excavation permit), representing 15 different researchers, have been granted for the planning area. Ten of these active permits were issued for statewide research and may not reflect work presently occurring in the planning area. Five paleontological permittees principally work in the planning area.

Surface-disturbing and other activities associated with the paleontology program include, but are not limited to, the following actions: (1) surface-disturbing activities to collect specimens, including the use of hand tools, power tools, and heavy machinery; (2) collecting invertebrate and plant fossils; (3) inventoring paleontological resources; (4) developing interpretive sites; and (5) stabilizing erosion.

7.18.1 Proposed Protections for Paleontological Resources in the Casper Draft RMP and EIS

The following protection is proposed in the Casper Draft RMP and EIS:

- For paleontological resource use permits, stipulations will protect other resources on a case-by-case basis.

7.18.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of paleontological resources.

7.18.3 Best Management Practices

No BMPs for paleontological resources are identified.

7.18.4 Impact Analysis and Effect Determinations

Bald Eagle – Implementing management actions associated with paleontological resources *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the relatively small amount of surface disturbance associated with fossil collection and existing conservation measures.

Black-footed Ferret – No black-footed ferrets are believed to exist within the planning area. 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. 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.

Blowout Penstemon – No known populations of blowout penstemon occur in the planning area. Paleontological management actions are unlikely to affect this species or its potential 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. Implementing paleontological 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 known populations of blowout penstemon occurring in the planning area and the unlikely event that these management actions will occur in potential blowout penstemon habitats. In addition, surveys to determine presence or absence of the blowout penstemon will occur if surface disturbance is planned in potential habitats.

Colorado Butterfly Plant – Paleontological management actions are unlikely to affect this species or its potential 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. Implementing paleontological management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that these management actions will occur in Colorado butterfly plant habitats. In addition, identifying the presence or absence of the Colorado butterfly plant will occur if surface disturbance is planned in potential habitats.

Preble's Meadow Jumping Mouse – The potential for paleontological resources to be found in areas along the floodplain are remote. Flooding in these areas will displace paleontological resources; therefore, the potential for new finds and the excavation of that find is unlikely. Implementing paleontological resources management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event that these management actions will occur in PMJM habitats and existing conservation measures in place to protect this species.

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. 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 to the species.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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.

7.19 Recreation

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. The BLM allows recreational actions, including sightseeing, touring, photography, wildlife viewing, floating, mountain biking, camping, fishing, and hunting. Large recreational events may include organized group hikes, motocross competitions, or horse endurance rides. Recreational land and access acquisition actions involve maintaining public access, pursuing ROW, providing continued access, and pursuing land acquisition. Recreational site development includes maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, maintaining developed and undeveloped recreational sites, adding developments as opportunities arise, adding interpretive markers, and constructing roads and interpretive sites.

Development and enforcement of stipulations and protective measures include designating OHV use, enforcing recreational-oriented regulations, patrolling high-use areas, and contacting users in the field. The BLM places boundary signs, identifies hazards on rivers, restricts recreational uses, limits motorized vehicles to existing trails, designates road use and recreational areas, requires facilities to blend with the natural environment, and conducts field inventories. Special recreation permits (SRP) are processed on a case-by-case basis; categories include competitive, vending, individual or group use in special areas, organized group activity, and event use.

Four Special Recreation Management Areas (SRMA) have been identified in the planning area: Muddy Mountain EEA, Goldeneye Wildlife and Recreation Area, North Platte River Resource Area, and a portion of the Middle Fork SRMA (most of this SRMA is located in and managed by the BLM Buffalo and Worland Field Offices.

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 (campgrounds), (6) placing boundary signs and interpretive markers, (7) allowing commercial recreational uses, and (8) developing public water sources for recreational facilities.

7.19.1 Proposed Protections for Recreation in the Casper Draft RMP and EIS

The following bulleted items list proposed protections in the Casper Draft RMP and EIS:

- Areas heavily impacted by concentrated recreational use will be closed as necessary for restoration or development of the site, whichever is deemed most appropriate
- The goal of the Goldeneye Wildlife and Recreation Area is to protect wildlife habitats and future recreational opportunities. The Goldeneye Wildlife and Recreation Area Management Plan will be carried forward.
- The Muddy Mountain EEA focuses on environmental education, diverse recreational opportunities, and ecosystem health. A primary objective is to preserve the natural character and wildlife habitats within the EEA. The Muddy Mountain EEA will be withdrawn from the 1872 Mining Law.

7.19.2 Conservation Measures Currently Committed to by the BLM

Below is a list of conservation measures currently committed to by the BLM:

- To conserve and protect natural areas, planned trails are created to control human traffic.
- No SRP will be issued for organized prairie dog shooting competitions or other commercial activities involving the shooting of prairie dogs.
- No preprinted maps indicating the location of prairie dog colonies shall be provided to the public for the purpose of recreational shooting.
- Recreational use will be monitored as an aid in deciding what level of management is needed, as well as what development opportunities could be pursued. Coordination with other federal and state agencies to determine where recreational uses are occurring will take place to monitor intensity and season of use in potential listed species habitats.
- Public land areas with the potential for water-based recreation will be monitored to determine intensity and season of use in potential listed species habitats.

7.19.3 Best Management Practices

The following BMP has been identified:

- BLM programs will strive to protect Ute ladies'-tresses habitats and prevent new trails from being constructed through known orchid occurrences.

7.19.4 Impact Analysis and Effect Determinations

Bald Eagle – Human activity associated with authorized recreational use of the public lands is not likely to impact the bald eagle habitats. Implementing recreational management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the minimal potential of recreational management actions and use to harass or displace bald eagles and the restrictions for bald eagle nests and roosts and existing conservation measures in place to protect this species.

Black-footed Ferret – No black-footed ferrets are believed to exist within the planning area. Recreational sites, trails, and actions do not typically occur in or near prairie dog complexes. The Wyoming BLM philosophy is that prairie dog shooting should not be encouraged and no SRPs will be issued for organized prairie dog shooting events (BLM 2006b). Unorganized recreational shooting of

prairie dogs is not a BLM discretionary action. Implementing recreational 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 current absence of the black-footed ferret in the planning area, the unlikely choice of prairie dog towns for recreational development, and the conservation measures in place to protect the species.

Blowout Penstemon – Although no known populations of blowout penstemon occur in the planning area, actions associated with recreational use of public lands may indirectly impact potential blowout penstemon habitats through the spread of INPS. INPS may be spread unintentionally by hikers and (or) their vehicles, degrading potentially suitable blowout penstemon habitats. Implementing recreational 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 absence of the blowout penstemon in the planning area, the unlikely event of recreational use occurring in potential habitats for this species, and existing conservation measures in place to protect this species.

Colorado Butterfly Plant – Although no known populations of Colorado butterfly plant occur on BLM-administered surface lands in the planning area and no developed or proposed recreational sites are near known populations of the Colorado butterfly plant, actions associated with recreation could indirectly impact this species and its habitats. INPS may be spread unintentionally by hikers and (or) their vehicles, degrading potentially suitable Colorado butterfly plant habitats. Implementing recreational management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of the Colorado butterfly plant on BLM-administered public surface, the conservation strategies implemented if surface-disturbing activities were to occur in suitable habitats, and existing conservation measures in place to protect this species.

Preble's Meadow Jumping Mouse – The potential for permitted recreational actions in PMJM habitat is unlikely. Actions, such as dispersed camping, may occur in PMJM habitats, and are considered casual use actions. Repeated human actions in riparian habitats may occur and result in degradation of riparian vegetation. Other non-discretionary actions, such as canoeing, kayaking, and fishing, which take place on the water's surface, will have little impact on the PMJM or its habitats. Implementing recreational management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event BLM-authorized recreational actions would occur in PMJM habitats and existing conservation measures in place to protect this species.

Ute Ladies'-Tresses – No known populations of the Ute ladies'-tresses occur near developed or proposed recreational sites or SRMAs. Extensive trail systems in riparian areas are not common due to the potential flooding in the area. Ute ladies'-tresses may be indirectly impacted by the spread of INPS from recreational actions. INPS may be spread unintentionally by hikers and (or) their vehicles, degrading potentially suitable Ute ladies'-tresses habitats. Implementing recreational 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 and the conservation strategies implemented if surface-disturbing activities were to occur in suitable habitats.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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 riparian areas. However, these types of actions are anticipated to be localized in nature and dispersed throughout the planning area.

7.20 Socioeconomic Resources

In this discussion, socioeconomic resources include social and economic conditions, environmental justice, and tribal treaty rights. The BLM has the capacity, through its decision making responsibilities, to manage resource development in the planning area and thereby influence the economy of the wider region. Industries most affected by BLM land management policies and programs are agriculture (especially livestock grazing), mining and mineral development, and recreation and tourism. Impacts to special status species from these management actions are discussed in the respective management sections (i.e., Livestock Grazing, Minerals, and Recreation).

Environmental justice pertains to fair treatment and meaningful involvement of minority and low-income populations. Where the impacts of a proposed federal action may involve such populations, an analysis of the potential for disproportionate impacts and meaningful community outreach and public involvement is required.

It is the policy of the USDI to recognize and fulfill its legal obligation to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal health and safety (USDI 1995). No known American Indian treaty rights or trust responsibilities or issues currently exist for the planning area.

7.20.1 Proposed Protections for Socioeconomic Resources in the Casper Draft RMP and EIS

No proposed protections for socioeconomic resources that would benefit threatened and endangered species are identified.

7.20.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to the management of socioeconomic resources.

7.20.3 Best Management Practices

No BMPs for socioeconomic resources are identified.

7.20.4 Impact Analysis and Effect Determinations

Bald Eagle – Implementing socioeconomic resource management will have *no effect (NE)* on bald eagles. This determination is based on the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Black-footed Ferret – Implementing socioeconomic resource management will have *no effect (NE)* on black-footed ferrets. This determination is based on the current absence of the black-footed ferret in the planning area and the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Blowout Penstemon – Implementing socioeconomic resource management will have *no effect (NE)* on the blowout penstemon. This determination is based on the current absence of the blowout penstemon in the planning area and the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Colorado Butterfly Plant – Implementing socioeconomic resource management will have *no effect (NE)* on the Colorado butterfly plant. This determination is based on the current absence of the Colorado

butterfly plant on BLM-administered surface in the planning area and the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Preble's Meadow Jumping Mouse – Implementing socioeconomic resource management will have *no effect (NE)* on the PMJM. This determination is based on the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Ute Ladies'-Tresses – Implementing socioeconomic resource management will have *no effect (NE)* on the Ute ladies'-tresses. This determination is based on the lack of specific actions in the Draft RMP and EIS related to socioeconomic resources.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Housing developments could expand into threatened and endangered species habitats, especially near Casper. Housing developments could remove, degrade, or fragment habitats for these species. Development into prairie dog habitats could remove habitat, introduce distemper through domestic dogs, and increase recreational shooting of prairie dogs and the potential for illegal take of black-footed ferrets by shooting. Development along the North Platte River could increase harassment of bald eagles.

7.21 Soil

The primary regional or national demand placed on soils in the planning area results from surface-disturbing actions. Extraction of minerals generally involves surface-disturbing activities, including road building, well pad construction, pipeline installation, and vegetation treatments. Other actions that affect soils are a variety of surface uses that loosen topsoil and remove vegetation or other ground cover, such as mining and energy development, grazing and browsing by animals, OHV use, development of trails and campgrounds, ROW, fire-suppression activities, and the use of prescribed fire. Soil compaction resulting from surface-disturbing activities and associated development can reduce infiltration, increase runoff, and hamper reclamation.

Protection of soil resources is accomplished through the application of use restrictions or preferred management practices intended to limit soil erosion and loss of soil productivity. Some restrictions may be general, such as programmatic constraints, which are applied to all surface-disturbing activities, including limitations during periods of wet or frozen soils or prohibition of operations on steep slopes. Typically, the protection of soil resources is accomplished through the application of site-specific management techniques. These mitigation measures are designed to conserve topsoil, minimize erosion, and reestablish vegetation on disturbed areas with a long-term goal of maintaining soil productivity. Examples of site-specific mitigation measures include exclusion of mechanized vehicle use on highly erodible soils, use of water bars or diversion channels to control surface water runoff around a disturbed area or off a road, or development of a specific seed mixture or seeding technique appropriate to the area and soil type being reclaimed. Additional mitigation measures typically are required on highly erodible soils to achieve adequate erosion control.

Actions associated with soil resources may include the identification and interpretation of existing soil resources and conditions; conducting soil inventories; identifying highly erosive soils; utilizing soil use limitation rating for land use actions; evaluating current erosion condition of the soils in the planning area; preventing accelerated soil erosion from disturbed areas; utilizing effective BMPs; establishing successful reclamation or rehabilitation on disturbed areas within the planning area; restoring disturbed areas to pre-disturbance conditions; managing actions to maintain or improve soil chemical, physical and biotic properties and maintain long-term soil stability; controlling the extent of surface disturbance in the

planning area by establishing acreage limits for total surface disturbance; and periodically monitoring, evaluating, and adapting management actions.

7.21.1 Proposed Protections for Soil in the Casper Draft RMP and EIS

Listed below are proposed protections in the Casper Draft RMP and EIS:

- On BLM-administered surface, conduct onsite soils investigations on highly controversial projects, or in areas of highly erosive soils, to evaluate the impacts of surface-disturbing activities. Onsite soil investigations may include mapping the soils to a series level, evaluating current erosion conditions, and prescribing mitigation and reclamation practices.
- Conduct assessment of soil limitations analysis using automated soil survey or field investigations on any surface-disturbing activity causing more than 20 acres of disturbance per year.
- Inspect disturbed and reclaimed areas for signs of accelerated erosion on projects disturbing more than 20 acres per year.
- Minimize the disturbance to highly erosive soils (256,240 acres). Proposed surface-disturbing activities will be modified (located) to avoid areas of highly erosive soils to the greatest extent practicable.
- NSO or other surface disturbance restrictions are allowed on slopes of more than 25 percent without permission from the Authorized Officer. When development is proposed on slopes of more than 25 percent, engineered drawings for construction, drainage design, and final contours proposed after rehabilitation will be required.
- Limit the use of prescribed fire on highly erosive soils to seasons and fire intensity that limit impacts.
- Complete reclamation actions (final contouring, replacing topsoil, reseeding, and surface treatment) on all disturbed areas within three growing seasons.
- Reseed all disturbed areas with native species adapted to the site conditions and capable of providing protective soil cover. All seed must be weed-free certified. Nonnative species may be used on a case-by-case basis when resource objectives will not be met through the use of native species and the nonnative plants have no invasive properties.
- Re-treat reclaimed areas that do not have at least 30 percent of predisturbance vegetative cover three growing seasons after final reclamation. Re-treating will vary by site and initial reclamation success, but may include invasive species control or re-seeding the site with other native species or the same native species under more favorable environmental conditions. Re-treatment also may involve additions of fertilizers or soil amendments and protective cover, such as mulch, matting, or netting. Livestock grazing also may be limited until reclamation success has been established. Grazing controls will vary by site, but could include herding, fencing, deferred use, or supplemental feeding. Reclaimed areas that do not have at least 50 percent of predisturbance vegetative cover five growing seasons after final reclamation will be re-treated.
- New roads and trails will avoid areas of highly erosive soils.

7.21.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to the management of soil resources.

7.21.3 Best Management Practices

The following BMP has been identified:

- Coordination between BLM soil scientists and BLM biologists will occur before any planned soils-related actions take place on the ground.

7.21.4 Impact Analysis and Effect Determinations

Bald Eagle – Human activity associated with soil management, such as reclamation, may alter bald eagle habitat. These potential impacts depend on the time of year, number of people involved in the field actions, duration of actions, use of heavy machinery, and the type of habitats affected. In the long-term, implementing soil-management actions may improve the condition of some habitats, potentially benefiting the bald eagle. Restrictions implemented to limit actions on sensitive soils may benefit the bald eagle in areas where sensitive soils and bald eagle habitats overlap. Implementing soil-management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the localized nature, duration, and minimal impacts of soil testing and reclamation, the proposed soil protection measures, and existing conservation measures in place to protect the species.

Black-footed Ferret – No black footed ferrets are believed to exist within the planning area. 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. 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 current absence of the black-footed ferret in the planning area; the localized nature, duration and minimal impacts of soil testing and reclamation; and existing conservation measures.

Blowout Penstemon – Blowout penstemon is not known to occur within the planning area. It is unlikely, that soil management actions would occur in potential habitat areas due to the very nature of the habitat (shifting sand dunes). 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 unlikely occurrence of these actions and the absence of this species in the planning area..

Colorado Butterfly Plant – Actions to alleviate and (or) avoid soil erosion are not expected to impact the Colorado butterfly plant. Soil mapping or sampling actions, including soil testing, may result in minimal impacts to Colorado butterfly plant due to the short duration of time spent sampling and the reclamation of the disturbance. Implementing soil management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the localized, infrequent occurrence and relatively small scale of these actions, and existing conservation measures in place to protect this species.

Preble's Meadow Jumping Mouse – Actions to alleviate and (or) avoid soil erosion will not adversely impact the PMJM. Management actions that help to reduce sedimentation and erosion within the drainages and waterways will help ensure continued free water in the creeks and streams, potentially improving PMJM habitats. If soil mapping or sampling actions, including soil testing, are conducted in PMJM habitats, minimal impacts to PMJM may occur due to the short duration of time spent sampling and the reclamation of the disturbance. Implementing soil-management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based

on the unlikely event of soil-management actions occurring in PMJM habitats and existing conservation measure in place to protect this species.

Ute Ladies'-Tresses – Actions to alleviate and (or) avoid soil erosion are not expected to impact the Ute ladies'-tresses. Soil mapping or sampling actions, including soil testing, may result in minimal impacts to Ute ladies'-tresses 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. Reductions in sedimentation and erosion within the drainages and waterways also will benefit the Ute ladies'-tresses. Soil-damaging actions are prohibited on moist soils, where the Ute ladies'-tresses typically is found. 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, and existing conservation measures in place to protect this species.

Cumulative Effects – Cumulative effects include future state, tribal, local, 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 and endangered species on nonfederal lands. Actions that stabilize soils or increase soil productivity may benefit threatened and endangered species. As these types of actions occur on nonfederal lands, the adverse or beneficial impacts may influence the habitats of threatened and endangered species.

7.22 Special Designations – Areas of Critical Environmental Concern and Special Management Areas

Special designations include SMAs, Areas of Critical Environmental Concern (ACECs), National Back Country Byways, and National Historic Trails (NHTs) and Other Historic Trails. Areas managed under special designations are regulatory or congressionally mandated and are designed to protect or preserve certain qualities or uses. The BLM currently manages three types of special designations, as well as two ACECs, NHTs, and one national back country byway. A second national back country byway is cooperatively managed with the BLM Rawlins Field Office

Pursuant to the FLPMA of 1976, Section 103(a), an ACEC is defined as an area "within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards." These areas are managed pursuant to BLM Handbook Section 1613. Two ACECs exist (Jackson Canyon and Salt Creek Hazardous) in the planning area. The Salt Creek Hazardous Area ACEC will not be retained under the Preferred Alternative.

SMAs are generally areas with unique characteristics that warrant managing the area in a manner that is different than standard management actions. While an ACEC or SMA may emphasize one or more unique resources, other existing multiple-use management can continue within an ACEC, as long as the uses do not impair the values for which the ACEC was designated or the SMA was established.

Types of surface-disturbing activities that may occur under the special designations program include closing areas where accelerated erosion is occurring; implementing logging and heavy equipment use restrictions; evaluating INPS and grasshopper control measures; applying restrictions on ground-disturbing activities; developing recreational trails; guiding supervised tours; protecting petroglyphs, artifacts, and cultural deposits from weathering and vandalism; and pursuing land exchanges.

The following discussion covers proposed or existing special designations within the planning area.

Alcova Fossil Area ACEC (Proposed)

The Alcova Fossil Area near Alcova Reservoir in southwest Natrona County has been proposed for ACEC designation based on the paleontological resources known to exist within the proposed boundaries. Under the Preferred Alternative, the ACEC will encompass 5,963 acres, 5,282 of which are BLM-administered surface land. Unique values associated with the site include the Alcova Pterodactyl Trackway (originally designated as an ACEC in 1980, but ACEC designation was removed in the 1985 RMP), one of only four such trackway occurrences known worldwide. The individual tracks in the proposed ACEC are larger than any others found in North America and suggest the animals had a wingspan of 10 feet. Recent research has revealed the presence of additional trackways in the area. In addition, exposed outcrops of the Morrison and Sundance formations in the area contain numerous fossilized remains of marine and terrestrial species from the Triassic and Jurassic periods, including plesiosaurs, icthyosaurs, *Allosaurus* and *Camarasaurus*. The potential for discovery of additional significant paleontological resources in the area is high. The U.S. Bureau of Reclamation has developed the Dinosaur Trail, a hiking trail with interpretive signs explaining the geology and paleontology, on adjacent lands.

Bates Hole SMA (Proposed)

Bates Hole is a collective term for the area with boundaries of the Bates Creek and North Platte River-Bolton Creek watersheds. The proposed Bates Hole SMA is located in southwestern Natrona County and extends into northern Carbon County beyond the planning area; however, management decisions apply only to the 375,221 acres within the planning area, not the portions of the watersheds that are outside the planning area. Approximately 288,504 acres of public land, including 158,023 public surface acres, fall within the SMA boundary.

The Bates Hole SMA will protect highly erosive soils, fragile watersheds, and crucial wildlife habitats, including portions of the Shirley Basin black-footed ferret reintroduction site, within the proposed boundary. Approximately 51,617 acres of highly erosive soils occur on public land within the boundary, which represents nearly 15 percent of all the high-water erosion potential soils on public land in the entire planning area. Soils with a high wind-erosion potential within the SMA are not a significant feature (1,330 acres), and comprise less than 1 percent of the high wind-erosion potential soils on public land in the planning area. The dominant vegetation types in the area include sagebrush, forests, woodlands, and shrublands. Sagebrush complexes comprise nearly 40 percent of the area and represent the best quality greater sage-grouse habitats in the planning area and some of the finest in Wyoming. Portions of the North Platte River also fall within the proposed boundary and include some of the highest quality recreational and fishing opportunities in the planning area.

Portions of the private lands within the proposed SMA have been converted to agricultural and urban development. In addition, the public lands in the area will be managed to conserve and (or) improve special status species habitats. Portions of the areas will maintain unfragmented vegetative communities. The area proposed as the SMA currently encompasses portions of the Jackson Canyon ACEC and Muddy Mountain EEA, which are managed under the decisions for those areas. Portions of the proposed North Platte River SRMA and Alcova Fossil Area ACEC also fall within the proposed boundaries and will be managed under the decisions for those areas.

Ninety-six percent of the proposed SMA is located in a low oil and gas development potential area, with the other 4 percent rated as having no development potential. Oil and gas leases on 3,478 acres of federal mineral estate are held by production at Government Bridge, Schrader Flats, and Bates Creek oil and gas fields. An additional 13,174 acres are presently leased. The proposed Bates Hole SMA has high potential for locatable minerals, such as uranium, bentonite, limestone, and jade. Numerous mining claims exist in the area, as well as numerous active mineral material pits.

Jackson Canyon ACEC (Existing)

The Jackson Canyon ACEC is in south-central Natrona County at the western end of Casper Mountain. The ACEC encompasses 14,025 acres, of which 3,938 acres are public surface and 11,104 acres are federal. Most private lands within the ACEC are subject to easements held by The Nature Conservancy, generally designed to preserve resources in a natural state and limit development.

The ACEC consists of mountainous topography with steep partially wooded slopes, escarpments, and deeply incised drainages and canyons. The ACEC was designated to protect crucial bald eagle habitats and two winter roost sites, one in Jackson Canyon and the other in Little Red Creek. Given the sensitive habitats for which the Jackson Canyon ACEC was designated, specific decisions were made in the existing plan to restrict uses that were not compatible with bald eagle use. In general, these included uses that involved surface disturbance. Bald eagle management prescriptions are further defined within the *Bald Eagle Habitat Management Plan for the Platte River Resource Area and Jackson Canyon ACEC* (BLM 1992). Forest issues related to pine beetles, wildland fire, and dense unmanaged forest stands have contributed to a decline in the quality of forests in the roosting areas.

North Platte River SRMA (Proposed)

The North Platte River supports numerous species of both flora and fauna. These riparian habitats are important in a cold desert environment, as they represent only 1 percent of Wyoming's land area. The river corridor provides year-round habitat for pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), and white-tailed deer (*Odocoileus virginianus*). Many species of birds also are also found here. Important winter feeding grounds for bald and golden eagles are located downstream from Gray Reef. The river also provides for high quality aquatic-based recreation within its corridor.

The North Platte River supports at least eighteen species of fish. Stocked with rainbow trout (*Oncorhynchus mykiss*), it is a destination fishery and is one of only twelve Blue Ribbon streams in Wyoming. The river section, from Gray Reef Dam to Goose Egg Bridge ranks second only to the Miracle Mile, some distance upstream outside the planning area. Latest estimates rank the Gray Reef section as the largest trout population in Wyoming, with the stretch of river near Bessemer Bend ranking fourth (WGFD, ACEC Letter). Blue Ribbon streams have been identified as a WGFD "vital habitat" which is defined as:

> "habitat [that] directly limits a community, population, or subpopulation, and restoration or replacement may not be possible. The [Wyoming Game and Fish] Department is directed by the Commission to recommend no loss of habitat function. Some modifications of habitat characteristics may occur, provided habitat function is maintained (i.e., the location, essential features, and species supported are unchanged)."

In addition to its regional importance as a recreational resource, the North Platte River Corridor is historically significant because of its use as a main conduit for settlers heading west during the mid 1800s. The Oregon, Mormon Pioneer, California, and Pony Express trails all follow the river from the Nebraska state line to Bessemer Bend just west of Casper.

Within the North Platte River valley there is a high potential for river-laid gravel deposits to occur. For river-deposited aggregate, the North Platte River valley is the predominate source for this important commodity within the planning area.

Under the Preferred Alternative, lands on the North Platte River upstream from the Natrona/Converse County Line will be managed as a SRMA. Specifically, this encompasses the Trapper's Route Landing

sites and public land parcels within ¼ mile either side of the river from the high-water mark between Pathfinder Reservoir and County Line.

Salt Creek SMA (Proposed)

The Salt Creek SMA falls completely within the boundary of the existing Salt Creek Hazardous ACEC and facilitates oil and gas exploration and development in the Salt Creek oil field area. It will be established on 23,912 acres. Although all development will comply with the ESA, discretionary timing stipulations for greater sage-grouse and crucial winter range will not be considered.

The drilling of No. 1 Salt Creek (or No. 1 Dutch) in October 1908 opened Salt Creek as one of the most significant fields in the Rocky Mountains. Based on data from the WOGCC, the Salt Creek oil field has produced about 671 million barrels of oil and 723-billion cubic feet of gas as of October 2003 (BLM 2005f). Salt Creek is the oldest and largest oil field in the southern Powder River Basin, the largest sweet oil-producing field in the world, and is currently the third largest oil producer in Wyoming (BLM 2005f). In 2002, Salt Creek Field produced 36 percent of the total oil produced in the planning area, and well over half of the original oil-in-place in Salt Creek is still there (BLM 2005f). In addition, implementing a carbon dioxide flood began in Salt Creek field in 2002 and will continue for the next 10 years.

Sand Hills SMA (Proposed)

The approximately 17,633 acre Sand Hills area in east-central Natrona and west-central Converse counties is identified for special management to protect the integrity of the soils and vegetation and to protect highly erosive soils. Soils in the area are susceptible to moderate to severe wind and water erosion. Sand dunes are a dominant feature in the area and provide visual relief from the surrounding landscape. Although the area contains examples of both active and inactive dunes, the majority of the area is stabilized by vegetation. The sand dunes vary in length from 100 to 500 yards; some reach a height of 300 feet. Pioneer native grasses can be observed on many of the dunes.

While a number of sand hills and sand dunes occur in other areas of Wyoming and the Rocky Mountain System, the Sand Hills area occurs in close proximity to Casper and mostly comprises public lands (both surface and mineral estate) within the boundary of the proposed SMA. The Sand Hills area is a system that provides habitats for big game and nongame species. Livestock grazing is a traditional and historic land use in the area and oil and gas development has occurred in this area since the late 1950s. The area has low-to-moderate development potential for oil and gas. No roads provide legal public access to the Sand Hills. Bladed and gravel roads, as well as unimproved two-track roads, are present in the Sand Hills and these serve oil facilities and local ranches.

Oil and gas leases in a portion of the area (3,172 acres) are held by production from development at Cole Creek and South Cole Creek. Other portions of the area are leased (10,265 acres) and approximately 42 percent are unleased (7,368 acres). Ninety-eight percent of the proposed SMA is identified as having low oil and gas development potential; however, a multimillion-dollar three-dimensional geophysical project was recently completed in this area, which could lead to further development and leasing of the area.

South Bighorns/Red Wall SMA (Proposed)

The South Bighorns/Red Wall complex includes wildlife habitats, unique vegetation, cultural and historic values, and is a high value recreational area. A comprehensive perspective on management of the Southern Bighorns is described in *The Past, Present and Future Management of the Southern Big Horns* (Bennett 2001). Under the Preferred Alternative, an SMA will be established on 93,352 acres, 55,945 of which is BLM-administered surface land.

The area encompasses mule deer and elk crucial winter range, and greater sage-grouse habitats. The area also contains a unique plant community, curl-leaf mountain mahogany (*Cercocarpus ledifolius*), which is a component of big game crucial winter ranges. Curl-leaf mountain mahogany is an important fall and winter forage for mule deer and elk and is utilized by livestock. Forests and woodlands provide hiding, escape, and thermal cover for wildlife and provide a small commercial source of wood products. Mountain big sagebrush communities present in the area support a wide variety of wildlife species, as an important food source and as hiding and nesting cover. In addition, the area provides habitats for a variety of wildlife, such as the mountain lion (*Puma concolor*), swift fox (*Vulpes velox*), marmot (*Marmota* spp.), greater sage-grouse, Hungarian partridge (*Perdix perdix*) and various migratory bird species.

The South Bighorns/Red Wall area exhibits a dense and diverse range of cultural and historical resources rivaling that found anywhere within Wyoming, including portions of the Cedar Ridge TCP and the Hole-in-the-Wall region. Evidence that supports Native American use in the South Bighorns includes numerous temporary camps, stone-tool manufacturing localities, and food preparation and processing sites. Native American religious practitioners have identified stone circles found on exposed ridges as having religious significance. The South Bighorns provided several important travel routes used by Native Americans, pioneers, and outlaws. The area is traversed by the South Bighorns/Red Wall National Back Country Byway.

Oil and gas leases in a small portion of the area (1,102 acres) are held by production from development at the Madden (Deep) oil and gas field primarily in Fremont County, which is administered by BLM's Lander Field Office. Other portions of the area are leased. Presently, a well is being drilled in the Hitchcock Draw Unit (8,277 acres are within the proposed SMA). If this well is productive, the leases in this unit also are held by production.

Numerous mining claims occur in the area. An increased interest in uranium has increased filings of new mining claims in the area. There are three active sand and gravel permits in the area; two are free-use permits and the other is a negotiated contract. In addition, there are talc and soapstone claims, with some copper exploration, in the area west of Grave Springs Campground along the EK Trail.

Wind River Basin SMA (Proposed)

The proposed Wind River Basin SMA lies in the western portion of Natrona County. The area has been proposed as an SMA to facilitate oil and gas production. It will be established on portions of the Wind River Basin with high and moderate potential for oil and gas acres (54,575 acres, of which 18,277 acres are BLM-administered surface and 44,302 acres are BLM-administered minerals).

Improvements in hydraulic fracturing technology have encouraged the extensive oil and gas development in parts of the Wind River Basin lying within the planning area. Although gas production in the planning area has declined from 100- to 63-billion cubic feet per year since 1999, drilling in the eastern Wind River Basin portion of the planning area may reverse or at least flatten the decline during the next few years. In addition, the eastern portion of the Wind River Basin is prospective for additional discoveries of natural gas (BLM2005e).

Estimates for the gas-in-place resource for the portion of the Wind River Basin lying within the planning area range from 228-trillion cubic feet to 268-trillion cubic feet. The estimate for deep gas-in-place is approximately 72-trillion cubic feet present within that part of the Wind River Basin lying within the planning area (BLM 2005f).

The Wind River Basin provides a diversity of habitats for numerous plant and wildlife species, including mule deer, pronghorn, and various special status species such as the mountain plover, white-tailed prairie

dog, raptors, and greater sage-grouse. Portions of the Wind River Basin contain crucial winter ranges for both mule deer and pronghorn. The basin also contains sagebrush habitats for greater sage-grouse and other sagebrush obligates.

The proposed Wind River Basin SMA is managed for energy development. By not applying discretionary timing restrictions for big game crucial winter ranges, and raptor, mountain plover, and greater sage-grouse nesting habitats within the proposed boundaries of the proposed SMA, larger windows of time are provided not only for drilling of new wells, but also for reclamation operations. Compliance with federal laws, such as the ESA and Migratory Bird Treaty Act, are still required throughout the SMA area.

7.22.1 Proposed Protections for Special Designations in the Casper Draft RMP and EIS

Alcova Fossil Area ACEC

The following protections are proposed in the Casper Draft RMP and EIS:

- The Alcova Fossil Area will be designated as an ACEC. Proposed surface-disturbing activities will be analyzed to assess potential adverse effects on paleontological resources. Mitigation may include prohibition, avoidance, or onsite monitoring, based on the assessment. A mineral withdrawal will be pursued. OHV use in the area will be limited to designated roads and trails. Visitor interpretation and education facilities will be minimal, using offsite or nearby signs or kiosks. A management plan will be written for any development and to identify long-term goals for management.

Bates Hole SMA

The following protections are proposed in the Casper Draft RMP and EIS:

- Greater sage-grouse habitat will be managed as a priority resource. Management actions to conserve and (or) improve this habitat are described in the special status species section of this document.
- Surfacing-disturbing and disruptive activities will be subject to a CSU stipulation, restricting or prohibiting surface occupancy unless the proponent and surface management agency arrive at an acceptable plan for mitigation for impacts.
- To meet watershed management goals, the Bates Hole SMA will be intensively managed.
- No new corridor designations will be made. When placement of a major ROW facility within a designated corridor is not possible, and for smaller ROW and other linear facilities, placement will be adjacent to existing facilities or disturbances. Cross-country placement of ROW and other linear facilities will be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible. The extent of all surface disturbances will be minimized.

Jackson Canyon ACEC

The following protections are proposed in the Casper Draft RMP and EIS:

- The existing boundary will be revised by enlarging it approximately ¼ mile to the south, making use of topographic features to screen bald eagle roosts.
- The ACEC is closed to the disposal of mineral materials.

- The existing federal mineral estate in the ACEC, and any additional mineral estate that may be acquired in the ACEC, has been withdrawn from location and appropriation under the mining laws.
- Forest harvesting will be allowed to reduce fuel loads and disease while meeting bald eagle management objectives. All constructed roads will be closed and reclaimed.
- All federal lands within or adjacent to the ACEC will be designated priority full suppression. Priority full suppression may include full suppression of wildland fires with all available resources, including vehicle use on existing roads and trails, air support, construction of roads, and grading of firebreaks using heavy equipment. Any surface disturbance resulting from suppression efforts will be restored and reclaimed immediately after the fire is suppressed. To the extent possible, trees will not be cut within 200 yards of bald eagle roosts during fire suppression.
- Prescribed fire will be used to meet bald eagle habitats, livestock grazing, fuels management, and forestry objectives. Exceptions to the existing seasonal restriction of November 1 through March 31 to protect bald eagle roosting habitats will be granted on a case-by-case basis after consultation with the USFWS.

North Platte River SRMA

The following protections are proposed in the Casper Draft RMP and EIS:

- An SRMA Plan will be completed.
- The SRMA will include (1) a transportation plan, limiting OHV use to designated roads and trails, (2) guidelines for signage, and (3) specific recreational site designs and restoration projects.
- The existing North Platte River protective withdrawal on 3,226 acres will continue.
- Lands acquired by purchase or donation are segregated from operation of the public land laws, including the mining laws.
- Restoration projects will focus on improving wildlife habitats and recreational opportunities.
- Lands within the SRMA will be subject to (1) an NSO restriction, except for recreational facilities, and (2) closed to disposal of mineral materials.
- Lands acquired along the river to enhance public access by purchase, donation, or exchange will be available for livestock grazing, except those lands located in the riparian zones.

Salt Creek SMA

No proposed protections for Salt Creek SMA that would benefit threatened and endangered species are identified.

Sand Hills SMA

The following protections are proposed in the Casper Draft RMP and EIS:

- The area will be closed to oil and gas leasing and geophysical exploration will not be allowed. Surface-disturbing activities will be subject to a CSU stipulation, minimizing surface disturbance to meet management objectives.
- The area will be withdrawn from locatable mineral entry.
- The area will be closed to disposal of mineral materials.

- No new corridor designations will be made. The area will be an ROW exclusion area.
- Pursue obtaining legal public access and limit use to nonmotorized.

South Bighorns/Red Wall SMA

The following protections are proposed in the Casper Draft RMP and EIS:

- The area will be withdrawn from the operation of the public land laws (locatables).
- The SMA will be closed to new oil and gas leasing and geophysical operations on public surface. Actions on existing leases will be intensively managed to meet the objectives of the SMA. To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable.
- The SMA will be closed to disposal of mineral materials. Existing rights will be allowed to expire without renewal or expansion. Disturbed areas will be rehabilitated to achieve visual resource and vegetative standards.
- The area will be an ROW exclusion area. No corridors will be designated.

Wind River Basin SMA

No proposed protections for the Wind River Basin SMA that would benefit threatened and endangered species are identified.

7.22.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Surveys for the Ute ladies'-tresses orchid will be conducted in potential habitat according to the current USFWS survey guidelines within SMAs and ACECs. The surveys will be conducted for three consecutive years in potential orchid habitat. If the first survey shows that suitable habitat doesn't exist, even though streams occur in an area to be impacted, these areas may be dropped from further surveys. In suitable Ute ladies'-tresses habitat in these SMAs, current actions will cease and the authorization of new actions will be held until surveys are completed.

7.22.3 Best Management Practices

The following BMP for special designations has been identified:

- Coordination between BLM recreational planners, BLM biologists, and other resource group managers will take place during the planning stage for actions occurring in these SMAs and ACECs.

7.22.4 Impact Analysis and Effect Determinations

Threatened and Endangered Species – Management of special designations is not anticipated to impact threatened or endangered species or their habitats. Management of these areas would likely have beneficial effects on threatened and endangered species due to access restrictions, limitations on surface disturbance, and management objectives specifically to designed to benefit the resources contained within. No threatened or endangered species are known to exist within the Salt Creek SMA or the Wind River Basin SMA. Implementing special designation management actions *may affect, but is not likely to adversely affect,* the bald eagle, due to *beneficial effects (NLAA-b).* This determination is based on the

additional management restrictions placed on some of the Special Management Areas and the existing conservation measures in place to protect these species.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. No actions associated with special designations on nonfederal lands are anticipated to affect threatened and endangered species.

7.23 Special Designations – National Backcountry Byways

The BLM began a byway program in 1989 with a focus of enhancing recreational opportunities. A National Scenic Byway System was created 2 years later, under Section 1047 of the Intermodal Surface Transportation Efficiency Act of 1991. This act recognized the BLM Back Country and Scenic Byways as a component of the National Scenic Byway System (Section 1032, eligible projects). The objectives of this program are to do the following:

- Enhance opportunities for the American public to see and enjoy the unique scenic and historical opportunities on public lands
- Foster partnerships at local, state, and national levels
- Contribute to local economies
- Enhance the visitor's recreational experience and communicate the multiuse management message through effective interpretative programs
- Manage visitor use along the byway to minimize impacts to the environment and to provide protection for the visitor
- Contribute to the National Scenic Byway Program in a way that is uniquely suited to national public lands managed by the BLM.

There are two national back country byways in the planning area: the South Bighorns/Red Wall National Back Country Byway and a portion of the Seminoe/Alcova National Back Country Byway.

7.23.1 Proposed Protections for National Back Country Byways in the Casper Draft RMP and EIS

No proposed protections for national back country byways that would benefit threatened and endangered species are identified.

7.23.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of national back country byways.

7.23.3 Best Management Practices

No BMPs for national back country byway management are identified.

7.23.4 Impact Analysis and Effect Determinations

Bald Eagle – No direct effects are anticipated to occur to the bald eagle or its habitat from management actions associated with national back country byways. No construction of new roads will occur with the continuation of the national back country byway designation for two roads in the planning area. Implementing national back country byway management actions will result in *no effect (NE)* to the bald

eagle. This determination is based on that the roads are already constructed and no new road construction for this designation will take place.

Black-footed Ferret – No direct effects are anticipated to occur to the black-footed ferret or its habitat from management actions associated with national back country byways. No construction of new roads will occur with the continuation of the national back country byway designation for two roads in the planning area. Implementing management actions associated with national back country byways will result in *no effect (NE)* to the black-footed ferret. This determination is based on the current absence of the ferret in the planning area and that no new national back country byways are proposed.

Blowout Penstemon – No direct effects are anticipated to occur to the blowout penstemon or its habitat from management actions associated with national back country byways. No known occurrences of the blowout penstemon are in the planning area and the two national back country byways do not occur in potential habitat for the blowout penstemon. Implementing national back country byway management actions will result in *no effect (NE)* to the blowout penstemon. This determination is based on the lack of known blowout penstemon populations in the planning area and that the national back country byways do not occur in potential blowout penstemon habitat.

Colorado Butterfly Plant – No direct effects are anticipated to occur to the Colorado butterfly plant or its habitat from management actions associated with national back country byways. No known occurrences of the blowout penstemon are on BLM-administered surface in the planning area and the two national back country byways do not occur in potential habitat for the Colorado butterfly plant. Implementing national back country byway management actions will result in *no effect (NE)* to the Colorado butterfly plant. This determination is based on the lack of known blowout penstemon populations on BLM-administered surface in the planning area and that the national back country byways do not occur in potential Colorado butterfly plant habitat.

Preble's Meadow Jumping Mouse – No direct effects are anticipated to occur to the PMJM or its habitat from management actions associated with national back country byways. No construction of new roads will occur with the continuation of the national back country byway designation for two roads in the planning area. Implementing national back country byway management actions will result in *no effect (NE)* to the PMJM. This determination is based on that the roads are already constructed, no new road construction for this designation will take place, and the roads are not in PMJM habitat.

Ute Ladies'-Tresses – No direct effects are anticipated to occur to the Ute ladies'-tresses or its habitat from management actions associated with national back country byways. No construction of new roads will occur with the continuation of the national back country byway designation for two roads in the planning area. Implementing national back country byway management actions will result in *no effect (NE)* to the Ute ladies'-tresses. This determination is based on that the roads are already constructed, no new road construction for this designation will take place, and the roads are not in Ute ladies'-tresses habitat.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. No cumulative impacts are anticipated from the continued designation of two national back country byways in the planning area.

7.24 Special Designations – National Historic Trails and Other Historic Trails

In 1968, the National Trails System Act provided for the development of a national system of trails in urban, rural, and wilderness settings. The National Trails System does not manage trail resources on a

day-to-day basis; rather, the responsibility for managing trail resources remains in the hands of current trail managers at the federal, state, local, and private level. Four NHTs and other historic trails of regional and national significance cross the planning area. The four NHTs are formally known as the "Oregon-California-Mormon Pioneer-Pony Express Trail," but generically as the Oregon Trail because the routes overlap in many areas.

Because NHTs are unique cultural resources with high public interest they warrant special management consideration within the planning area. Guidelines have been developed specifically for the trails that allow more precise management planning than is possible for other broad categories of historic or prehistoric cultural resources. The *Oregon/Mormon Pioneer National Historic Trails Management Plan* (BLM 1986) was prepared in 1986 to guide BLM management of the NHTs and cutoffs.

Actions conducted by the BLM concerning the management of NHTs includes, but is not limited to, surveying, developing management plans, developing and maintaining interpretive sites, installing trail markers, managing the viewshed, and restricting surface development.

7.24.1 Proposed Protections for NHTs and Other Historic Trails in the Casper Draft RMP and EIS

The following protection is proposed in the Casper Draft RMP and EIS:

- A protective zone will be established around all NHTs. The zone will extend outward ¼ mile from either side of the physical trail remains or the visual horizon, whichever is closer. Surface-disturbing activities will be limited within that zone.

7.24.2 Conservation Measures Currently Committed to by the BLM

No specific conservation measures apply to management of NHTs and other historic trails.

7.24.3 Best Management Practices

No BMPs for NHTs or other historic trails management are identified.

7.24.4 Impact Analysis and Effect Determinations

Threatened and Endangered Species- Development of interpretive sites and trail markers could result in increased human visitation to the trails, potentially disrupting threatened or endangered species. However, these impacts are anticipated to be localized to where these sites and markers are placed. NHTs will be protected from surface-disturbing activities and the viewsheds managed for natural characteristics, resulting in protection of the threatened and endangered species and their habitats. Implementing NHT management actions *may affect, but is not likely to adversely affect* the threatened and endangered species, due to *insignificant effects (NLAA-i)*. This determination is based on the benefits of NHT and viewshed protection and the low potential of interpretive sites and trail markers to bring human visitation into threatened and endangered species habitat.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Additional protections of NHTs on nonfederal land will increase the beneficial impacts to threatened and endangered species from conservation of these lands.

7.25 Special Status Species – Plants

Special status plants are those listed as threatened or endangered, those proposed for listing, or are candidates for listing under the provisions of the ESA, or those designated by the BLM state director as

sensitive. Nine special status plants are known to or may occur within the planning area. Blowout penstemon is endangered, and Colorado butterfly plant and Ute ladies'-tresses are threatened. In addition, the western prairie fringed orchid, a threatened species, is known to occur in riparian areas in watersheds downstream of the planning area and beyond the Wyoming border. However, this species could be affected by management actions in the planning area. BLM sensitive plants include Laramie columbine (*Aquilegia laramiensis*), Porter's sagebrush (*Artemisia porteri*), Nelson's milkvetch (*Astragalus nelsonianus*), many-stemmed spider flower (*Cleome multicaulis*), William's wafer-parsnip (*Cymopterus williamsii*), and Laramie false sagebrush (*Sphaeromeria simplex*).

The BLM manages public lands to conserve and (or) improve the habitats for special status plants. During special status species management actions, the BLM provides habitat, protects known populations, enforces timing stipulations, conducts surveys, closes known locations to surface-disturbing activities, mineral material sales, off-road vehicle use, and monitors and restricts the use of explosives and blasting.

7.25.1 Proposed Protections for Special Status Plant Species in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- On a case-by-case basis, project proponents will complete surveys for federally listed and BLM sensitive plants before beginning any surface disturbance.
- Design placement of water developments and placement of salt and mineral supplements at least 500 feet away from known locations of special status plants. Consider the concentration of browsing or grazing animals on the known locations of special status plants. Exception could be granted when site-specific analysis determines there will be no adverse impacts to special status plants.

7.25.2 Conservation Measures Currently Committed to by the BLM

Conservation measures currently committed to by the BLM for special status plant species are listed under the individual plants in Section 10.0 of this document.

7.25.3 Best Management Practices

Best management practices currently committed to by the BLM for special status plant species are listed under the individual plants in Section 10.0 of this document.

7.25.4 Impact Analysis and Effect Determinations

Bald Eagle – Management actions for special status plants will not impact the bald eagle. General management actions will include restrictions of actions and surface disturbance that may be detrimental to special status plants. Implementing special status plant management actions will result in *no effect (NE)* to the bald eagle. This determination is based on the localized nature of these actions and the restrictions of surface disturbance in these areas, and potential improvements to these habitats.

Black-footed Ferret – Management actions for special status plants will not affect the black-footed ferret. Prairie dogs 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, will have no negative impact on black-footed ferrets or prairie dogs. Implementing special status plants management actions will have *no effect (NE)* on black-footed ferrets. This determination is

based on the fact that prairie dogs occur over large areas that are unlikely to harbor rare plants, and protective measures for sensitive plants will have no impact on prairie dogs or black-footed ferrets.

Blowout Penstemon – Although no known populations of blowout penstemon occur in the planning area, protection and conservation of potential blowout penstemon habitats could have positive effects on this species. 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 actions on potential blowout penstemon habitat.

Colorado Butterfly Plant – Although no known populations of Colorado butterfly plant occur on BLM-administered surface in the planning area, protection and conservation of potential Colorado butterfly plant habitats could have positive effects on this species. Restrictions on actions within potential Colorado butterfly plant habitats may help to improve habitat. Implementing special status plant management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *beneficial effects (NLAA-b)*. This determination is based on the potential that these actions will limit actions on potential Colorado butterfly plant habitats.

Preble's Meadow Jumping Mouse – Management actions for special status plants will not impact the PMJM. General management actions will include restrictions of actions and surface disturbance that may be detrimental to special status plants. Implementing special status plant management actions will result in *no effect (NE)* to the PMJM. This determination is based on the localized nature of these actions and the restrictions of surface disturbance in these areas, and potential improvements to these habitats.

Ute Ladies'-Tresses – Protection and conservation of the Ute ladies'-tresses and its habitat could have positive effects on this species. 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 actions on Ute ladies'-tresses habitats.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Protection and enhancement of special status plant species on nonfederal lands will conserve habitat for threatened and endangered species and potentially limit habitat fragmentation.

7.26 Special Status Species – Fish and Wildlife

Special status fish and wildlife species are those listed as threatened or endangered, are proposed for listing, or are candidates for listing under the provisions of the ESA; or those designated by the BLM State Director as sensitive. The BLM manages public lands to conserve and (or) improve the habitats for special status fish and wildlife. Greater sage-grouse and its habitats are a priority for management in the planning area. The BLM will manage BLM-administered lands to provide for populations as determined by the local Sage-Grouse Working Group.

During special status species management actions, the BLM provides habitat; protects known populations; enforces timing stipulations; conducts surveys; closes known locations to surface-disturbing activities, mineral material sales, and off-road vehicle use; and monitors and restricts the use of explosives and blasting.

7.26.1 Proposed Protections Special Status Fish and Wildlife Species in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Proposed habitat expansion, introductions, reintroductions, and translocations of native and non-native fish and wildlife species will be considered on a case-by-case basis.
- Evaluate and adopt the local Sage-Grouse Working Group recommendations for improving and managing sage-grouse habitat and the Sage-Grouse Conservation and Assessment Strategy.
- Power lines will continue to be constructed in accordance with standards outlined in "Avian Power Lines Interaction Committee. Suggested practices for Raptor Protection on Power Lines – the State of the Art 1996. Edison Electric Institute and the Raptor Research Foundation, Washington, DC."
- On a case-by-case basis, project proponents will complete special status surveys (federally listed and BLM sensitive animals) before any surface disturbance begins.
- The *Final Bald Eagle Habitat Management Plan for the Platte River Resource Area and Jackson Canyon ACEC* (BLM 1992) will be carried forward.
- The Bates Hole area is proposed as a SMA wherein sage-grouse and their habitats will be a priority resource. Leks will have a ¾-mile CSU buffers to protect breeding habitat. Leks, which are currently displayed as points, will be displayed as polygons. Nesting habitat will have 4-mile buffers. Within these buffers, surface development or wildlife disturbing activities will be restricted March 1 through June 30. Also, within these 4-mile buffers, surface disturbance will avoid (year-round) sagebrush stands (of greater than 10 percent canopy cover) where possible. Within these 4-mile buffers, mitigate for power poles and other high profile structures that may provide raptor perches. Avoid placement of these structures if possible, or install devices to preclude raptor perching on the structures. As sage-grouse winter habitat is designated, a TLS will restrict actions from November 15 to March 14. The Bates Holes area will have priority for vegetative treatments to improve sage-grouse habitats and for vegetation monitoring to insure residual herbaceous vegetation is maintained for nesting cover on public lands within the two areas. Throughout the planning area, vegetative treatments to meet sage-grouse habitat objectives will be excluded from the above distance and seasonal restrictions.
- All other sage-grouse leks will be protected by CSU within a radius of ¼-mile from the lek and a seasonal 2-mile buffer during March 1 through July 15. In accordance with the BLM National Sage-Grouse Habitat Conservation Strategy, a seasonal timing stipulation may be applied on contiguous sagebrush habitat up to 4 miles on a case-by-case basis.
- The size of a buffer zone to protect raptor nests will be determined case-by-case by the BLM Authorized Officer, who will consider topography and raptor prey habitat surrounding the nest site. Usually the buffer zone will be ¼ to ½ mile. The general dates of restriction for all raptor species are February 1 through July 31 (or until the young have fledged).
- Bald eagle nests are protected by a 1-mile, year-long buffer zone.
- Artificial Nesting Structures (ANS) for raptors are placed as long-term (20 to 40 years) mitigation for displaced raptor pairs. To provide the long-term protection of these ANS sites, apply a combination of NSO restrictions and seasonal buffer zones around the nesting structures. ANS will have a ½-mile NSO buffer. An additional ½-mile seasonal buffer will be applied (total of a 1-mile buffer) for golden eagle. This restriction is intended to preclude the placement of permanent facilities within the NSO buffers.

7.26.2 Conservation Measures Currently Committed to by the BLM

The following conservation measures currently committed to by the BLM:

- No surface disturbance or wildlife disturbing activities will be allowed seasonally (April 10 through July 10) within ¼-mile of all potential mountain plover nesting areas. Exceptions to this seasonal restriction require mountain plover surveys (BLM 2004e).

Additional conservation measures currently committed to by the BLM for special status wildlife species are listed under the individual species in Section 10.0 of this document.

7.26.3 Best Management Practices

Conservation measures currently committed to by the BLM for special status wildlife species are listed under the individual species in Section 10.0 of this document.

7.26.4 Impact Analysis and Effect Determinations

Bald Eagle – Management and protection of habitats for bald eagles and other special status wildlife species may influence potential habitats for bald eagles. The objective of special status species management is to protect their habitats and allow for reintroduction or maintenance. These management actions will result in positive effects to bald eagles by limiting harassment and disturbance to nesting, communal winter roosting, and foraging areas. Implementing special status wildlife management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *beneficial effects (NLAA-b)*. This determination is based on the potential for these actions to limit harassment and displacement of bald eagles and minimize adverse effects to nesting, communal winter roosting, and foraging areas. In addition, the Jackson Canyon ACEC is managed for the benefit of bald eagles.

Black-footed Ferret – Management and protection of habitats for other special status wildlife may influence potential habitats for black-footed ferrets. Protection of sage-grouse and mountain plover breeding areas could also protect prairie dogs, black-footed ferrets, and their habitats. Limiting access to specific areas by OHVs, equestrians, and pedestrians; prohibiting surface development; and imposing road closures could benefit black-footed ferret prey by protecting prairie dog habitat and reducing human access, which will reduce shooting. Implementing special status species 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 protection of black-footed ferret habitat, existing protective measures in the Casper RMP, and the protection afforded by the ESA as administered by the BLM.

Blowout Penstemon – No blowout penstemon are known to occur within the Casper Field Office Planning Area. Management actions associated with special status wildlife species will not impact potential blowout penstemon habitat. Implementing special status wildlife species management actions will have *no effect* on the blowout penstemon.

Colorado Butterfly Plant –Management actions associated with special status wildlife species will not impact Colorado butterfly plant or its habitat. Implementing special status wildlife species management actions will have *no effect* on the Colorado butterfly plant.

Preble's Meadow Jumping Mouse – Management and protection of habitats for other special status wildlife may influence potential habitats for black-footed ferrets. Protection of bald eagle riparian habitats could also protect PMJM and their habitats. Limiting surface development and reducing human access benefit the PMJM. Implementing special status species management actions *may affect, but is not likely to adversely affect* the PMJM, due to *beneficial effects (NLAA-b)*. This determination is based on

protection of PMJM habitat, existing protective measures in the Casper RMP, and the protection afforded by the ESA as administered by the BLM.

Ute Ladies'-Tresses – Management actions associated with special status wildlife species will not impact Ute ladies'-tresses or its habitat. Implementing special status wildlife species management actions will have *no effect* on the Ute ladies'-tresses.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Protection of special status fish and wildlife species and maintenance and enhancement of their habitat on nonfederal lands will provide additional benefit for threatened and endangered species. In addition, limitations to development and disturbance will reduce habitat fragmentation.

7.27 Transportation

The BLM transportation program is aimed at providing means for legal access to public lands and maintenance and development of various transportation facilities. The primary goals of the BLM transportation and access program are (1) acquire access, and (2) manage the transportation system to meet resource management objectives.

The BLM rehabilitates access roads no longer needed; proposes easement negotiations; pursues access across private lands; acquires rights-of-way or easements; and exchanges lands.

7.27.1 Proposed Protections for Transportation in the Casper Draft RMP and EIS

The following protection is proposed in the Casper Draft RMP and EIS:

- Roads or trails that are eroding beyond a reasonable level will be fixed or closed.

7.27.2 Conservation Measures Currently Committed to by the BLM

No conservation measures apply to the transportation program.

7.27.3 Best Management Practices

No BMPs for transportation management are identified.

7.27.4 Impact Analysis and Effect Determinations

Bald Eagle – Development of new roads and expansion of existing access to BLM-administered lands is not expected to alter the suitability of bald eagle habitat. Potential effects are anticipated to be of short duration and limited in nature. In addition, surface disturbance is prohibited within 1/2 to 1 mile of known or discovered bald eagle nests. Implementing transportation management actions *may affect, but is not likely to adversely affect*, the bald eagle due to *insignificant effects (NLAA-i)*. This determination is based on the unlikely event that actions associated with transportation would result in impacts to bald eagle habitat, the localized nature of the actions, and surface disturbance restrictions.

Black-footed Ferret – No black-footed ferrets are believed to exist within the planning area. Closing roads would benefit black-footed ferrets by reducing access and associated disturbance such as recreational shooting. Any new access roads, easements, or land exchanges through prairie dog colonies could provide access for shooters. However, given the BLM-committed conservation measures, prairie dog colonies would be avoided, thereby avoiding impacts to the black-footed ferret or potential recovery sites. Implementing transportation 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 no black-footed ferrets existing within the planning area and the avoidance of prairie dog colonies as specified in the conservation measures.

Blowout Penstemon – No known populations of blowout penstemon occur in the planning area. Development and expansion of access is not expected to effect potential blowout penstemon habitat. It is unlikely that new roads will be placed in potential blowout penstemon habitat (i.e., steep slopes and unstable substrate). Implementing transportation 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 absence of known blowout penstemon populations in the planning area and the unlikely event actions associated with developing or expanding access would impact potential blowout penstemon habitat.

Colorado Butterfly Plant – No known populations of the Colorado butterfly plant occur on BLM-administered surface lands in the planning area. New roads or expansion of access through potential Colorado butterfly plant habitat are not expected to occur. Implementing transportation management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of Colorado butterfly plant populations on BLM-administered surface lands and the unlikely event new roads or expansion of access occur in potential Colorado butterfly plant habitat.

Preble's Meadow Jumping Mouse – New roads or expansion of access through potential PMJM habitat are not expected to occur. Based on the conservation measures, riparian and wetland habitats would be avoided or the impacts minimized, thereby further minimizing impacts to the PMJM. Implementing transportation management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on the conservation measures in place and the avoidance of wetland and riparian areas.

Ute Ladies'-Tresses – New roads or expansion of access through potential Ute ladies'-tresses habitat are not expected to occur. Based on the conservation measures, riparian and wetland habitats would be avoided, thereby further minimizing impacts to Ute ladies'-tresses. Implementing transportation 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 conservation measures in place and the avoidance of wetland and riparian areas.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Increased road building on private and state lands may cause vehicle mortality of threatened and endangered species. Increases of vehicle mortality of prairie dogs, loss of prairie dog habitat, and increases of recreational shooting may lead to increases in illegal take of black-footed ferrets. Railroad construction on state and private lands may also remove habitat, especially potential black-footed ferret habitat (i.e., prairie dog towns), impacting threatened and endangered species.

7.28 Vegetative Resources

The convergence of two physiographic regions (Interior Plains and Rocky Mountain System) and a wide range of topography result in a diversity of vegetative types in the planning area. Grasslands and sagebrush types, followed by desert shrubs and saltbush-greasewood flats and woodlands, dominate vegetation in the planning area. Lodgepole pine and ponderosa pine forests are limited to approximately 5 percent of the planning area at higher elevations. Table 5 summarizes the extent of nine vegetative types within the planning area.

Vegetative resources management objectives for the BLM include to actively manage vegetation communities for a complete range of seral stages; restore fire to its appropriate place in the ecological process; use mechanical, chemical, biological methods, and livestock grazing to achieve objectives; manage all lotic and lentic wetland/riparian systems toward proper functioning condition (PFC); conduct rangeland health evaluations; regenerate aspen communities and manage aspen toward desired plant community (DPC); actively manage vegetation communities for sustainable levels of forage for livestock and habitat for wildlife; implement guidelines on allotments that do not meet rangeland health standards; and conduct vegetation treatment in areas to achieve desired future condition.

As part of the vegetation management program, the BLM designs vegetation treatments; conducts prescribed fires; implements INPS control programs; implements planting and seeding; allows precommercial tree thinning; provides buffer zones; allows actions which increase human presence; allows the use of machinery or fire; improves riparian habitat; pursues the acquisition of additional riparian areas; allows spraying, burning, and mechanical disturbances; uses species-specific biological control insects, livestock grazing, mechanical methods, or chemical methods; and conducts plant species surveys.

Table 5. Vegetative Types and Acreage in the Casper Planning Area

Vegetative Type	Total Acreage	BLM Acreage	Percent BLM Surface Acreage
Altered by Human (agriculture, mining, urban)	1,126,287	12,371	0.9
Grasslands	3,091,713	299,954	22.0
Sagebrush	2,408,101	630,183	46.2
Ponderosa/Lodgepole pine forests	549,340	66,182	4.9
Desert Shrubs and Saltbush-Greasewood flats	460,426	181,064	13.3
Aspen/Juniper/Limber pine woodlands	314,862	101,882	7.5
Mountain shrubs	204,218	46,779	3.4
Riparian and Wetland	243,184	12,960	1.0
Other (Rock outcrops, water)	123,216	10,202	0.9
Total	8,521,347	1,361,577	100

Source: BLM 2005h

BLM Bureau of Land Management

Note: Percentage may not sum to 100 due to rounding; totals for acreage columns do not equal total planning area and total BLM-administered land within planning area due to differences in source files for boundary and for vegetation.

7.28.1 Proposed Protections for Vegetative Resources in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Utilize an integrated management technique approach (mechanical, chemical, biological, or livestock grazing) to manipulate seral stages within vegetative communities to achieve objectives defined by the range, forestry, wildlife, watershed, and INPS programs.
- Apply, where surface development or disturbance occurs, appropriate mitigation measures to minimize impacts to vegetative resources. Emphasize the use of native plants appropriate to the site for reclamation actions. Nonnative species may be used on a case-by-case basis when resource objectives will not be met through the use of native species.
- Manage vegetative communities to allow optimal live vegetative basal cover and ground litter within the potential of the ecological site (soil type, landform, climate, and geology).

- Manage all riparian and wetland areas toward PFC. Utilize Wyoming BMPs.
- The BLM National Sage-Grouse Habitat Conservation Strategy guidelines will be followed until specific greater sage-grouse conservation measures are incorporated into the land use plan.
- Areas currently identified with low development potential for coal and oil and gas resources with public surface ownership greater than 50 percent, will be managed to retain intact blocks of native vegetation where contiguous acreage of greater than 10,000 acres is present.
- Apply vegetative treatments where and when needed to achieve desired future conditions which may include, but is not limited to, improving age class diversity, plant vigor, and forage quality. Vegetative treatments may include the use of prescribed fire, chemical, mechanical, biological, or combination of these methods to reach specified objectives.
- Actively manage those ecological sites that provide optimal physical conditions for growing aspen. Manage aspen toward DPC based upon criteria in *Aspen Ecosystems: Objectives for Sustaining Biodiversity*. Utilize aspen communities to the greatest extent possible as natural fuel breaks in urban interface areas and wildlife habitat.
- Create vegetation mosaics within woodlands that provide a preferred ratio of woodlands and adjacent habitats.
- Treat woodland encroachment in grassland, sagebrush, aspen, and other vegetative communities where it is determined to be detrimental to other resource values or uses.
- Silvicultural treatments will be applied as needed to achieve objectives.

7.28.2 Conservation Measures Currently Committed to by the BLM

No conservation measures apply to the management of vegetative resources.

7.28.3 Best Management Practices

The following BMPs have been identified:

- For all actions occurring in riparian and wetland areas, the BMPs presented in the following documents will be considered in an effort to generate the most ecologically sound management program: "Birds in Green Ribbons – Best Management Practices for Riparian Areas to Benefit Birds in Wyoming" – Wyoming PIF; "Grazing Management for Riparian-Wetland Areas" – TR 1737-14; and "Effective Cattle Management in Riparian Zones – A Field Survey and Literature Review" – BLM (MT), RTB No. 3.
- Riparian areas will receive special attention.
- In any proposed new access, wetland and riparian areas will be avoided where possible (18 CFR 725.2 – Floodplain Management and Protection of Wetlands).

7.28.4 Impact Analysis and Effect Determinations

Bald Eagle – Vegetation management actions would not be conducted in occupied habitat. These actions are not expected to impact bald eagles. Long-term effects may improve habitat conditions for bald eagles and their prey. Areas where vegetation management actions are implemented will be widespread throughout the planning area and impacts localized. Implementing vegetation management actions *may affect, but is not likely to adversely affect* the bald eagle due to *discountable effects (NLAA-d)*. This determination is based on the unlikely event vegetation management actions will take place in potential

bald eagle habitats and the existing conservation measures in place to protect the species. In the long-term, vegetation management actions will benefit the bald eagle by improving habitats for prey species.

Black-footed Ferret – No black-footed ferrets are believed to exist within the planning area. No vegetation treatment programs are expected to occur within active prairie dog colonies. The use of biological controls (insects and livestock grazing), chemical controls, light mechanical control (including cutting and thinning with hand tools), heavy mechanical control (including brush beating, cutting, and thinning with machinery), and prescribed fire is not expected to impact potential black-footed ferret habitat. The long-term goal of these programs would be to improve habitat quality. Implementing vegetative 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 the potential for improvements to prairie dog and ferret habitat and the existing conservation measures.

Blowout Penstemon – No known populations of the blowout penstemon occur in the planning area. No vegetation treatment programs are expected to occur within active sand dunes or blowout areas as these areas typically do not have the vegetation necessary to support vegetative treatments. Implementing vegetation management actions would have *no effect* on the blowout penstemon. This determination is based on the absence of the blowout penstemon in the planning area and that vegetation management would not occur in potential blowout penstemon habitats.

Colorado Butterfly Plant – No Colorado butterfly plant populations occur on BLM-administered surface lands in the planning area. Vegetation management actions are not expected to impact the Colorado butterfly plant. Implementing vegetation management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of the Colorado butterfly plant on BLM-administered surface lands in the planning area and the existing conservation measures in place to protect the plant and its pollinators.

Preble's Meadow Jumping Mouse – Vegetation management actions are not expected to impact the PMJM. Implementing vegetation management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on no vegetation management actions occuring in PMJM habitats and the existing conservation measures in place to protect the PMJM.

Ute Ladies'-Tresses – Vegetation management actions are not expected to impact the Ute ladies'-tresses. Implementing vegetation 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 limited amount of occupied Ute ladies'-tresses habitat on BLM-administered surface lands in the planning area and the existing conservation measures in place to protect individual plants and habitat.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. Vegetation 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 to 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.

7.29 Visual Resource Management

Visual Resource Management (VRM) involves applying methodologies for evaluating landscapes and determining appropriate techniques and strategies for maintaining visual quality and reducing adverse impacts. The BLM completed a VRM inventory in 2004. The inventory process evaluated landscapes based on scenic quality, public perception (sensitivity), and location from key observation points

(distance). VRM class recommendations were made based on the inventory process, with final class determinations being set by the RMP.

Results from the 2004 VRM inventory illustrate that the majority of the planning area should be classified as VRM Class III and Class IV. This allows for moderate- to large-scale visual intrusions, while striving to preserve the characteristic landscapes. Areas warranting more protections were delineated as Class II and include the South Bighorns, the Southern Bighorns/Red Wall and the Seminoe/Alcova National Back Country Byways, Fremont Canyon, the Laramie Range, portions of the Rattlesnake Hills, and along the North Platte River. These locations ranked higher in the scenic quality and are much higher in visual sensitivity. Special recommendations also were made concerning the NHT and other historic trail corridors.

7.29.1 Proposed Protections for VRM in the Casper Draft RMP and EIS

No proposed protections for VRM that would benefit threatened and endangered species are identified.

7.29.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Stipulations will be applied to projects to insure that the resulting action does not distract from the visual character of the area to the extent that the character of the viewshed will be compromised.

7.29.3 Best Management Practices

The following BMPs have been identified:

- BLM will consider the effects of actions it authorizes on the visual quality and character of the area in which it takes place and will not permit or authorize actions that detract from the character of the landscape.
- Consideration for the effect a project has on the visible landscape, or viewshed, should be taken into account for all actions permitted or authorized by BLM.

7.29.4 Impact Analysis and Effect 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 view sheds and may have a beneficial impact of limiting disturbance in habitats suitable for threatened and endangered species. Implementing VRM actions *may affect, 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.

Cumulative Effects – Cumulative effects include future state, tribal, local, or private actions reasonably certain to occur in the planning area. No actions associated with VRM on nonfederal lands that may affect threatened and endangered species are anticipated.

7.30 Water Resources

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, power lines, 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, water quality monitoring actions, and provides impact analyses of oil and gas development or any surface disturbance projects.

Surface disturbing and other activities associated with the Watershed and Water Resources Program include, but are not limited to: (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) channel restoration using heavy equipment; and (7) cutting, planting, and seeding to restore function in riparian or wetland areas.

7.30.1 Proposed Protections for Water Resources in the Casper Draft RMP and EIS

The following protections are proposed in the Casper Draft RMP and EIS:

- Provide, where authorized uses are fenced out, an alternative or “off source” water supply (i.e., piping water to troughs, tanks, or ponds).
- Evaluate the impacts and mitigate the adverse impacts of all proposed and existing oil- and gas-produced water discharge on stream channel and stream bank stability on all BLM-administered lands.
- An NSO restriction within 500 feet of perennial streams, springs, riparian and wetland habitats, or water bodies is implemented on Class 1 and Class 2 waters, as well as a CSU restriction from 500 feet to ¼ mile of these areas, on a case-by-case basis.
- Analyze all management actions on Class 1 and Class 2 waters to prevent degradation of water quality. All other waters will be considered on a case-by-case basis.
- For streams on BLM-administered lands that are rated non-functional or functional at risk, these areas may require special management including, but not limited to fencing, development of alternative water supplies, livestock herding, placement of supplements (feed and mineral), pasture boundary adjustments, and season of use.
- For areas damaged due to concentrated ungulate use, the BLM will drill new water supply wells, develop new seeps and springs, and construct new reservoirs to BLM and state standards to disperse livestock and wildlife use on all BLM-administered lands in consultation with WGFD personnel. This will apply only to areas with management and project plans; exceptions will be granted on a case-by-case basis.

- To protect water sources and associated investments, fence all wells (new and existing) and developed springs. Fencing of reservoirs will be considered on a case-by-case basis.
- For well or spring developments producing 10 gallons per minute or more, rehabilitate and (or) re-develop BLM-authorized well and spring developments and upgrade to new development practices. New development practices include, but are not limited to, protection of the well/spring and facilities (fencing), provision for off-source water distribution (pipelines, troughs, tanks), water conservation measures (timers, flow control devices, preferential use of tanks and troughs over unlined pits and ponds), and use of alternative energy where possible. Developments producing less than 10 gallons per minute will be considered on a case-by-case basis.
- Convert suitable abandoned oil and gas development water-supply wells and suitable abandoned oil and gas wells where there is a need for additional water supplies to livestock and wildlife water supply use on BLM-administered lands.

7.30.2 Conservation Measures Currently Committed to by the BLM

The following is a list of conservation measures currently committed to by the BLM:

- Any actions occurring in riparian or wetland areas will be surveyed and water quality monitored as a safeguard to protect potential Ute ladies'-tresses habitat.
- Coordination between BLM hydrologists and BLM biologists will take place before any planned water resource management-related actions take place on the ground. Coordination will occur between BLM biologists and other BLM activity planners to ensure exchange of information regarding threatened, endangered, proposed, and candidate species, their location, restrictions, and conservation measures.

7.30.3 Best Management Practices

The following BMP has been identified:

- No specific BMPs have been identified.

7.30.4 Impact Analysis and Effect Determinations

Bald Eagle – Water resource management actions are not anticipated to impact bald eagle behavior or habitats. However, the potential impacts will depend on the number of people involved in field actions, the time of year, duration of actions, use of heavy equipment, and the type of bald eagle habitat affected. For the most part, actions associated with water resource management will maintain or improve habitat and foraging areas for the bald eagle and its prey. Implementing water resource management actions *may affect, but is not likely to adversely affect,* the bald eagle due to *insignificant effects (NLAA-i)*. This determination is based on the minimal impacts to bald eagles and their habitat and existing conservation measures in place to protect this species. Secondary beneficial effects may be realized for the bald eagle and its prey through habitat maintenance and improvements.

Black-footed Ferret – Water resource management does not generally occur in potential black-footed ferret habitat, nor are black-footed ferrets believed to exist within the planning area. Prairie dogs, the black-footed ferret's primary prey, inhabit shortgrass prairie and semi-desert shrublands without much slope, and not typically in riparian areas. A ¼-mile CSU buffer for perennial streams could benefit prairie dogs that use grasslands adjacent to 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 protection of, and potential improvements to, a small component of prairie dog habitat.

Blowout Penstemon – No known populations of blowout penstemon occur in the planning area. Management actions associated with water resources are not likely to occur in potential blowout penstemon habitat. Implementing water 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 absence of the blowout penstemon in the planning area and the limited potential of conducting these actions in blowout penstemon habitat.

Colorado Butterfly Plant – No known populations of Colorado butterfly plant occur on BLM-administered surface lands in the planning area. 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. Implementing water resource management actions *may affect, but is not likely to adversely affect*, the Colorado butterfly plant due to *discountable effects (NLAA-d)*. This determination is based on the absence of the Colorado butterfly plant on BLM-administered lands in the planning area, the limited potential of conducting these actions in Colorado butterfly plant habitat, and the incorporation of conservation measures for the Colorado butterfly plant. If these actions are conducted in potential Colorado butterfly plant habitat, this species could incur beneficial effects of habitat improvement.

Preble's Meadow Jumping Mouse – Management actions associated with water resources are infrequent and typically small in scale. The impacts will depend on the number of people involved in the field effort, the use of heavy machinery, and the time of year. Overall, these types of management actions may benefit the species and its habitat by maintaining or improving riparian habitat condition. Implementing water resource management actions *may affect, but is not likely to adversely affect*, the PMJM due to *discountable effects (NLAA-d)*. This determination is based on no water resource management actions are planned in occupied PMJM habitat, the infrequency of these management actions, and the protective measures for riparian areas. Secondary beneficial effects may be realized for the PMJM through habitat maintenance and improvements.

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. 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 water resource management actions are planned in occupied Ute ladies'-tresses habitat and the incorporation of conservation measures for the Ute ladies'-tresses. If these 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, local, or private actions reasonably certain to occur in the planning area. Water depletions on nonfederal lands could adversely affect threatened and endangered species downstream of the planning area. Water depletions are expected from the development of oil and gas wells and livestock water sources on nonfederal lands. Protection and enhancement of water resources in the planning area on nonfederal lands will improve habitat for threatened and endangered species. Surface disturbance and other actions could increase sedimentation of waterways and may potentially impact threatened and endangered species.

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8.0 SUMMARY OF CUMULATIVE EFFECTS

Cumulative effects are the collective incremental impacts of the Preferred Alternative regardless of the entity undertaking the action. Cumulative effects include future state, tribal, local, or private actions that are reasonably certain to occur in the planning area. Future federal actions that are unrelated to the Preferred Alternative are not considered because they require separate consultation pursuant to section 7 of the ESA. Nonfederal actions that may affect threatened or endangered species or their habitats in the planning area include:

- Housing developments along the North Platte River
- Livestock grazing on private and state lands
- Sand and gravel operations along major river corridors (especially the North Platte River).
- Spread of INPS on state and private lands throughout the planning area.
- Oil and gas development on private and state lands. Although most energy development occurs on public lands, there are opportunities for this activity on private and state lands.
- Coal mine operations occur on both state and private lands. These large mines remove habitat for prairie dogs and black-footed ferrets.
- Proposed wind farms will remove habitat for prairie dogs and provide human introduced foraging opportunities, luring predators (foxes, skunks, etc.) that might prey on black-footed ferrets, compete for prairie dogs, or introduce canine distemper or other epizootic diseases.
- Housing development expansion into threatened and endangered species habitat around the state will remove habitat, introduce distemper through domestic dogs, increased predation from feral cats, increase recreational shooting of prairie dogs and the potential for illegal take of a black-footed ferret by shooting.
- Increase in road building on private and State lands will impact threatened and endangered species habitat through the fragmentation or direct loss of habitats.
- Railroad construction occurs primarily on State and private lands and removes habitat for threatened and endangered species.
- Habitat fragmentation, loss, and degradation.

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9.0 SUMMARY OF EFFECTS DETERMINATIONS

Table 6 summarizes the effects determinations for threatened and endangered species in the planning area.

Table 6. Summary of Effects Determinations for Threatened and Endangered Species

Resource	Species					
	Bald Eagle	**Black-footed Ferret**	**Blowout Penstemon**	**Colorado Butterfly Plant**	**Preble's Meadow Jumping Mouse**	**Ute ladies'-tresses**
Air Quality	NE	NE	NE	NE	NE	NLAA-b
Cultural Resources	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire Management and Ecology - Unplanned/Wildland Fire	NLAA-d	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire Management and Ecology - Planned/Prescribed Fire	NLAA-d	NLAA-i	NLAA-d	NLAA-i	NLAA-d	NLAA-d
Fish and Wildlife Resources	NLAA-i	NLAA-b	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Forests, Woodlands, and Forest Products	NLAA-i	NE	NE	NE	NLAA-d	NE
Health and Safety	NE	NE	NE	NE	NE	NE
Invasive, Nonnative Plant Species and Pest Control	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-i
Lands and Realty	LAA	NLAA-d	NE	NLAA-d	NLAA-d	NLAA-d
Livestock Grazing	NLAA-d	NLAA-i	NLAA-d	LAA	NLAA-i	LAA
Locatable Minerals	NLAA-i	NLAA-d	NE	NLAA-d	NLAA-d	NLAA-d
Leasable – Coal	NLAA-d	NLAA-d	NE	NE	NE	LAA
Leasable – Geothermal	NE	NE	NE	NE	NE	NE
Leasable – Oil and Gas	LAA	NLAA-d	NLAA-d	NLAA-d	NLAA-d	LAA
Leasable – Other Solid Leasables	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Salable	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Off-highway Vehicles	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Paleontological Resources	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Recreation	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Socioeconomic Resources	NE	NE	NE	NE	NE	NE
Soil	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Special Designations	NLAA-b	NLAA-b	NLAA-b	NLAA-b	NLAA-b	NLAA-b
National Backcountry Byways	NE	NE	NE	NE	NE	NE
National Historic Trails and Other Historic Trails	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Special Status Species – Plants	NE	NE	NLAA-b	NLAA-b	NE	NLAA-b
Special Status Species – Fish and Wildlife	NLAA-b	NLAA-b	NE	NE	NLAA-b	NE
Transportation	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Vegetative Resources	NLAA-d	NLAA-b	NE	NLAA-d	NLAA-d	NLAA-d
Visual Resource Management	NLAA-b	NLAA-b	NLAA-b	NLAA-b	NLAA-b	NLAA-b
Water Resources	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d

Effects Determinations:
LAA likely to adversely affect
NE no effect
NLAA-b may affect, but is not likely to adversely affect, due to beneficial effects
NLAA-d may affect, but is not likely to adversely affect, due to discountable effects
NLAA-I may affect, but is not likely to adversely affect, due to insignificant effects

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10.0 SUMMARY OF SPECIES-SPECIFIC COORDINATION AND CONSERVATION MEASURES

Implementing the following species-specific conservation strategies is intended to minimize adverse impacts that are likely to result from implementing the management actions provided in the RMPs. Specific to each species, this section discusses (1) existing protections, (2) conservation measures committed to by the BLM, and (3) BMPs. Proposed protections are those conservation measures in the Casper Draft RMP and EIS. In addition, the BLM has already committed to implementing many conservation measures; many of these are from the statewide BAs and Biological Evaluations for the individual species and from the Bald Eagle HMP for the Platte River Resource Area and Jackson Canyon ACEC. 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 Bald Eagle Conservation Measures

10.1.1 Existing Protections in the Casper Draft RMP and EIS

The following protections pertain to the Jackson Canyon ACEC.

1. To the extent possible, trees will not be cut down within 200 yards of bald eagle roosts during fire suppression.
2. Prescribed fire will be used to meet bald eagle habitats, livestock grazing, fuels management, and forestry objectives. Exceptions to the existing seasonal restriction of November 1 through March 31 to protect bald eagle roosting habitats will be granted on a case-by-case basis after consultation with the USFWS.
3. Exchange will be pursued to acquire all state of Wyoming lands within or adjacent to the ACEC; public lands located outside the ACEC area would be disposed of by exchange to the state of Wyoming. This includes disposal by exchange to the state of Wyoming of public lands outside the ACEC boundary that contain limestone deposits. If mineral development were proposed on those lands, such development will be subject to access and blasting limitations from November 1 to March 31..
4. No new roads or other surface developments will be authorized. No disturbance to trees, or improvements of roads or legal access will be allowed except as needed for fire suppression or for bald eagle habitat improvement or maintenance.
5. Forest harvesting will be allowed to reduce fuel loads and disease while meeting bald eagle management objectives. All constructed roads will be closed and reclaimed.
6. Federal mineral estate is withdrawn from location and appropriation under the mining laws. The ACEC is closed to disposal of mineral materials. All federal minerals in the ACEC will be available for oil and gas leasing and development, subject to year-round no surface occupancy.

10.1.2 Conservation Measures Committed to by BLM

1. Portions of the authorized use area legally described as (legal description) are known or suspected to be essential habitat for bald eagle, which is a threatened species. Prior to conducting any onsite actions, 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 bald eagle occurrence is identified, the lessee/permittee will be

required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

2. No surface occupancy will be allowed on the following described lands (legal subdivision/area) because of (resource value) – (c) Special management areas (e.g., Area of Critical Concern (ACEC), known threatened and endangered species habitat, wild and scenic rivers).

3. All federal lands within or adjacent to roosts will be designated priority full suppression zones. Priority full suppression can include suppression of wildland fires with all available resources, including vehicle use on existing roads and trails, air support, or construction of roads and grading of firebreaks using heavy equipment. To the extent possible, trees will not be cut within 200 yards of the bald eagle roosts during fire suppression.

4. No surface development will be permitted on the winter roosting areas for bald eagles - a total of 17,684 acres. No disturbance to trees or improvement in roads or legal access will be allowed in these bald eagle winter ranges except as needed for fire suppression or for control of pine beetle infestations. Pine beetle control efforts within bald eagle winter habitat will be conducted only from April 1 to October 31.

5. For the Cole Creek Roost only: The public lands in this roost will be available for disposal to entities that will manage the land to maintain the resource values present, in accordance with RMP decisions identifying the parcel as one of ten 'downstream' parcels available for disposal. Acquisition of lands or access easements will not be pursued. Neither legal nor improved road access will be provided to the North Platte River in this bald eagle roost.

6. For all roosts including the Cole Creek Roost: No new roads or other surface developments will be authorized in the bald eagle winter roosting areas. No disturbance to trees, or improvements of roads or legal access will be allowed except as needed for fire suppression or for bald eagle habitat improvement or maintenance. Habitat improvements or maintenance efforts will not be allowed from November 1 through March 31. Continued use or improvement (i.e., upgrading) of existing roads in bald eagle roost areas from November 1 through March 31 will be analyzed on a case-by-case basis in accordance with the ESA.

7. The BLM will pursue cooperative agreements with private landowners and other fire and land management agencies so that an initial attack plan may be established. That plan will be used for an escaped fire situation analysis plan when needed. These plans will include identification of areas where grading of roads and/or firebreaks are most needed for fire suppression, and will identify those areas where protection from wildland fires is most critical (e.g., bald eagle roosts). Prescribed burning will be implemented where necessary to meet range and timber resource management objectives, but it will not be allowed from November 1 through March 31.

8. All BLM-administered lands and mineral estate will remain open to oil and gas leasing and development subject to the stipulation that no surface occupancy or development within the bald eagle roost areas will be allowed at any time. The no surface occupancy stipulation will apply to maintenance and operation of producing wells, and modifications to this limitation will not be approved. The NSO restriction, unless currently a condition of an existing lease or authorization, does not apply to maintenance and operation of existing lease facilities. All BLM-administered lands and mineral estate in bald eagle roost areas has been withdrawn from location and appropriation under the mining laws. Mineral materials will not be available for disposal.

9. On public lands, surface development will be prohibited on an area from 1/2 to 1 mile of known or discovered bald eagle nests. The specific distance and dimensions of the area on which

surface development will be prohibited will be determined on a case-by-case basis after consultation with the USFWS in accordance with the ESA.

10. Activities and habitat alterations that may disturb bald eagles will be restricted within suitable habitats that occur within bald eagle buffer zones (see Appendix II for further descriptions of buffer zones and see Appendix Table F-2 of BA (BLM 2003b) for estimation of activity levels as they correspond to buffer guidelines). Deviations may be made after consultation with the Service.

    Zone 1 (within 0.5 mile, year round) is intended to protect active and alternative nests. For active nests, minimal human activity levels are allowed during the period of first occupancy to two weeks after fledging.

    Zone 2 (from 0.5 mile to 1 mile from the nest, February 1 to August 15) is intended to protect bald eagle primary use areas and permits light human activity levels.

    Zone 3 is designated to protect foraging/concentration areas year-round 2.5 miles from the nest.

11. The BLM will attempt to acquire riverfront land along the North Platte River upstream of Casper and dispose of BLM-administered lands along the North Platte River downstream of Casper. The downstream lands will be available for disposal to entities that will manage the land to maintain the resource values present.

12. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 to March 31, annually. No ground disturbing activities will be permitted within 0.5 mile of active roost sites year round. Deviations may be made after consultation with the Service.

13. Surface development will be prohibited within ¼ mile of the North Platte River on a year-round basis, except as specified in the following paragraph. This limitation will not apply to recreational or habitat improvement projects. In addition, mineral material or other surface development on specific parcels of land within ½ mile of the river will not be allowed from November 1 through March 31. Modifications to the seasonal limitation, in any year, may be approved in writing by the Authorized Officer. The seasonal limitation does not apply to maintenance and operation of existing or producing mineral facilities.

14. On approximately 240 acres of federal mineral estate located in the NE¼, and W½SE¼, of section 11, T. 31 N., R. 82 W., mineral material or other surface development will be allowed within ¼ mile of the North Platte River, subject to the restriction that no surface occupancy will be allowed from November 1 through March 31.

15. The BLM will improve bald eagle feeding habitat along the river upstream of Casper by planting cottonwood trees or by placing suitable structures along the river for use by bald eagles during feeding activity.

16. No bald eagle seasonal or occupancy restrictions, except as may be identified on a site- specific basis to protect wildlife or other resource values present, will be applied to rangeland feeding areas.

17. The BLM will develop a public education program for bald eagle feeding areas along the North Platte River and on public rangelands. Under the program, information will be distributed to landowners, grazing lessees, and the general public. Information will be designed to identify ways land users can avoid hazards to bald eagles, and benefit bald eagles using the feeding areas where possible.

18. Actions proposed on public lands in known or other discovered bald eagle flyways will be analyzed on a case-by-case basis. Consultation with the USFWS in accordance with the ESA will be initiated if required. On approximately 2,640 acres of public lands in the Emigrant Gap flyway, located in T. 33 N., R. 81 W., sections 14, 15, 23, 24, 25, and 26, new power distribution/transmission lines will have to be designed to reduce hazards to raptors from collisions with the proposed facilities in order to be authorized. Other proposed development or land use proposals will be subject to analysis on a case-by-case basis, with consultation with the USFWS initiated if required.

19. The Jackson Canyon ACEC contains 3,600 federal surface acres and 11,150 federal mineral acres, for a total of 13,760 acres in the ACEC. BLM will control pine beetle infestations in this area through a more active forest management program, designate bald eagle roosts as priority full suppression areas for wildland fire control, evaluate whether or not oil and gas leases should be renewed, and incorporate fire suppression as part of the HMP. BLM also will install signs and road closures and monitor conflicts between recreational use and eagles.. No rights of way will be permitted in this ACEC. Off-highway vehicle use will be allowed only on designated roads and only from April 1 through October 31. There will be no increase or improvement in roads or legal access. Administrative access may be necessary to maintain bald eagle habitat. The ACEC will be managed in accordance with the ACEC Wildlife Habitat Management Plan. Fire suppression will be conducted as needed. Beetle control will be conducted only between April 1 and October 31.

20. Appropriately timed surveys in bald eagle habitats shall be conducted prior to any activities and subsequent authorization of activities that may disturb bald eagles or their habitats. A qualified biologist would be approved by the BLM to conduct such bald eagle surveys. All nest surveys should be conducted using standard procedures (see BLM 2003b, Appendix C) that minimize the potential for adverse effects to nesting raptors.

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

21. As per Section 7 of the Act, the BLM will conduct site-specific consultation with the Service prior to authorization of any actions authorized under the Casper RMP which “may affect” bald eagles. These future consultations will provide a means for site-specific analysis and documentation of levels of any potential incidental take of bald eagles.

22. As per Section 7 of the Act, the BLM will conduct site-specific consultation with the Service prior to authorization of any actions authorized under the Wyoming RMPs which “may affect” bald eagles. These future consultations will provide a means for site-specific analysis and documentation of levels of any potential incidental take of bald eagles.

23. Power lines must be built to standards identified by the Avian Power Line Interaction Committee (see APLIC 1996 or most recent version).

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

25. BLM will monitor and restrict, when and where necessary, authorized or casual use activities that may adversely impact bald eagles or their habitats, including, but not limited to, recreational mining and oil and gas activities. Monitoring results should be considered in the design and implementation of future projects.

26. Each year the BLM shall verify the status (active vs. inactive) of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by the BLM within the RMP area. As a matter of maintaining inventory information, the BLM shall coordinate annually with the Service, WGFD, and other appropriate entities to determine the status of known and new bald eagle nests, communal winter roosts, and other concentration areas.

    Known bald eagle nests, communal winter roosts, and concentration areas will be assumed active if status has not been verified.

10.1.3 Best Management Practices

1. Proponents of BLM authorized actions should be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.
2. BLM should coordinate with APHIS - Wildlife Services Division to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. USFWS should also be included in this coordination.
3. Proposed and future water projects should not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to minimize vehicle collisions with wildlife, using the water source and subsequent eagle-vehicle collisions.
4. BLM should provide educational information to project proponents and the general public pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over water bodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.
5. BLM should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.
6. BLM should monitor and restrict, when and where necessary, authorized or casual use actions that may impact bald eagles or their habitats, including, but not limited to, recreational mining and oil and gas actions.
7. BLM should periodically review existing water quality records (e.g., Wyoming DEQ, WGFD, USGS, etc.) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roosts, concentration areas) on public land for any conditions that could potentially adversely affect the species. If water quality problems are identified, the BLM should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.
8. Projects with the potential to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle.
9. Projects with the potential to disturb bald eagles or their habitats should be monitored, and the monitoring results should be considered in the design and implementing future projects.

10.2 Black-footed Ferret Conservation Measures

10.2.1 Proposed Protections in the Casper Draft RMP and EIS

The following protection is proposed for black-footed ferrets:

- Habitats managed for reintroductions of black-footed ferrets will be addressed on a case-by-case basis.

10.2.2 Conservation Measures Committed to by BLM

1. USFWS fact sheets shall be posted in common areas and circulated in a memorandum among all employees and service providers. Fact sheets shall illustrate the black-footed ferret and its sign; describe morphology, tracks, scat, skull, habitat characteristics, behavior, current status, and causes of decline; and the relationship between project development and impacts to black-footed ferrets, especially regarding canine distemper.
2. Operators, contractors, project proponents, and BLM field staff shall be shown how to identify a black-footed ferret and its sign and will be provided with information about its habitat requirements, natural history, status, threats, possible impacts of project development actions, and ways to minimize these impacts.
3. If suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets shall be conducted in accordance with USFWS guidelines and requirements. This information shall be provided to the BLM and USFWS in accordance with Section 7 of the ESA, and the Interagency Cooperation Regulations.
4. If any black-footed ferrets or their sign are found within a prairie dog town or complex previously determined to be unsuitable for, or free of, ferrets, all previously authorized, project-related actions (or actions on any future application that may directly, indirectly, or cumulatively affect the colony/complex) on-going in such towns or complexes shall be suspended immediately and Section 7 consultation re-initiated with the USFWS.
5. Observations of black-footed ferrets, their sign, or carcasses on a project area and the location of the suspected observation, however obtained, shall be reported within 24 hours to the appropriate local Bureau wildlife biologist and Field Supervisor of the Service's office in Cheyenne, Wyoming, (307) 772-2374. Observations will include a description including what was seen, time, date, exact location, suspected cause of death, and observer’s name and telephone number. Carcasses or other “suspected” ferret remains shall be collected by the Service or Bureau employees, and deposited with the Service's Wyoming Field Office or the Service's law enforcement office. This type of specimen collection is authorized as described in 50 CFR 17.21(c)(3-4). It is imperative that any fresh black-footed ferret carcass be salvaged and immediately transported to the Service so pertinent information concerning the cause of death can be gathered, including photographs in order to document an accurate depiction of the fatality..
6. The BLM shall monitor and restrict, if necessary, recreational opportunities and other uses on BLM-administered lands within 1 mile of formally proposed and active reintroduction sites for black-footed ferrets.
7. BLM shall ensure that black-footed ferret surveys are conducted at prairie dog towns and complexes where any evidence of black-footed ferrets is found, such as skeletal material or hair.

8. 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 work sites during or after hours. BLM shall encourage Operators to develop policies to prohibit dogs from operation sites within black-footed ferret reintroduction areas.

9. Operators and contractors shall prohibit or discourage dogs from being brought to black-footed ferret reintroduction sites by project employees. BLM shall require current distemper vaccinations on any dogs that will be entering the Shirley Basin black-footed ferret management area and any new black-footed ferret reintroduction sites. Vaccinated puppies shall not be allowed until one month after their final distemper vaccination due to effects of the modified live virus vaccine.

10. As part of an overall wildlife inventory program, BLM shall conduct periodic field surveys for black-footed ferrets on public lands in potential habitat, as appropriate.

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

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

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

14. 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.

15. The Bureau shall work with respective State Game and Fish agencies and Service offices to ensure that enough reintroduction sites are maintained to successfully recover the black-footed ferret. If areas available for reintroduction are removed through the Bureau's authorized actions below a threshold level, so that the black-footed ferret can no longer be recovered, then those

actions reducing availability of reintroduction sites will be modified or discontinued until the black-footed ferret has been recovered.

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

10.2.3 Best Management Practices

1. Develop prairie dog management plans with ongoing monitoring and protection of prairie dog towns and complexes.
2. Encourage and support research on the effect of shooting and oil and gas development on prairie dogs.
3. Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan (Wyoming Black-tailed Prairie Dog Working Group 2001) and the White-tailed Prairie Dog Conservation Assessment (Seglund et al. 2004). Encourage Wyoming Game and Fish Commission to remove unprotected status on prairie dogs; provide regulatory mechanisms, require permits, and monitor the take of prairie dogs by use of questionnaires.
4. Establish land stewardship agreements with other agencies and/or private landowners where large (1,000 acres) prairie dog towns or complexes exist. These agreements can control potential uses that may be detrimental to prairie dogs and their habitats, while preserving the landowner's intent for use.
5. 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.
6. Initiate, to the extent feasible, land exchanges in the Thunder Basin and Shirley Basin in areas with potential for black-footed ferrets, in order to increase the land area in Federal ownership.
7. Livestock grazing practices that degrade prairie dog habitat should be eliminated in prairie dog colonies: grazing should be reduced or eliminated during drought; practices should avoid vegetation conversions; and reduce or eliminate any other suspected ecosystem-degrading grazing practices.
8. Natural fire regimes should be restored in prairie dog habitats: "Let burn" policies for prairie dog towns; no mechanical or chemical fuel treatments allowed in prairie dog towns.
9. BLM will encourage, support, and/or establish an aggressive prairie dog research program, addressing issues such as: The effect of shooting and oil and gas development on prairie dogs, sylvatic plague control, and population viability analysis.
10. Because knowledge of the effects of resource extraction on white-tailed prairie do populations is limited, monitoring at sites before, during, and after energy development should be required (Seglund et al. 2004).

11. If geologically and technically feasible, drill multiple wells from the same pad using directional (horizontal) drilling technologies (up to 16 wells per pad, as technologically feasible).
12. Salvage topsoil from all facilities construction and re-apply during interim and final reclamation.
13. For BLM project-related actions, vehicle speed limits shall not exceed 35 mph at night when in black-footed ferret reintroduction areas.

10.3 Blowout Penstemon Conservation Measures

10.3.1 Existing Protections in the Casper Draft RMP and EIS

No specific conservation measures for the blowout penstemon are identified in the Casper Draft RMP and EIS.

10.3.2 Conservation Measures Committed to by BLM

1. 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.
2. 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.
3. These two conservation measures (11 and 12) will be added to grazing permit renewals in allotments with known blowout penstemon populations.
4. 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. BLM will monitor biological control vectors.
5. 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.

6. 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.

7. Limit the use of off road vehicles (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 fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known 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.

8. Apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known 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.

9. For known blowout penstemon populations, the BLM will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within a 0.25 mile of known blowout penstemon populations. For existing oil and gas leases with known blowout penstemon populations, the BLM will require the COA in conservation measure 17 above including the same 0.25 mile buffer area around those known blowout penstemon populations.

10. 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.

11. 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.

12. All proposed rights-of-way 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 affects is not possible, the BLM will re-initiate consultation with the USFWS.

13. All proposed projects will be designed and locations selected to minimize disturbances to known blowout penstemon populations, and if the avoidance of adverse affects is not possible, the BLM will re-initiate consultation with the USFWS. Projects will not be authorized closer than 0.25 miles from any known 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.

10.3.3 Best Management Practices

1. When project proposals are received, BLM will initiate coordination with the USFWS at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include blowout penstemon conservation measures, determined as appropriate by the USFWS.
2. Designate Areas of Critical Environmental Concern (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 National Environmental Policy Act (NEPA) review before locatable mineral claims can be explored, mined and developed (43 CFR 3809 regulations).
3. 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.
4. Limit the use of off highway vehicles (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 fire fighting 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.
5. 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.
6. 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.
7. 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.
8. 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.

9. 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.

10. 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.

11. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS with research projects.

12. A comprehensive inventory of the Dune Pond CMA area for blowout penstemon should be completed (Rawlins FO).

13. Conduct inventories for blowout penstemon in areas with potential habitat in the Rawlins, Casper, Rock Springs, and Lander FOs (The University of Wyoming, Wyoming Natural Diversity Database recently completed a "Survey of Penstemon haydenii (Blowout Penstemon) in Wyoming 2004," which documented all known locations of blowout penstemon in Wyoming through 2004).

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

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

16. Monitor blowout penstemon sites for invasion by noxious and invasive plant species.

17. Establish monitoring, biological, ecological, 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. The Rawlins FO is currently conducting pollination studies through Utah State University, USDA ARS Bee Biology & Systematics Laboratory.

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

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

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

21. The BLM should work towards developing reintroduction sites in coordination with the USFWS and to maintain the integrity of these sites for the survival of the blowout penstemon.

The objective would be to reintroduce populations of blowout penstemon into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.

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

10.4 Colorado Butterfly Plant and Critical Habitat Conservation Measures

10.4.1 Existing Protections in the Casper Draft RMP and EIS

No specific conservation measures for the Colorado butterfly plant are identified in the Casper Draft RMP and EIS.

10.4.2 Conservation Measures Committed to by BLM

Colorado Butterfly Plant Conservation Measures

1. Grazing will be intensively managed within known habitat containing populations from June through September, to allow plants to bloom and go to seed.
2. Recreational site development will not be authorized in known Colorado butterfly plant habitat.
3. The Bureau will manage stream habitats with known populations of Colorado butterfly plant 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 Colorado butterfly plant do not occur.
4. The Bureau will add the following two conservation measures to grazing permit renewals in allotments with known Colorado butterfly plant populations.
   A. The Bureau 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 Colorado butterfly plant populations. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of known Colorado butterfly plant populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Colorado butterfly plant populations and potential overgrazing of the areas occupied by the Colorado butterfly plant. Surveys for the Colorado butterfly plant will be conducted in potential Colorado butterfly plant habitat prior to livestock operations-related construction projects.
   B. The Bureau will not increase permitted livestock stocking levels in any allotment with pastures containing known Colorado butterfly plant populations without consulting with the Service.
5. Biological control of noxious plant species will be prohibited within 1.0 mile from known Colorado butterfly plant habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.
6. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 miles of known Colorado butterfly plant populations and insecticide/pesticide treatments will be prohibited within 1.0 mile of known Colorado butterfly plant 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 Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed, and only on a case-by-case basis, pesticide use within 1.0 mile of known Colorado butterfly plant populations will be applied by hand and herbicides applied by hand within 0.25 miles of Colorado butterfly plant populations, with care taken not to spray Colorado butterfly plants.

Aerial application of herbicides will be carefully planned to prevent drift in areas near known Colorado butterfly plant populations (outside of the 0.25 mile buffer). The Bureau will work with the Animal and Plant Health Inspection Service (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 Colorado butterfly plant.

7. If revegetation projects are conducted within 0.25 miles of known Colorado butterfly plant habitat, only native species will be selected. This conservation measure will reduce the possibility that non-native species will be introduced and will compete with the Colorado butterfly plant.

8. The Bureau will limit the use of off road vehicles (OHVs) to designated roads and trails within 0.5 mile of known Colorado butterfly plant populations, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off highways. No OHV competitive events will be allowed within 1.0 mile of known Colorado butterfly plant populations. Roads that have the potential to impact Colorado butterfly 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 Bureau.

9. The Bureau will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known Colorado butterfly plant populations. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing Colorado butterfly plant populations. Operations outside of the 0.25-ile buffer of the Colorado butterfly plant population, such as "directional drilling" to reach oil or gas resources underneath the Colorado butterfly plant populations/habitat would be acceptable.

10. For known Colorado butterfly plant populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 mile of known Colorado butterfly plant populations. For existing oil and gas leases with known Colorado butterfly plant populations (these would be for newly discovered populations not currently documented), the Bureau will require the COA in conservation measure 13 below, including the same 0.25 mile buffer area around those known Colorado butterfly plant populations.

11. The disposal (sale and removal) of salable minerals, is a discretionary Bureau-authorized action and is prohibited within a 0.25-mile buffer area of known Colorado butterfly plant populations.

12. To prevent loss of habitat for the Colorado butterfly plant, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival". Prior to any land tenure adjustments in known Colorado butterfly plant habitat, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the Colorado butterfly plant will not be exchanged or sold, unless it benefits the species.

13. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known Colorado butterfly plant habitat to minimize disturbances. If the avoidance of adverse affects is not possible, the Bureau will re-initiate consultation with the Service.

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

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

Colorado Butterfly Plant Designated Critical Habitat Conservation Measures

1. The Bureau will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any Colorado butterfly plant designated critical habitat. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing Colorado butterfly plant designated critical habitat. Operations outside of the 0.25-mile buffer of Colorado butterfly plant designated critical habitat, such as "directional drilling" to reach oil or gas resources underneath the Colorado butterfly plant designated critical habitat, would be acceptable.

2. The Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of Colorado butterfly plant designated critical habitat. For existing oil and gas leases with Colorado butterfly plant designated critical habitat, the Bureau will require the COA in conservation measure 13 above including the same 0.25 mile buffer area around Colorado butterfly plant designated critical habitat.

3. Grazing will be intensively managed within designated critical habitat containing populations of Colorado butterfly plants from June through September, to allow plants to flower and go to seed.

4. Recreational site development will not be authorized in designated critical habitat for the Colorado butterfly plant.

5. The Bureau 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 Colorado butterfly plant designated critical habitat. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of Colorado butterfly plant designated critical habitat. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Colorado butterfly plant designated critical habitat and potential over-utilization of these designated critical habitats.

6. Projects that alter the natural hydrology, change the vegetation of the riparian ecosystem, or may cause direct ground disturbance will be redesigned to ensure that adverse effects to Colorado butterfly plant designated critical habitat do not occur.

10.4.3 Best Management Practices

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

2. The BLM will participate in the development of both, a conservation agreement, assessment strategy and a species specific recovery plan for the Colorado butterfly plant in coordination with the USFWS and other agencies as appropriate. Habitat of the Colorado butterfly plant on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.

3. Coordinate with the USFWS, the National Resource Conservation Service (NRCS), and private landowners to ensure adequate protection for the Colorado butterfly plant and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.

4. In the event that a new population of Colorado butterfly plant is found, the USFWS Wyoming Field Office (307-772-2374) will be notified within one week of discovery.

5. Initiate land tenure adjustments to acquire lands with potential Colorado butterfly plant habitat to ensure a higher level of protection under the ESA on Federal lands for the Colorado butterfly plant.

6. To prevent loss of habitat for the Colorado butterfly plant, 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* Colorado butterfly plant habitat, the BLM will survey to assess the potential for the existence of the Colorado butterfly plant. While it is difficult to assess whether the Colorado butterfly plant 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 Colorado butterfly plant, 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 Colorado butterfly plant habitat may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

7. Maintain and restore the dynamics of stream systems, including the movement of streams within their floodplains, which are vital for the life cycle of this plant. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur.

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

9. For the protection of the Colorado butterfly plant and its potential habitat, surface-disturbing activities should be avoided in the following areas: (a) identified 100-year flood plains; (b) areas within 500 feet from perennial waters, springs, wells, and wetlands, and; (c) areas within 100 feet from the inner gorge of ephemeral channels.

10. Recreational foot trails that may be located adjacent to Colorado butterfly plant habitat should be constructed to reduce impacts to this species.

11. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS with research projects.

12. Conduct inventories for the Colorado butterfly plant in areas with potential habitat in the Rawlins and Casper FOs.
13. Maintain a database of all searched, inventoried, or monitored Colorado butterfly plant sites.
14. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in known or potential Colorado butterfly plant habitat for impacts to the species.
15. Monitor Colorado butterfly plant sites for invasion by noxious and invasive plant species.
16. Establish monitoring, biological, ecological, 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.
17. Collect and bank Colorado butterfly plant 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.
18. Train law enforcement personnel on protections for the plant and its habitat, its status, and current threats to its existence.
19. Educate resource specialists, rangers, and fire crews about the Colorado butterfly plant and its habitat to help with project design for the general area and for fire suppression actions occurring in potential habitat for the Colorado butterfly plant and on the habitat characteristics and plant identification for the plant, so that if they encounter a Colorado butterfly plant occurring in riparian habitat, they can report it to their office threatened and endangered species specialist.
20. The BLM should work towards developing reintroduction sites in coordination with the USFWS and to maintain the integrity of these sites for the survival of the Colorado butterfly plant. The objective would be to reintroduce populations of the Colorado butterfly plant into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.
21. Develop propagation techniques and use them to reintroduce/introduce the Colorado butterfly plant and to repopulate known populations in the event population recovery becomes necessary.

10.5 Preble's Meadow Jumping Mouse and Critical Habitat Conservation Measures

10.5.1 Existing Protections in the Casper Draft RMP and EIS

No specific conservation measures for the PMJM are identified in the Casper Draft RMP and EIS.

10.5.2 Conservation Measures Committed to by BLM

1. The BLM should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the PMJM and its habitat.
2. If habitat is suitable, conduct a survey for PMJM before beginning any potentially disturbing actions or assess the potential for species presence.
3. Where needed, fence riparian habitat near areas of high recreational use when the riparian vegetation is being thinned due to the activity.

4. Introducing low to moderate intensity prescribed fire in a controlled manner will assist in the maintenance of PMJM habitat in suitable successional stages. PMJM habitat is defined as the 100-year floodplain plus 100 meters on either side of it extending into meadow, shrub, and open forest. It may be preferable in some instances to not construct firelines through PMJM habitat prior to a prescribed burn. In these cases, it may be appropriate that the prescribed fire be allowed to back downslope into PMJM habitat creating a fingering effect with spotting, leading to a mosaic of burned and unburned patches of various sizes and shapes. Any necessary modifications to these conservation measures will be made as necessary at the project specific level in consultation with the USFWS.
5. Evaluate burned areas with consideration of the following objectives:
   A. Within two growing seasons an equal or greater amount of live willow stems will be present as compared to existing unburned willow patches in the vicinity; and
   B. Within two growing seasons 60 percent or more of grass/forb cover will be present as compared to the existing unburned areas in the vicinity.
6. Reinitiate formal consultation if the success criteria for burned areas are not met within two growing seasons.
7. Minimize new trail or road development within the 100-year floodplain plus 100 meters within the range of the PMJM on BLM-administered lands. Where roads must cross the riparian zone, crossings should be at a right angle to the stream. Existing roads in designated critical habitat will be reviewed for possible closure or relocation.
8. BLM biologists will stay updated on PMJM research that indicates other appropriate conservation measures that may be utilized to enhance PMJM habitat.
9. Gather additional information on potential long-term impacts of weeds, weed control, and plant species composition on PMJM populations.

10.5.3 Best Management Practices

No BMPs have been identified.

10.6 Ute Ladies'-tresses Conservation Measures

10.6.1 Existing Protections in the Casper Draft RMP and EIS

No specific conservation measures for the Ute ladies'-tresses are identified in the Casper Draft RMP and EIS.

10.6.2 Conservation Measures Committed to by BLM

1. Grazing will be intensively managed within known habitat containing populations from July through September, to allow plants to bloom and go to seed.
2. Recreational site development will not be authorized in known Ute ladies'-tresses habitat.
3. The Bureau will manage stream habitats with known populations of Ute ladies'-tresses 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/or cause direct ground disturbance, will be evaluated and redesigned to ensure that adverse effects to populations of Ute ladies'-tresses do not occur.
4. The Bureau will add the following two conservation measures to grazing permit renewals in allotments with known populations of Ute ladies'-tresses.

A. The Bureau 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 these orchids. Surveys for Ute ladies'-tresses will be conducted in potential Ute ladies'-tresses prior to livestock operations-related construction projects.

The Bureau will not increase permitted livestock stocking levels in any allotment with pastures containing known Ute ladies'-tresses populations without consulting with the Service.

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

6. 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 orchid and insecticide/pesticide treatments will be well-regulated within 1.0 mile of known populations of Ute ladies'-tresses orchids to protect pollinators.

Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specific to dicots will be preferred where these are adequate to control the noxious weeds present.
Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of Ute ladies'-tresses orchids (outside of the 0.25 mile buffer). The Bureau will work with the Animal and Plant Health Inspection Service (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 Ute ladies'-tresses orchids.

7. If revegetation projects are conducted within 0.25 miles of known habitat for Ute ladies'-tresses orchids, 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 orchids.

8. The Bureau 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 fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known Ute ladies'-tresses populations. Roads that have the potential to impact Ute ladies'-tresses orchids and are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the Bureau.

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

10. For known Ute ladies'-tresses populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of known Ute ladies'-tresses populations. For existing oil and gas leases with known Ute ladies'-tresses populations (these would be for newly discovered populations not currently documented), the Bureau will require the COA in conservation measure 13 below, including the same 0.25 mile buffer area around those known Ute ladies'-tresses orchid populations.

11. The disposal (sale and removal) of salable minerals is a discretionary Bureau action and is prohibited within a 0.25 mile buffer area of known populations of Ute ladies'-tresses orchids.

12. To prevent loss of habitat for the orchid, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in *known* habitat for Ute ladies'-tresses orchids, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the orchid will not be exchanged or sold, unless it benefits the species.

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

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

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

10.6.3 Best Management Practices

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

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

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

4. In the event that a new population of the orchid is found, the USFWS Wyoming Field Office (307-772-2374) will be notified within one week of discovery.

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

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

7. 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.

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

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

10. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS with research projects.

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

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

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

14. 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.

15. 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.

16. If 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.

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

18. 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.

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

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

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