

FINAL REPORT

**STATEWIDE PROGRAMMATIC
BIOLOGICAL ASSESSMENT:
DESERT YELLOWHEAD
(*Yermo xanthocephalus*)**

Submitted to:

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ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
APD	Application for Permit to Drill
BA	Biological Assessment
BE	Biological Evaluation
BLM	Bureau of Land Management
BMP	Best Management Practice
BUP	Biological Use Proposal
CFR	Code of Federal Regulations
COA	Condition of Approval
CSU	Controlled Surface Use
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FMZ	Fire Management Zone
FO	Field Office
GIS	Geographic Information System
IMP	Interim Management Policy
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
ORV	Off-Road Vehicle
PCE	Primary Constituent Element
PUP	Pesticide Use Proposal
RMP	Resource Management Plan
RMU	Resource Management Unit
ROW	Right of Way
RPS	Rangeland Program Summary
3-D	Three-dimension
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WGFD	Wyoming Game and Fish Department
WSA	Wilderness Study Area
WYNDD	Wyoming Natural Diversity Database

1.0 INTRODUCTION

PURPOSE

This programmatic biological assessment (BA) assesses the potential effects to the desert yellowhead (*Yermo xanthocephalus*) from management actions included in Resource Management Plans (RMPs) approved by the Wyoming Bureau of Land Management (BLM). The desert yellowhead is a federally listed threatened plant species. The objectives of this BA are to:

- Summarize the biology of the desert yellowhead, including its known and potential distribution in Wyoming;
- Review pertinent RMPs, RMP amendments, and RMP maintenance actions and identify management actions with the potential to affect the desert yellowhead or its habitat;
- Assess the potential effects of actions proposed in the RMP on the desert yellowhead and its habitat;
- Prepare an effects determination for the desert yellowhead on each program identified in the RMPs; and
- Describe mitigative measures to reduce or eliminate adverse effects on the species.

The analysis area for each management action is based on the boundaries specified in the individual RMPs. These boundaries are described in the analysis section for each RMP. The determination is based on the nature of each management action as described in the RMP and on the available data for the desert yellowhead for the area that is affected by the management action. Critical habitat for the desert yellowhead is also addressed in this BA.

ORGANIZATION OF REPORT

This BA is organized into five sections, as described below:

1.0 Introduction – describes the purpose of the analysis, the scope of the biological assessment, the action area, and the methods used for this BA.

2.0 Species Information – summarizes the current listing status, species ecology, abundance and distribution in Wyoming, and threats to the desert yellowhead.

3.0 Habitat Information – summarizes the process to select the size and location of designated critical habitat within the Lander Field Office (FO).

4.0 Analysis of Resource Management Plan – summarizes the Lander RMP, describes habitat and occurrence of the desert yellowhead within the area affected, analyzes the effects from management actions authorized under each program, and includes an effects determination specific to each management action for the RMP.

5.0 Conservation Strategies – provides management direction to further reduce potential effects to the desert yellowhead. These strategies were prepared in coordination with the U.S. Fish and Wildlife Service (USFWS) office in Cheyenne, Wyoming.

METHODS

Literature was reviewed to gather information on the ecology and habitat of the desert yellowhead. Biologists from the Lander FO of the BLM were contacted as part of this review. In an effort to collect the most recent information on ecology, occurrence, and listing status, USFWS personnel in the Cheyenne, Wyoming, office were contacted. The *Endangered and Threatened Wildlife and Plants: Listing the Desert Yellowhead as Threatened, Final Rule* was reviewed (USFWS 2002). The Wyoming Natural Diversity Database (WYNDD) was used to provide current data on element occurrence and habitat distribution.

After the information on distribution for the desert yellowhead was reviewed, the Lander RMP was identified as the only RMP with the potential to affect the desert yellowhead. Therefore, this BA assesses the potential management actions included in the Lander RMP (BLM 1987) that apply to the Lander FO (**Map 1**) and have the potential to affect the desert yellowhead. The Lander RMP was reviewed and the management actions it proposes are summarized in Chapter 4. Determinations in this BA are provided for each program type and management action described in the Lander RMP. Critical Habitat was designated March 16, 2004 (USFWS 2004). This BA will also analyze the effects of BLM-authorized activities on critical habitat.

The desert yellowhead is known from only one population that occurs in a single location within the Lander FO. The RMPs for the remaining BLM FOs in Wyoming were not included in this assessment because the desert yellowhead is not known or expected to occur within their administrative boundaries. Therefore, the desert yellowhead would not be affected by actions in these RMPs.

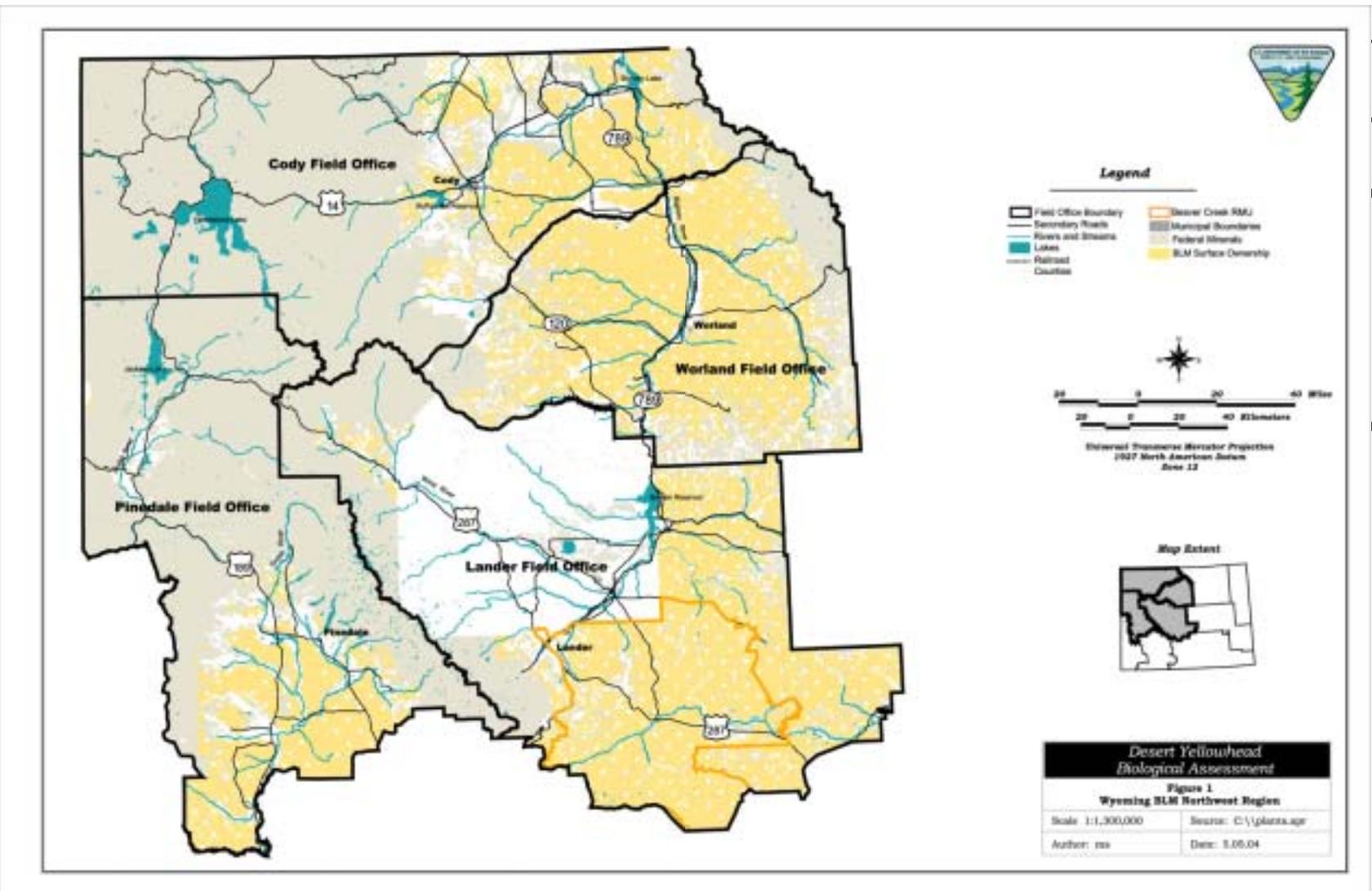
After the RMP was reviewed, management actions were analyzed for their potential to directly or indirectly affect individual desert yellowheads and conditions at the site (**Map 2**). Proposed federal actions also were evaluated for their potential to directly and indirectly affect the desert yellowhead.

The results of the effects analysis were used to develop a determination of effects on the desert yellowhead for each program described in the Lander RMP. Each determination was based on the management prescription described and any measures set forth to minimize the effects specified in the RMP. Conservation measures presented in the Conservation Strategies section of this BA were not included in the RMP; however, the BLM has committed to implementing these.

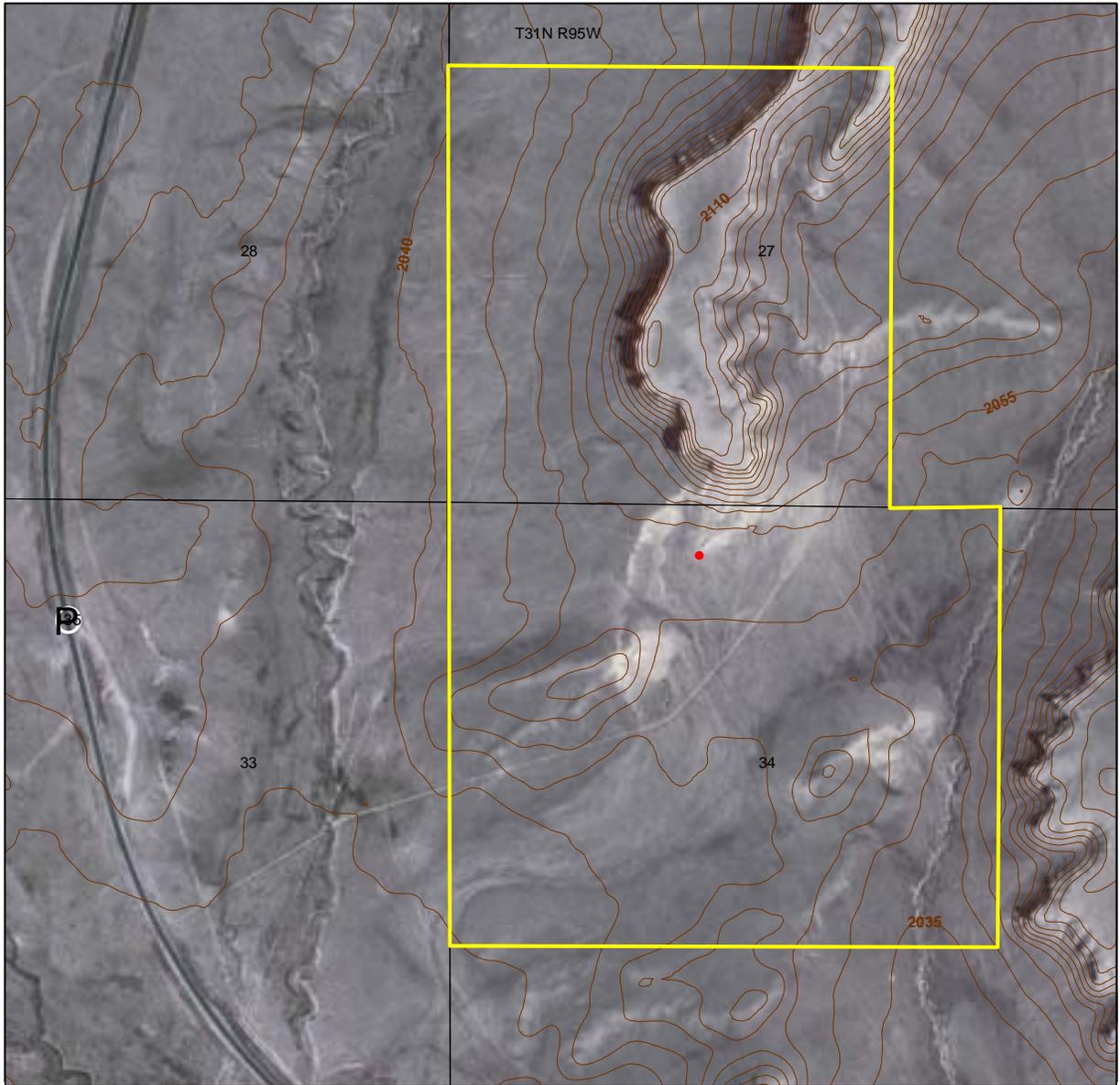
These measures are considered in the effects determinations if the BLM commits to their implementation. The following three categories are possible effects determinations:

- **No effect;**
- May affect, but is **not likely to adversely affect** due to:
 - Beneficial effects,
 - Discountable effects,
 - Insignificant effects; or
- May affect, is **likely to adversely affect**.

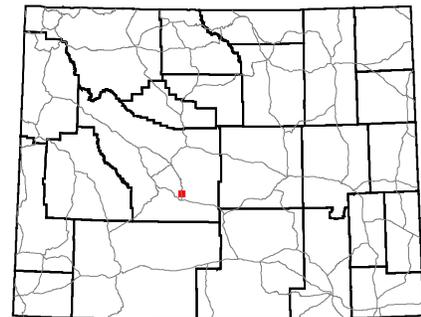
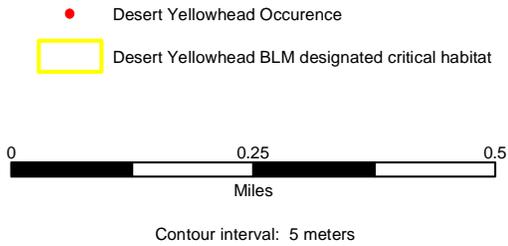
Map 1: Wyoming BLM Northwest Region



Map 2: Desert Yellowhead Population



Map 2



No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the Bureau of Land Management.

These determinations are further defined in the USFWS Endangered Species Consultation Handbook (USFWS 1998a), as summarized in the following text.

“No effect” means there are absolutely no effects to the species or its critical habitat, either positive or negative. A no effect determination does not include small effects or effects that are unlikely to occur. If effects are insignificant (in size) or discountable (extremely unlikely), a determination of “not likely to adversely affect” is appropriate.

“Not likely to adversely affect” means that all effects to the species or its critical habitat are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without adverse effects to the species (for example, there cannot be “balancing,” so that 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 considered 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 1998a). Determinations of “not likely to adversely affect, due to beneficial, insignificant, or discountable effects” typically require written concurrence from USFWS.

“Likely to adversely affect” means that the action would have an adverse effect on the species. Any action that would result in take of an endangered or threatened species is considered an adverse effect. A combination of beneficial and adverse effects is still considered “likely to adversely affect,” even if the net effect is neutral or positive. Adverse effects are not considered discountable because they are expected to occur. In addition, the probability of occurrence must be extremely small to qualify as discountable effects. Likewise, an effect that can be detected in any way or that can be meaningfully articulated in a discussion of the results of the analysis is not insignificant; it is an adverse effect.

The Endangered Species Act (ESA) does not prohibit incidental take of listed plant species. Furthermore, Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. Limited protection of listed plants from take is provided to the extent that the ESA prohibits the removal, reduction in habitat, and possession of federally endangered plants. It also prohibits the malicious damage of these plants on areas under federal jurisdiction and destruction of endangered plants on non-federal areas in violation of state law or regulation or during any violation of a state criminal trespass law.

2.0 SPECIES INFORMATION

LISTING STATUS

The desert yellowhead was proposed for federal listing as a threatened species on December 22, 1998 (USFWS 1998b). USFWS reopened the comment period for the proposal on September 5, 2000 (USFWS 2000). In the same publication, comments were sought regarding a *Conservation Agreement, Assessment, and Strategy* drafted in March 2000. The conservation agreement had not been finalized or signed at the time this assessment was written. A final rule listing the desert yellowhead as threatened was published in the *Federal Register* on March 14, 2002 (USFWS 2002). Critical habitat for the desert yellowhead was designated March 16, 2004 (USFWS 2004). All 360 proposed acres were designated as critical habitat.

The ranks assigned by the Natural Heritage Program for this species are G1 and S1, indicating that the species is critically imperiled because of extreme rarity (known from five or fewer occurrences) on the global and state levels. WYNDD lists the desert yellowhead as a state endemic and a High Conservation Priority (Fertig and Beauvais 2001).

Although monitoring data have shown an increase in population since 1995, the desert yellowhead is a rare and endemic plant that is considered imperiled because of potential threats from oil and gas development and its naturally rare and endemic nature. Although it is not in immediate danger of extinction, the desert yellowhead is likely to be listed as endangered if future impacts are realized. A reclassification as endangered would not, however, provide any additional protection because the species is known to occur only on federally administered surface lands (USFWS 2002).

ECOLOGY

Description of Species

The desert yellowhead is in the *Asteraceae* (Composite) family and is the only extant species known from the genus *Yermo*. It is a tap-rooted, glabrous perennial herb with leafy stems up to 12 inches high. The leathery leaves are alternate, lanceolate to oval, and 1.5 to 10 inches long (Fertig et al. 1994). The leaves are often folded along the midvein, and the margins may be smooth or toothed. The flower heads are numerous (25 to 180) and crowded at the top of the stem. Each head contains four to six yellow disk flowers surrounded by five yellow, keeled involucre bracts; ray flowers are absent. The pappus (the outer whorl of flowering parts) consists of numerous white bristles (Fertig 2000). Similar species include rayless species of groundsel (*Senecio hydrophilus* and *S. rapifolius*), which can be distinguished by their more numerous and green involucre bracts. The desert yellowhead flowers in mid-June to late July, although flowering plants have been observed during August in wet years (BLM and USFWS 2000). The plant primarily reproduces by seed but may spread by rhizomes (Fertig 2000). Seed dispersal is predominantly by wind and usually occurs through early September (BLM and USFWS 2000).

Description of Habitat

The desert yellowhead occurs on barren slopes and ridges on outcrops of white silty clay or Miocene sandstones of the Split Rock Formation. Hollows in these outcrops excavated by wind accumulate drifting snow and capture runoff, providing more moisture than in surrounding areas. Vegetation at these sites is typically sparse, consisting primarily of low-cushion plants and scattered clumps of Indian ricegrass (*Stipa hymenoides*) (USFWS 2000). Other associated species include *Arenaria hookeri*, *Astragalus kentrophyta*, *Cryptantha caespitosa*, *Haplopappus nuttallii*, *Ivesia gordonii*, *Phlox muscoides*, and

Senecio canus (Fertig 2000). The desert yellowhead is typically absent from surrounding areas that are dominated by Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*) (BLM and USFWS 2000).

Distribution

The desert yellowhead is a Wyoming endemic known only from the Beaver Rim area in southern Fremont County (**Map 2**). Wyoming botanist Robert Dorn discovered the species in 1990. It is known from a single occurrence on land managed by the BLM Lander FO. This single population occupies an area of 8 acres of suitable habitat (USFWS 2002). The population consists of one large subpopulation at the base of Cedar Rim and two smaller subpopulations associated with low sandstone and conglomerate hills less than ¼ mile away (BLM and USFWS 2000). The desert yellowhead site occurs between 6,720 to 6,760 feet in elevation (BLM and USFWS 2000).

In 2001, this population contained an estimated 12,000 individuals that existed entirely on federal lands (USFWS 2002). Monitoring data show that the actual population count has increased from 9,293 individuals in 1995 to 11,967 individuals in 2001, possibly in response to higher than normal precipitation during the study period (USFWS 2002). A decrease in population from 1997 to 1998 and again from 2000 to 2001 coincided with decreased precipitation.

Since 1990, surveys of other areas have failed to identify additional populations, although a number of sites with similar soils, drainage, and plant associations are found in the area. Surveys have focused on outcrops of the Split Rock, White River, Wagon Bed, and Wind River formations along Cedar Rim and Beaver Rim. Intensive surveys covered the area from the north bank of the Sweetwater River north to Oil Mountain and Sand Draw (BLM and USFWS 2000). In 1997, the eastern half of Beaver Rim was surveyed near Split Rock in Fremont County. Areas in Carbon and Natrona Counties were also searched in 1998, but no individuals of the species were located. Since 1995, surveys in similar habitat within the North Platte watershed, Washakie Basin, Great Divide Basin, and Green River Basin have proven equally unsuccessful in locating additional populations (USFWS 2002). Dorn has suggested that Cedar Rim might be the last refuge for this species (BLM and USFWS 2000).

Threats

The desert yellowhead is vulnerable to extinction from small-scale degradation of habitat because of its small population and limited geographic range (USFWS 1998b). Potential on-site disturbances threaten the existing desert yellowhead population. These disturbances could result from off-highway vehicle traffic associated with recreation and casual use for locatable mineral resources, surface prospecting, and mining claim staking. Other types of surface-disturbing activities, such as rights of way (ROWs), prescribed fires, range improvement projects, oil and gas exploration (including both geophysical testing and drilling) and development also threaten the existing population. These threats can, however be minimized or completely avoided using stipulations, conditions of approval, terms and conditions, and modifications to project design before any activity is approved.

Possible natural threats include trampling by wildlife, wildfire, drought and its effects on seed production, competition from non-native species, and random catastrophic events. The degree of threat by insect herbivory is unknown. The desert yellowhead does not appear to be palatable to livestock or wildlife (USFWS 2002).

Because of its small population and habitat, the desert yellowhead is vulnerable to over-collection for scientific and educational purposes. Furthermore, a series of drought years could result in a severe

reduction in population based on monitoring data that have indicated that population decreases after periods of decreased precipitation. It is unlikely that the species will exhibit a high rate of population growth, even if environmental conditions improve.

An additional natural threat is the decrease in genetic viability caused by the small population (USFWS 2002). There is a chance that the desert yellowhead may experience a decrease in its genetic variability that would lead to diminished fertility and survival.

3.0 HABITAT INFORMATION

Critical habitat is defined in section 3 of the Endangered Species Act (ESA) as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. “Conservation” means the use of all methods and procedures needed to bring an endangered or threatened species to the point at which listing under the ESA is no longer necessary.

Critical habitat receives protection under section 7 of the ESA through the prohibition against destruction or adverse modification of critical habitat with regard to actions authorized, funded, or carried out by a Federal agency. Section 7 of the ESA also requires conferences on Federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat. Aside from the added protection that may be provided under section 7, the ESA does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 of the ESA does not apply to activities on private or other non-Federal lands that do not involve a Federal nexus, critical habitat designation would not afford any additional regulatory protections under the ESA against such activities.

To be included in a critical habitat designation, the habitat must first be “essential to the conservation of the species.” Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (i.e., areas on which are found the primary constituent elements, as defined at 50 CFR 424.12(b)).

Habitat must also require special management or protection to be included in critical habitat. Critical habitat identifies those areas that need alteration or protection to provide for the recovery of the species. The USFWS does not include areas where existing management is sufficient to conserve the species.

The regulations state that, “The Secretary shall designate as critical habitat areas outside the geographic area presently occupied by the species only when a designation limited to its present range would be inadequate to ensure the conservation of the species” (50 CFR 424.12(e)). Accordingly, when the best available scientific and commercial data do not demonstrate that the conservation needs of the species so require, USFWS will not designate critical habitat in areas outside the geographic area occupied by the species.

Section 4(b)(2) of the ESA requires that USFWS take into consideration the economic impact, impacts to national security, and any other relevant impact, of specifying any particular area as critical habitat. USFWS may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.

USFWS Policy on Information Standards Under the ESA, published in the Federal Register on July 1, 1994 (59 FR 34271), provides criteria, establishes procedures, and provides guidance to ensure that decisions made by the USFWS represent the best scientific and commercial data available. It requires USFWS biologists, to the extent consistent with the ESA and with the use of the best scientific and commercial data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

Critical habitat designations do not signal that habitat outside the designation is unimportant to desert yellowhead. Areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1), and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard and the section 9 take prohibition, as determined on the basis of the best available information at the time of the action. USFWS specifically anticipates that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts.

Methods

In determining areas that are essential to conserve desert yellowheads, USFWS used the best scientific information available, as required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12). USFWS reviewed available information that pertains to the habitat requirements of this species, including information from the final rule listing the species as threatened (67 FR 11442; March 14, 2002), data from research and survey observations at the known population site, status reports compiled by the WYNDD, the BLM's RMP/Environmental Impact Statement for the Lander Resource Area (1986), Geological Survey Bulletins regarding the geology of central Wyoming and the Beaver Rim area, data regarding soils at the known population site, and discussions with botanical experts and BLM employees.

USFWS mapped critical habitat based on USGS 7.5" quadrangle maps (Dishpan Butte and Sweetwater Station, Wyoming). USFWS included the areas occupied by the subpopulations of desert yellowhead based on existing maps of the subpopulations, as well as site visits by USFWS and BLM employees. USFWS included adjacent areas of suitable soils and vegetative communities to allow for maintenance of the seed bank and dispersal. Additionally, USFWS identified areas with topographic features (outcroppings, cliffs, and hills) influencing the microscale dynamics of local winds, erosional processes, and hydrologic processes needed to maintain the integrity of the shallow deflation hollows providing desert yellowhead habitat, as well as the sheet wash that provides increased moisture to the habitat. USFWS delineated the boundary of this area using section lines and quarter-section lines where feasible, in order to facilitate BLM management and enforcement.

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, USFWS must consider those physical and biological features (Primary Constituent Elements, PCEs) that are essential to the conservation of the species, and that may require special management considerations or protection. These include, but are not limited to: space for individual and population growth, and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. The area designated as critical habitat for desert yellowhead is within the geographical area presently occupied by the species and contains these physical or biological features (PCEs) essential for the conservation of the species.

The Primary Constituent Elements for desert yellowhead consist of, but are not limited to:

- (1) Recent soils derived from sandstones and limestones of the Split Rock Formation at its junction with the White River Formation. These are shallow, loamy soils of the Entisol order that can be classified as course-loamy over sandy-skeletal, mixed, Lithic Torriorthent. The surface stratum

has little organic matter and subsurface layers show no accumulation of humus, clay, gypsum, salts, or carbonates.

- (2) Plant communities associated with desert yellowhead include, but may not be limited to, sparsely-vegetated cushion plant communities with scattered clumps of Indian ricegrass (*Oryzopsis hymenoides*) between 6,700 and 6,800 feet in Fremont County, Wyoming. Species common to these communities include Hooker's sandwort (*Arenaria hookeri*), thistle milkvetch (*Astragalus kentrophyta*), stemless hymenoxys (*Hymenoxys acaulis*), and squarestem phlox (*Phlox muscoides*). These cushion-plant communities also contain natural openings.
- (3) Topographic features/relief (outcroppings, cliffs, and hills) and physical processes, particularly hydrologic processes, that maintain the shape and orientation of the hollows characteristic of *Yermo xanthocephalus* habitat (through microscale dynamics of local winds and erosion) and maintain moisture below the surface of the ground (through sheet wash from the adjacent outcroppings, cliffs, and hills).

Criteria Used To Identify Critical Habitat

USFWS identified critical habitat essential for the conservation of desert yellowhead in the only area where it is known to occur. There are no known historic locations for this species. While acknowledging the high degree of threat that arises from chance catastrophic events given the limited geographic distribution of this species, USFWS found no compelling evidence that the plant ever existed at other locations. USFWS believes conservation of the species can be achieved through management of threats to the population within this designation of critical habitat.

Given the clustered distribution pattern of desert yellowhead and the assumption that dispersal distances are short and possibly fostered by water erosion, a limited amount of critical habitat is essential for maintenance of the seed bank and dispersal. Additionally, the persistence of the species requires some surrounding habitat to maintain the ecological processes that allow the population and the PCEs to persist.

Areas that support newly discovered populations in the future, but are outside the critical habitat designation, will continue to be subject to conservation actions that may be implemented under section 7(a)(1) of the ESA and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the ESA, as determined on the basis of best available information at the time an action is proposed.

Critical Habitat Designation

The critical habitat areas described below include one or more of the primary constituent elements described above and constitute the best assessment at this time of the areas needed for the conservation of desert yellowhead. The site includes the only known location where the species currently occurs and, as such, is essential.

The designated critical habitat is approximately 360 acres of Federal lands managed by BLM in the Beaver Rim area approximately 6 miles north of Sweetwater Station in southern Fremont County, Wyoming (see **Map 2**). Within this area, desert yellowhead occurs in sparsely-vegetated cushion plant communities associated with shallow soils on low slopes, rim margins, colluvial fans, and bottoms within deflation hollows. Additionally, USFWS included areas supporting topographic features (outcroppings, cliffs, and hills) influencing the microscale dynamics of local winds, erosional processes, and hydrologic processes needed to maintain the integrity of the shallow deflation hollows providing desert yellowhead

habitat, as well as the sheet wash that provides increased moisture to the habitat. Within the critical habitat, desert yellowhead occurs in 3 subpopulations with a total population size of 11,967 plants in 2001 (USFWS 2004). Dispersal from these subpopulations is limited and frequently occurs along colluvial washes.

4.0 ANALYSIS OF LANDER RMP

INTRODUCTION

The only known population of the desert yellowhead occurs within the Lander FO. Programs included in the Lander RMP were therefore reviewed and assessed for their potential to affect the desert yellowhead. The remaining RMPs in Wyoming were not assessed for their potential to affect this species because the desert yellowhead is not known to occur within their administrative boundaries.

ENVIRONMENTAL BASELINE

The environmental baseline describes past and current factors in the area that may have contributed to the current status of the species and protective measures that are currently in place. The Lander RMP was approved in 1987, before the desert yellowhead was discovered; therefore, specific measures intended to protect this species are not included in the RMP. In addition, no laws have been enacted in the State of Wyoming to protect rare plants species. Furthermore, no special land management designations or conservation agreements currently are in place to provide special protection for the desert yellowhead (USFWS 2002). The *Desert Yellowhead Conservation Agreement, Assessment, and Strategy* was drafted in March 2000 but has yet to be finalized. Ongoing monitoring studies of the desert yellowhead have, however, taken place since 1995.

The nearest maintained roads all are located more than 0.5 mile from the site. Sand Draw Highway (State Highway 135) is a paved road located about 0.7 mile from the site, which provides access to the general vicinity of the desert yellowhead population. At least five different companies have obtained ROWs on Cedar Rim Road, a BLM-managed road. It is a crowned and ditched road and is located approximately 1.2 miles from the desert yellowhead site. Other existing ROWs include a power line, a telephone line, snow fence, and a gas pipeline (BLM and USFWS 2000). These ROWs generally follow Sand Draw Highway, the old roadbed of Sand Draw Highway before it was re-aligned, or Cedar Rim Road. These are all located 0.7 mile or more away from the desert yellowhead site. An easement on private land for a BLM fence is located about 0.5 mile from the desert yellowhead site.

Other routes in the area are in poor condition or are not mapped. Numerous two-tracks (most are old seismic lines) are visible in an aerial photo of the area. Most receive little use, if any, because of a pasture fence located $\frac{3}{4}$ mile from the population and the un-gated fence on Sand Draw Highway. The ROW fence for the Sand Draw Highway prevents use of a two-track road that passes through the desert yellowhead site and goes to an abandoned oil well. These two-tracks wash out in places or are intersected by drainages, making them accessible only by four-wheel drive vehicles, or ATVs. The preferred access to the desert yellowhead site is a two-track trail that parallels the Sand Draw Highway, then heads east to the plant population. This trail is not mapped on the most current 7.5-minute U.S. Geological Survey quadrangle maps. The population of desert yellowhead occurs about 5 miles north of the Sweetwater Crossing on the Oregon/Mormon Trail, which is a popular recreational area (USFWS 2002).

The population of the desert yellowhead is in the Big Pasture grazing allotment and the Dishpan Butte Wild Horse Herd Area (BLM and USFWS 2000). The Big Pasture grazing allotment consists of cow/calf pairs and yearlings that graze on the allotment from May 1 to November 7. Cattle and horse trails are evidence that these animals use the desert yellowhead site, and livestock have trampled individual desert yellowheads. The overall impact of trampling on the population is unknown, however. Some desert yellowhead individuals persist within the livestock trails at the site. The nearest source of water is 2.5 miles from the desert yellowhead site (BLM and USFWS 2000).

After a site visit in 1998, researchers and representatives of USFWS, BLM, and WYNDD decided that the desert yellowhead site should not be fenced (BLM and USFWS 2000) because there is no significant evidence to indicate that grazing is harming the plants. A point where traffic from off-road vehicles (ORVs) could be effectively stopped was not identified, and fencing would have to be installed at multiple sites (BLM and USFWS 2000).

Potential for oil and gas development exists in or near the desert yellowhead site. An abandoned oil well is located about $\frac{1}{3}$ mile from the site. It was drilled in 1952, but was a dry hole and was plugged and abandoned in 1953 (BLM and USFWS 2000). In 1996 and 1997, the BLM issued two oil and gas leases, each for a 10-year period. The desert yellowhead site and the proposed critical habitat are located in both leases, which do not include any specific stipulations to protect the desert yellowhead. In addition, four wells were proposed in 1997. Two were located 6 miles from the site; they were determined not to affect the desert yellowhead and were permitted in 1998 (BLM and USFWS 2000). Both wells resulted in dry holes and were subsequently plugged and abandoned.

Mitigation measures were specified for the other two wells, one on the west side of the Sand Draw Highway (State Route 135), $\frac{3}{4}$ mile from the desert yellowhead site, and the other 1 mile north of the site. These wells were permitted in 1998 and allowed two 1-year extensions, which expired in 2001. Mitigation measures that would protect the desert yellowhead during development of these two wells included (1) seasonal restriction on activities during the summer flowering and fruiting season; and (2) a requirement that a Pesticide Use Proposal be submitted for evaluation and approval before herbicides could be used for weed management. Neither well was drilled during the approved period.

In 2001, an Application for Permit to Drill (APD) was submitted for drilling the well originally proposed in 1998, which was $\frac{3}{4}$ mile from the site on the west side of the Sand Draw Highway. The USFWS was contacted when the application was submitted and determined that no formal consultation would be required, provided BLM applied the same mitigation measures used previously. The same mitigation measures were applied to this APD as were set forth in the conditions of approval on the ADP approved in 1998. The well was drilled to 2,500 feet and was found to be a dry hole.

Since 1998, the BLM has applied Controlled Surface Use (CSU) stipulations to new oil and gas leases near the occupied desert yellowhead habitat. The CSU stipulation provides the authorized officer (usually the field manager) the authority to restrict or prohibit any activity that would have an adverse impact on the desert yellowhead until the operator and the BLM can agree upon an acceptable plan for minimizing or eliminating those impacts.

Two-dimensional seismic exploration for oil and gas producing formations was conducted in the lease area during the early 1990s. With the advent of modern technologies and three-dimensional (3-D) seismic data collection, it is likely there will be future additional geophysical exploration operations in the area of Government Meadows Draw.

On August 9, 1999, BLM filed a petition with the Department of Interior to withdraw 3,760 acres, including and surrounding the desert yellowhead site, from settlement, sale, location, or entry under the general land laws, including the mining laws (BLM and USFWS 2000).

Although no mining claims are located within 2 miles of the desert yellowhead site, the Beaver Rim area is known to contain deposits of uranium and zeolites. Therefore, the BLM filed a petition/application with the Department of the Interior (USDI) to segregate 3,760 acres including and surrounding the desert yellowhead site from settlement, sale, location or entry under the general land laws, including the mining laws, but not including the mineral leasing laws (BLM and USFWS 2000). The petition/application for

the proposed withdrawal was approved in August 1999 and segregated the land for 2 years while the BLM completed necessary studies to make a final recommendation on the withdrawal. This segregation expired in August 2001 with no withdrawal completed.

The USFWS published a final rule in the Federal Register on March 16, 2004 designating 360 acres of desert yellowhead habitat as critical habitat. This acreage falls within the original 3,760 acres segregated in 1999 for proposed withdrawal. To finalize a withdrawal of this 360 acres, the BLM Lander Field Office will need to: 1) complete a NEPA analysis; 2) update (if appropriate) the original mineral report; and 3) legally describe the lands proposed for withdrawal, which are as follows: In Fremont County, Wyoming; from U.S. Geological Survey 7.5” quadrangle maps Dishpan Butte and Sweetwater Station, Wyoming;

T. 31 N., R. 95 W., sec. 27, SW ¼;

T. 31 N., R. 95 W., sec. 34, NW ¼; and the W ½ of the W ½ of the NE ¼,
for a total of 360 acres.

Upon receipt of the necessary reports and NEPA documentation from the Lander Field Office (FO), the BLM Wyoming State Office will prepare the public land order and accompanying documentation for submission to the USDI for approval of the withdrawal.

ANALYSIS OF PROPOSED MANAGEMENT ACTIONS AND EFFECTS

The proposed actions include management actions or prescriptions described in the Lander RMP. The *Record of Decision for the Lander Resource Management Plan* was signed in June 1987, 3 years before the desert yellowhead population was discovered (BLM 1987). The Lander FO occupies portions of Hot Springs, Fremont, Sweetwater, Natrona, and Carbon Counties in central Wyoming, including 2.5 million acres of surface lands and 2.7 million acres of federal mineral estate.

The Lander RMP contains 10 resource management units (RMUs). The desert yellowhead population occurs in the Beaver Creek RMU (**Map 1**). The following sections describe the management actions in the Lander RMP, as well as specific actions in the Beaver Creek RMU that may affect the desert yellowhead. Direct and indirect effects are presented after each management action. The Lander RMP provides a complete description of each management prescription (BLM 1987).

Energy and Minerals

Management Actions

Minerals are classified as three general types: leasables (e.g. oil, gas, phosphates, coal, geothermal), locatables (gold, uranium, silver, zeolites, bentonite, etc.), and salables (sand, gravel, stone, etc.). Locatables fall under the General Mining Law of 1872.

The entire Beaver Creek RMU is open for oil and gas leasing. Oil and gas leases issued in areas rated as having moderate, low, or no potential for the occurrence of oil and gas reserves will include a no surface occupancy (NSO) restriction to protect water quality, fisheries, riparian areas, sage grouse leks, steep slopes, threatened and endangered species, and significant land features and cultural sites. Included within this NSO is Beaver Rim, starting at U.S. Highway 287 and extending 8 miles north. Although these NSO restrictions are applied before leases are issued, they could be waived later if appropriate.

An NSO restriction and seasonal restrictions for wildlife will be applied, when necessary, in areas of high potential for oil and gas occurrence. Lease restrictions may be waived, however, when the lessee has demonstrated that adverse impacts to other resources could be effectively mitigated.

Waiver of the NSO requirement would be subject to the same test used to initially justify its imposition. The record must show that because conditions or uses have changed, less restrictive requirements would protect the public interest.

The Beaver Creek RMU will be open for exploration and development of the phosphate resources within the unit. All exploration permits and leases within the unit will include an NSO restriction, when needed, to protect water quality, fisheries, riparian areas, sage grouse leks, steep slopes, threatened and endangered species, and significant cultural sites. In addition, seasonal restrictions will be applied to prospecting and exploration, as needed, to protect crucial wildlife habitat areas.

The Beaver Creek RMU will be open for locatable mineral exploration and development, except for 1,710 acres around the Split Rock Landmark, Rocky Ridge, the Split Rock Interpretive Site, and the Aspen Grove Site, areas that were withdrawn from appropriation under the mining laws. An additional 280 acres have been proposed to be withdrawn from appropriations under the mining laws around Rocky Ridge. Locatable mineral exploration and development will be restricted only in areas where these activities could cause significant adverse impacts to other resource values. This plan provides maximum opportunities for geophysical exploration and development of locatable mineral resources.

In addition, there are other laws and regulations that BLM must follow that apply to this section on minerals. The mining laws, particularly the General Mining Law of 1872 (as amended), allow for citizens of the United States to enter open public lands for the purpose of prospecting for locatable mineral resources, locating and exploring on mining claims, mining of the mineral commodities within the boundaries of those claims, and for patenting of the claims when a discovery of a valuable mineral resource has been made. The Federal Land Policy and Management Act of 1976 (FLPMA) is the basis for the BLM to prohibit activities on public lands, which could cause unnecessary and undue degradation, including mining operations. On January 1, 1981, the BLM began enforcing the first regulations for mining activities on public lands known as the Surface Management Regulations, 43 CFR Subpart 3809. On November 21, 2000, new and more comprehensive surface management regulations were published in the Federal Register and were placed into effect by the BLM. These regulations were again amended on October 30, 2001. These regulations state that there are 3 classes of mining operations: a) casual use, b) notice-level operations, and c) plan-level operations (BLM 2001).

Casual use means activities ordinarily resulting in no or negligible disturbance of the public lands or resources. Casual use includes such things as the collection of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, use of metal detectors and other battery-operated devices for sensing the presence of minerals. Operator may use motorized vehicles for casual use activities provided the use is consistent with the regulations governing such use, off-road vehicle use designations contained in BLM land-use plans, and the terms of temporary closures ordered by BLM. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, and motorized vehicles in areas when designated as closed to “off-road vehicles,” chemicals or explosives.

Notice-level operations are those disturbing 5 acres or less, and extracting less than 1,000 tons of ore per year. However, if the operations cause surface disturbance greater than casual use in the following special status areas, a plan of operations must be filed: a) lands in the California Desert Conservation Area (CDCA) designated in the CDCA plan as “controlled” or “limited” use areas; b) areas in the National Wild and Scenic Rivers System, and areas designated for potential addition to the system; c) designated Areas of Critical Environmental Concern (ACEC); d) areas designated as part of the National Wilderness Preservation System and administered by BLM; e) areas designated as “closed” to off-road vehicle use; f) any lands or waters known to contain Federally proposed or listed threatened or endangered species or their proposed or designated critical habitat, unless BLM allows for another action under a formal land-use plan or threatened or endangered species recovery plan; and g) National Monuments and National

Conservation Areas administered by BLM.

In addition, all operations authorized by the mining laws must prevent unnecessary or undue degradation of public lands. An operator must comply with the terms and conditions of the notice or approved plan of operation, and other Federal and State laws related to environmental protection. Reclamation must include rehabilitation of fisheries and wildlife habitat. Specifically, the operator shall take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat which may be affected by operations.

Effects Analysis

There will be no direct effects to the desert yellowhead population because of the NSO restriction for threatened and endangered species. Coordination and consultation with USFWS would occur for any proposed drilling, sundry activity, or mining for leasable minerals. Conditions of Approval (COAs) or stipulations can be applied to the permits and leases to control activities. COAs and stipulations can specify the time of year that the disturbance takes place so that growing and flowering periods are avoided, provide dust abatement and weed control measures, and minimize erosion. Both BLM and USFWS would be involved in project design to control the location of roads, pipelines, and other sundries that would be needed for exploration or development.

Salables are a mineral resource over which the authorized officer has discretionary authority. All surface disturbing activities, including the mining of salables, are subject to the standard surface disturbing mitigation (Appendix 2 of RMP), including NSO to protect threatened or endangered species habitat. In addition, the RMP states that no activities will be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement.

Although locatable exploration and development is generally allowed in the Beaver Creek RMU and the area specific to the desert yellowhead and critical habitat locations, any mining operations that exceed casual use must submit a plan of operations if it contains the desert yellowhead population or its critical habitat. At that time BLM, in consultation with USFWS, would apply terms and conditions to protect desert yellowhead.

Based on recent drilling history, although there is some interest in the oil resources in the general vicinity of the desert yellowhead, the oil resource has been elusive. All three of the wells drilled within the last six years have been dry holes.

Determination

Implementation of energy and minerals management actions, as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or its designated critical habitat, due to discountable effects. This determination is based on the very low potential for new or existing BLM-approved energy and mineral development to cause take of desert yellowhead individuals or to be approved in the critical habitat.

Fish and Wildlife

Management Actions

Development of routine projects to improve habitats for fish and wildlife and maintenance of existing projects will take place where they are consistent with management objectives in certain areas. Special management actions and projects to improve fisheries and associated riparian habitats in the Upper Sweetwater River and Beaver Creek drainages will be undertaken. Habitat management plans will be developed in cooperation with the Wyoming Game and Fish Department (WGFD).

Effects Analysis

The Lander RMP does not describe any habitat improvement projects for fish and wildlife for the desert yellowhead site. If any projects are proposed at or near the site in the future, consultation with the USFWS would be conducted early during project development. Mitigation and impacts to desert yellowhead would be addressed in the project development phase to avoid adverse impacts.

Determination

Implementation of fish and wildlife management actions, as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or its critical habitat, due to discountable effects. This determination is based on the low potential for wildlife habitat improvement projects to occur within or near the desert yellowhead site or critical habitat.

Rare Plants and Unique Plant Communities

Management Actions

A management plan will be developed to identify, protect, and maintain the habitat and population of rare plants. Specifically, the Beaver Rim cushion plant and *Pinus flexilis/Agropyron spicatum* communities will be managed within the Beaver Creek RMU.

Effects Analysis

The rare plant community on Beaver Rim was officially designated as an ACEC in the RMP Record of Decision (1987). However, the desert yellowhead site is not located within the Beaver Rim ACEC.

Determination

Implementation of management actions for rare plants and unique plant communities, as presented in the Lander RMP, will have **no effect** on the desert yellowhead or critical habitat. This determination is based on the lack of overlap between the Beaver Rim ACEC and the desert yellowhead site and critical habitat.

Forest Management

Management Actions

Most of the timber management in the RMP area will occur in the Green Mountain RMU. Forest management practices in timber stands will be undertaken as needed to assure optimum growth conditions in all stands. No specific forest management actions are described in the Lander RMP for the Beaver Creek RMU.

Effects Analysis

No forest management areas occur in the Beaver Creek RMU or near the desert yellowhead site. Forest management actions intended for forested habitats within the FO would not impact the desert yellowhead or critical habitat.

Determination

Implementation of forest management actions, as presented in the Lander RMP (BLM 1987), will have **no effect** on the desert yellowhead or critical habitat. This determination is based on the absence of forest management areas within or near the desert yellowhead site and critical habitat.

Landownership Adjustments and Utility Systems

Management Actions

The majority of the 2.5 million acres of public lands in federal ownership will be retained. One hundred seventy-two tracts, encompassing approximately 24,000 acres, meet the basic criteria for disposal. Based on the analysis in the Lander RMP environmental impact statement (EIS), 108 of these tracts, encompassing 12,500 acres, could be considered for future disposal through either sale or exchange.

Proposals for sale or exchange received in the future will be considered on a case-by-case basis. Specific proposals that are deemed consistent with the objectives of the RMP could be approved without a planning amendment. Leases and disposals will continue to be used to meet the needs of local and state governments.

Major utility and transportation systems will be located to make use of existing corridors whenever possible to provide for cost-efficient routes and protection of other resource values, including scenery and wildlife. Most of the area will be open for major utility systems. However, areas with the highest potential for conflicts already have been identified and will be avoided when practical. Areas will be avoided where rights of way may be granted only when no feasible alternative route or designated ROW corridor is available. These areas include Whiskey Mountain Bighorn Sheep Winter Range, the East Fork Crucial Elk Winter Range, the Dubois Badlands, the Lander Slope, Red Canyon, South Pass, Sweetwater Canyon, the Sweetwater Rocks, and ¼ mile or the visible horizon, whichever is less, on each side of the Oregon/Mormon Pioneer National Historic Trails.

Proposals for sale or exchange that are received in the future, as well as leases under the Recreation and Public Purposes Act, will be considered on a case-by-case basis. Within the FO, 172 tracts that encompass approximately 24,000 acres could be considered for disposal through sale or exchange. Twenty-five of these isolated tracts occur in the Beaver Creek RMU. Land adjustments could be approved without a planning amendment if they are consistent with the objectives of the RMP.

Construction of major utility systems throughout the Beaver Creek RMU will be allowed, except for three areas, including Oregon/Mormon Pioneer Trail corridor, the Sweetwater Canyon, and the Sweetwater Rocks. Rights of way might be granted within these three high-value resource areas if no feasible alternative route or designated route were available. Utility systems will be concentrated in existing corridors whenever possible.

All surface disturbing activities, including ROWs, are subject to the standard surface disturbing mitigation (Appendix 2 of RMP), including NSO to protect threatened or endangered species habitat. In addition, no activities will be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement.

Effects Analysis

If any projects were proposed near the desert yellowhead site in the future, consultation with the USFWS would be conducted early, and throughout project development. Mitigation measures and impacts to desert yellowhead would be addressed in the early phases of project development. Projects would be subject to the appropriate conservation measures, and other potential conservation strategies, which may include, but are not limited to, terms and conditions such as: (1) seasonal restrictions limiting surface disturbing activities from April 15 through September 15 to reduce impacts to the plants during growth and flowering, (2) approved Pesticide Use Plans, (3) dust abatement restrictions, and (4) rehabilitation plans that specify methods, seed mixes, and weed control measures.

As provided in the Lander RMP, the desert yellowhead site and critical habitat does not occur within any of the 25 isolated tracts of land that are considered for exchange or sale and, therefore, would not be directly affected by any changes in landownership within the Beaver Creek RMU. Future proposals for sale or exchange, as well as leases under the Recreation and Public Purposes Act, would be reviewed on a case-by-case basis. If they were near the desert yellowhead site, they would require consultation with the USFWS.

Determination

Implementation of management actions for landownership adjustment and utility systems, as presented in the Lander RMP (BLM 1987), may affect, but is **not likely to adversely affect** the desert yellowhead or its designated critical habitat, due to discountable effects. This determination is based on the conservation measures committed to by the BLM and the resultant low potential for the designation of ROWs and construction of power lines, pipelines, communication towers, and roads within the desert yellowhead site or critical habitat.

Recreation Management

Management Actions

The BLM staff of the Lander FO monitor recreational use throughout the FO. Enforcement is provided for recreation-oriented regulations and special designations. The Split Rock Interpretive Site is incorporated in the management plan for the Oregon/Mormon Pioneer Trail. This plan provides specific objectives for use by visitors, resource protection, and interpretative needs consistent with public demand. The remainder of the Beaver Creek RMU is part of an extensive management area where dispersed recreation will be encouraged. Recreation management and maintenance will be minimal, with an emphasis on resolution of user conflicts and resource protection.

Effects Analysis

Actions associated with recreation management and use have only a minor potential to negatively impact the desert yellowhead. Recreation may occur within the site without restrictions or controls in place to limit access and use of the desert yellowhead site. However, potential impacts that may result from

recreational use of the site, including trampling of desert yellowhead individuals, disturbance or destruction of habitat that supports the population, and possible introduction of noxious weeds or pests, are unlikely given the remote location of the site and its current use.

Determination

Implementation of recreation management actions, as presented in the Lander RMP (BLM 1987), may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat, due to discountable effects. This determination is based on the low potential for recreational use to occur within the desert yellowhead site and critical habitat.

Off-Road Vehicles

Management Actions

Existing ORV designations that were completed in 1981 on one-half of the FO will be continued. ORV management will focus on management units with crucial wildlife values, significant visual resources, high watershed sensitivity, and outstanding natural character. Intensive management will limit ORV use to designated roads and vehicle routes and will impose seasonal closures (from approximately December through June) on areas or roads where vehicle use is incompatible with other resource values. ORV use in the remainder of the FO will be limited to existing roads and vehicle routes, except when the ORV is used in completing necessary tasks. Examples include retrieving big game kills, repairing range improvements, and managing livestock. The present designations that limit ORV use to existing roads and vehicle routes will be continued within the Beaver Creek RMU.

Effects Analysis

Currently, recreational use of vehicles in the desert yellowhead site is minimal because of its relative isolation, the indirect access route, and because the trail dead-ends. Occasional drive through (only for necessary tasks) by ORVs would not be detrimental to the population (BLM and USFWS 2000). Off-road vehicle use is restricted by the RMP to existing roads and vehicle routes. However, ORV use and recreation may result in direct physical disturbance to individual plants and to the habitat that supports the population because a few plants grow in the two-tracks. The threat from vehicle damage is greatest in the spring or summer when plants are flowering or are heavy with developing fruit, or when soils are wet (BLM and USFWS 2000). Late-fall recreational use, such as during hunting season, is probably a lesser threat because the plants have already dispersed the fruits and are entering dormancy (BLM and USFWS 2000).

The regulations at Title 43 Code of Federal Regulations (CFR) Part 3809 that govern surface management for locatable minerals on public lands states that “operators may use motorized vehicles for casual use activities provided the use is consistent with off-road vehicle use designations contained in BLM land use plans.” The designation for the desert yellowhead site is limited to existing roads and vehicle routes.

Any measures that may be proposed to minimize the potential for take, such as fencing or road closures, would need to be evaluated for impacts to the population, and consultation with USFWS would be needed. For example, fencing and road closures may draw more attention to the site. In addition, livestock or wild horses may accidentally be trapped inside the enclosure fence and cause considerable damage to the population. The terrain at the site is relatively flat, and even if a road were trenched and ripped, ORVs could drive around or come in from a different direction. Ripping existing roads would disturb soils and could become a path for weeds to reach the plant population.

Determination

Implementation of ORV management actions, may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat, due to discountable effects. This determination is based on the low potential for ORV use to occur within the desert yellowhead site and critical habitat.

Cultural/Natural History

Management Actions

The BLM cultural resource program generally conducts but does not initiate inventories in response to surface-disturbing projects. The BLM conducts inventories as well as land management activities. BLM inventories, categorizes, and preserves cultural resources, conducts field activities, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. Data collected during these inventories are used for documentation and development of mitigation plans before surface-disturbing activities occur under other programs. Inventories commonly entail the use of hand tools, power tools, or heavy machinery. Intensity varies between inventories. Inventories may involve two to seven individuals and trucks and may last from 1 day to several weeks.

Land management for cultural resources involves managing sites for scientific, public, and socio-cultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface-disturbing activities; preparing interpretive materials; and allowing collection of certain invertebrate fossils. Archeological collections are authorized through a permit system. The cultural resource program may authorize installation of protective fencing on segments of some trails, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, explore and develop locatable materials, designate avoidance areas, pursue cooperative agreements, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Effects Analysis

Adverse effects on significant cultural resources are mitigated, and protection for any significant cultural resources found at the desert yellowhead site would provide some protection to the desert yellowhead. Surface-disturbing activities are avoided near significant cultural and paleontological resource sites and within ¼ mile or the visual horizon of significant segments of historic trails and canals. Cultural and natural history issues that result from other activities, such as mineral developments, ROWs, or livestock grazing, are covered under the effects analysis for those activities.

Sites listed on, or eligible for, the National Register for Historic places (NRHP) are protected and would be managed for their local and national significance and in compliance with the National Historic Preservation Act, the Archeological Resources Protection Act, the American Indians Religious Freedom Act, and the Native American Graves Protection and Repatriation Act, as appropriate. Cultural and natural history management actions may directly impact the desert yellowhead if they are conducted within the desert yellowhead site. Impacts that result from cultural and natural history management actions may include disturbance to soil, trampling and physical disturbance to individual plants, and the possible introduction of noxious weeds to the site.

Determination

Implementation of cultural and natural history management actions, as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat, due to discountable and beneficial effects. This determination is based on the low likelihood that cultural and natural history resource management actions would occur at the desert yellowhead site or on designated critical habitat.

Fire Management

Management Actions

Activities authorized by this program include tree thinning, construction of roads and fire lines, application of fire suppressing chemicals by hand and by airplane, and revegetation and mulching stream banks for rehabilitation. Activities often employ off-road vehicles, hand tools, and heavy equipment such as bulldozers. Increased noise and dust pollution, plant and wildlife habitat fragmentation or loss, loss of vegetative cover, or other resource conflicts may result from implementation of this program.

The RMP shows the Beaver Creek RMU as divided into three fire suppression zones. The desert yellowhead site and surrounding habitat occur near the border in Zone 2. Zone 2 is limited suppression, meaning that the fire will be fought only when it exceeds a pre-determined limit, or if it threatens human life, structures, or private property. This area has no history of large or damaging fires, however. Under the limited suppression regime of Zone 2, resource damage will likely be less severe. Prescribed burns are allowed for improvement of range and wildlife habitat in all three zones.

Since the RMP was written, the fire plan has been revised and is reviewed and updated annually. The most recent version is the Southern Zone Suppression Plan dated March 22, 2002 (BLM 2002). It shows the desert yellowhead and critical habitat in Fire Management Zone-02 (FMZ) – Sagebrush Grass Habitat Type, Sub-Unit 02-7 Sweetwater Valley. This sub-unit was assigned to a suppression category where wildland fire is desired to manage ecosystems. Suppression tactics remain the same as originally written under the RMP for Zone 2. Under the Special Considerations for this sub-unit are the Wilderness Study Zone and the desert yellowhead site. The special considerations for the desert yellowhead site specifically prohibit use of heavy equipment, slurry dumps, or off-road vehicle travel. Should a fire occur in this area, the dispatcher is responsible for relaying this information to the firefighters.

Effects Analysis

Wildland fires are not expected to directly impact the desert yellowhead because vegetation and litter at the site are not sufficient to sustain a damaging fire (BLM and USFWS 2000). Most environmental damage that occurs from wildland fires results from the equipment and resources used to fight the fire. Individual desert yellowhead plants may be damaged or killed, and habitat conditions may be disturbed or altered as the result of fire suppression within the site. Noxious weeds may become established in areas near or within the desert yellowhead site as a result of prescribed burning or fire suppression.

Determination

Implementation of fire management actions, as presented in the RMP (BLM 1987), may affect, but is **not likely to adversely affect** the desert yellowhead or its designated critical habitat, due to discountable effects. This determination is based on the low potential for fires to occur in the area near the desert yellowhead site, the education of fire fighters and resource advisors as to the location and concerns

regarding desert yellowhead, and the inclusion of the desert yellowhead site in the suppression plan. Therefore, fire dispatchers would know what to relay to any responding firefighters, including non-BLM personnel. If a fire were to occur at or near the site, a plan would be developed and consultation would be initiated with USFWS to ensure rehabilitation of the site did not cause adverse impacts to the plant. Prescribed fires are discretionary; plans would be drafted to avoid adverse impacts or would not be approved.

Access

Management Actions

Existing BLM roads and easements will be maintained. In addition, BLM will negotiate with landowners for easements or will select alternatives to the route to secure public access as identified in the District Transportation Plan. As of 1985, this plan calls for negotiating easements on the East Beaver Creek, Twin Creek, Government Draw, Signor Ridge, Hudson-Atlantic City, Beaver Rim, and Dilabaugh Butte Roads. Roads will be kept to the minimum BLM standards necessary for the anticipated use. No roads will be upgraded in the Sweetwater Rocks area.

Effects Analysis

Improvement of access to lands administered by BLM may detrimentally impact the desert yellowhead. However, given the approved conservation measures, no new ROWs would be granted through the site. New access to the desert yellowhead site could result in disturbance or destruction of desert yellowhead individuals and to the habitat that supports the population. New access to the site or the surrounding area may increase recreational use, which may affect desert yellowhead individuals or habitat and may increase the potential for noxious weeds to become established at the site. However, all surface disturbing activities, including construction of access roads, are subject to the standard surface disturbing mitigation (Appendix 2 of RMP), including NSO to protect threatened or endangered species habitat. In addition, no activities will be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement.

Determination

Implementation of access management actions, as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat, due to discountable effects. This determination is based on the low potential for new or improved access to occur within the desert yellowhead site and critical habitat, given the approved conservation strategies.

Soils, Water, and Air Management

Management Actions

Lands in the Lander FO are managed to protect and improve the quality of the soils, water, and air resources. For several years, the Lander FO has worked to install and monitor soils and weather at the desert yellowhead site. In 1994, Dr. Richard Scott established a climate station at the southern end of Cedar Rim specifically to record local climate data for the population of *Yermo xanthocephalus* and other rare plants at this site. This climate station is currently gathering hourly data on precipitation, air temperature, soil temperature (at depths of 3.9 and 7.9 inches), relative humidity, wind speed, and solar radiation (USFWS 2000).

Soil erosion, water quality, and air quality will be monitored as necessary to track the effect of specific projects. Typical air quality management activities include dust control and meteorological or air quality monitoring. Air quality management may evaluate surface development activities, and the evaluation may result in restrictions. ORV travel will be prohibited on wet soils and on slopes greater than 25 percent if damage to vegetation, soils, or water quality would result. Roads and trails will be closed and reclaimed if they are heavily eroded, washed out, or if access roads in better condition are available. Field work may include use of heavy machinery or hand tools. Watershed management may include implementation of watershed plans, identification of heavy sediment loads, monitoring and treating soil erosion, evaluating and restricting surface development activities, and monitoring water quality.

Effects Analysis

Soils, water, and air quality management may directly impact the desert yellowhead if actions associated with these resources are conducted within the desert yellowhead site. Impacts that would result from management actions associated with these resources may include disturbance to soil, trampling and physical disturbance to individual plants, and possible introduction of noxious weeds to the site. Management of these resources within the Lander FO and Beaver Creek RMU may improve or maintain the characteristics of soil, water, and air quality at the desert yellowhead site.

Determination

Implementation of management actions for soils, water, and air as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat due to insignificant or beneficial effects. This determination is based on the minimal potential for these management actions to occur, and on the beneficial effects that would result from improving or maintaining the soil, water, and air characteristics, within the desert yellowhead site or critical habitat.

Livestock Grazing (and Wild Horse Management)

Management Actions

Range management includes using prescribed fire, vegetation manipulation projects, changing composition of existing vegetation, controlling noxious weeds, using mechanical or biological vegetative treatments to improve forage production, using heavy equipment, and spraying sagebrush. Fencing authorized by the Range Management program may include fence construction and repair, design and implementing grazing systems, and building livestock exclosures for important riparian habitat. Water management associated with range management may include development of reservoirs, springs, pipelines, and wells, and providing access to these developments. Grazing permit or lease management includes 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.

Two livestock grazing management areas have been designated within the Lander FO, including the Gas Hills Study Area and the Green Mountain Study Area. The desert yellowhead site occurs within the Green Mountain Study Area. Rangeland program summaries (RPSs) for these study areas are included in the RMP. Grazing allotments have been grouped in three categories: M (maintain), C (custodial), and I (improve). Recommendations were provided in each category for the intensity of grazing management, including multiple-use resource management objectives, needs for range improvement and monitoring, and actions needed to improve and maintain rangeland condition and productivity. Under this RMP, present management will continue until the results of monitoring are available. Management actions based on all available data will then be implemented in the allotments, beginning with areas that need the most improvement.

There are 291 allotments in the Lander FO. Category M allotments comprise 29 percent of the allotments and 27 percent of the acreage in the FO. The principal objective of these allotments is to maintain or improve existing resource conditions and reduce or eliminate conflicts. Category C allotments represent 28 percent of the allotments and 4 percent of the acreage in the FO. The principal objective for Category C allotments is to prevent deterioration of the current resource conditions by managing the lands in a custodial manner. Category I allotments constitute 43 percent of the allotments and 69 percent of the acreage in the FO. The principal objective for Category I allotments is to improve existing resource conditions and reduce or eliminate conflicts.

Management decisions that affect grazing will be made when monitoring data are adequate to support those decisions. These decisions may include changing livestock numbers, periods of use, or a combination of both. Monitoring will be a continuing process to assure that any changes in grazing accomplish the objectives. If monitoring studies indicate a need to further modify periods of use, numbers of livestock, class of livestock, or grazing systems, these adjustments will be made after consultation with the livestock operators and any other affected parties.

Wild horse management also falls under this heading. Seven wild horse herd management areas have been designated in the Lander Field Office. The desert yellowhead site and critical habitat fall within the Dishpan Butte Herd Management Area.

The RMP also incorporates the “Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management in the State of Wyoming” approved August 12, 1997. Standards address the health, productivity, and sustainability of the BLM administered public rangelands and represent the minimum acceptable condition for the public rangelands. The standards apply to **all resource uses on public lands**. Standard #4 states that: Rangelands are capable of sustaining viable population and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of concern, or sensitive species will be maintained or enhanced. This means that: The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated) and other sensitive species (State of Wyoming-designated). The intent of this standard is to allow the listed species to recover and be delisted and to avoid or prevent additional species becoming listed. The Standards for Healthy Rangelands were incorporated into the Lander RMP through a maintenance action on Dec. 12, 1997 (Appendix D).

Effects Analysis

Although the effects of grazing on the habitat of the desert yellowhead are currently unknown, there is evidence of a possible beneficial effect from trail making at low herd density (BLM and USFWS 2000). Some plants are growing in livestock trails at the edge of the site (Breckenridge 2002). These trails probably create rills for water movement, and the grazing cattle reduce competition with other grasses and forbs that might encroach into the area. Occasional trampling may damage leaves or flowers, but these plants are perennials that seem well adapted to tough, harsh environmental conditions. Because the plant is a perennial, it can grow back as long as the roots have not been damaged. High concentrations of cattle would probably have adverse impacts, however. At the current stocking level, high concentrations of livestock are not likely to occur because of the terrain where the plant grows (often on steep slopes) and the lack of other desirable forage species. The closest source of water is about 2.5 miles away. Furthermore, the desert yellowhead does not appear to be palatable to livestock or wildlife (BLM and USFWS 2000).

The permittees who graze cattle in the Big Pasture allotment are aware of the presence of desert yellowhead and have discussed with specialists at the Lander FO the effects and impacts of grazing on the plant population. To date, the permittees have cooperated with BLM in such matters as restricting mineral supplements within 2 miles of the site and avoiding supplemental livestock feed, and not herding their cattle within ¼ mile of the desert yellowhead site. Wild horse management activities, such as temporary gathering/holding facilities, could also cause damage to the plants and habitat if they were located at the yellowhead site. New construction of range improvement projects, such as fencing, water developments, and vegetation manipulation projects, are discretionary and subject to the surface disturbing mitigation guidelines found in Appendix 2 of the RMP and consultation with USFWS if they affect desert yellowhead or its critical habitat. In addition, no activities would be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement.

Determination

Implementation of grazing and wild horse management actions, as presented in the Lander RMP, may affect, but are **not likely to adversely affect** the desert yellowhead or critical habitat due to insignificant or beneficial effects. Current livestock grazing practices at the site have not proven detrimental and may create beneficial conditions at the site.

Wilderness

Management Actions

Wilderness study areas (WSAs) on public lands are single-use resources managed in accordance with decisions issued by Congress. BLM managers ensure that proposed actions are consistent with the land use plan in effect for the area. Absence of roads, total area, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values.

Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to identify potential impacts to known or potential wilderness values.

All WSAs are managed under the “Interim Management Policy (IMP)” until Congress issues management guidelines. The IMP applies to three categories of public lands: (1) WSAs identified by the wilderness review required by Section 603 of the FLPMA, (2) legislative WSAs (WSAs established by Congress, although none are administered by the BLM in Wyoming), and (3) WSAs identified through the land-use planning process in Section 202 of FLPMA.

Operators prepare a Plan of Operation before mining exploration begins. The plan identifies the mining strategy and attempts to minimize environmental impacts. Discovery work for 603 WSAs must be done under non-impairment standards. Only “unnecessary and undue degradation” requirements apply in 202 WSAs.

A claim may be staked any time in an existing WSA. National Environmental Policy Act (NEPA) analysis is required before any activity is authorized in any WSA. Environmental Assessments (EAs) or Environmental Impact Statements (EISs) are prepared to evaluate whether a proposal meets non-impairment criteria. Categorical exclusion to eliminate this analytical process for uses and facilities on lands under wilderness review is not allowed.

Nine regions in the Lander FO are designed as BLM WSAs: Sweetwater Canyon, Copper Mountain, Dubois Badlands, Whiskey Mountain, Sweetwater Rocks, Lankin Dome, Split Rocks, Savage Peak, and Miller Springs. Two of these areas, Dubois Badlands and Whiskey Mountain, are studied under Section 202 of FLPMA and not managed under non-impairment criteria for mining.

Effects Analysis

The desert yellowhead site does not occur within a WSA. No WSAs are near the desert yellowhead population. Management actions associated with WSAs will not result in direct or indirect impacts to the desert yellowhead or its habitat.

Determination

Implementation of WSA management actions, as presented in the Lander RMP, will have **no effect** on the desert yellowhead or critical habitat. This determination is based on the absence of current and proposed WSAs on or adjacent to the desert yellowhead site.

Areas of Critical Environmental Concern

Management Actions

FLPMA mandates priority is assigned to specific areas to designate and protect important historic, cultural, scenic, wildlife, and other natural resources. ACECs provide additional protection if they are accompanied by a management plan for protective measures. Designated ACECs require intensive management of all surface-disturbing activities. Plans of operations must be approved for all exploration and mining operations in areas designated as an ACEC. The RMP designates approximately 7,000 acres of federal surface in the Beaver Creek RMU as ACECs, where the management emphasis is to protect sites along the Oregon/Mormon Pioneer Trail. The desert yellowhead population is not included in an ACEC.

Effects Analysis

Designation of an ACEC within the Beaver Creek RMU will not impact the desert yellowhead because this area is associated with the Oregon/Mormon Pioneer Trail and does not include the desert yellowhead site.

Determination

Implementation of ACEC management actions, as presented in the Lander RMP, will have **no effect** on the desert yellowhead or critical habitat. This determination is based on the lack of overlap between the proposed ACEC and the desert yellowhead site.

Vegetation Management

Management Actions

Vegetation management is not currently an independent program addressed in the Lander RMP. The general objectives of vegetation resource management are to (1) maintain or improve the diversity of plant communities to support timber production, livestock needs, wildlife habitat, watershed protection, and acceptable visual resources, (2) enhance essential and important habitats for special-status plants species on BLM-administered public land surface and prevent the need for any special-status plant species being listed as threatened and endangered, and (3) reduce the spread of noxious weeds.

Vegetation treatments, including sagebrush spraying or burning, will be designed to meet the overall objectives of resource management. Cooperative integrated programs implement weed control work on adjoining deeded and state lands in cooperation with county weed and pest districts. The three types of control BLM uses on public lands are chemical, biological, and mechanical. Biological control can involve the use of weevils and beetles. This method may be used in cooperation with mechanical control (dozing, cutting, chopping, or goats). The BLM also implements sagebrush control measures. These control methods may be chemical or mechanical. Fire is used as a management tool to improve range forage production, wildlife habitat, timber stand improvement, disposal of debris from sale, and to reduce buildup of hazardous fuel. Noxious weed control is typically implemented along rights of way.

If herbicides are proposed for use, minimum-toxicity herbicides should be used, with appropriate buffer zones along streams, rivers, lakes, and riparian areas, including along ephemeral and intermittent streams. Only federally approved pesticides and biological controls are used. Local restrictions within each county are also followed. Projects that may affect threatened or endangered plants or animals will be postponed or modified to protect these species. Pesticide Use Proposals (PUPs) and Biological Use Proposals (BUPs) are developed in conjunction with the county weed and pest districts and the BLM. All PUPs and BUPs are reviewed by the state noxious weed coordinator and approved by the BLM assistant state director.

Effects Analysis

A vegetation program does not exist in the Lander RMP, but because of the interrelated nature of the various resources, the effects of these management actions have been analyzed to avoid repeated discussion of these activities throughout this document. Vegetation manipulation projects are discretionary and subject to the surface disturbing mitigation guidelines found in Appendix 2 of the RMP and consultation with UFWS if they affect desert yellowhead or its critical habitat. In addition, no activities will be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement.

Determination

Implementation of vegetation management actions, as presented in the Lander RMP, may affect, but is **not likely to adversely affect** the desert yellowhead or critical habitat due to discountable and beneficial effects.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Lander RMP management actions.

TABLE 1 SUMMARY OF DETERMINATIONS FOR THE LANDER RMP	
Resource	Determination
Energy and Minerals	Not likely to adversely affect due to discountable effects
Fish and Wildlife	Not likely to adversely affect due to discountable effects
Rare Plants and Unique Plant Communities	No effect
Forest Management	No effect
Landownership Adjustments	Not likely to adversely affect due to discountable effects
Recreation Management	Not likely to adversely affect due to discountable effects
Off-Road Vehicles	Not likely to adversely affect due to discountable effects
Cultural/Natural History	Not likely to adversely affect due to discountable or beneficial effects
Fire Management	Not likely to adversely affect due to discountable effects
Access	Not likely to adversely affect due to discountable effects
Soils, Water, and Air Management	Not likely to adversely affect due to insignificant or beneficial effects
Livestock Grazing (and Wild Horse Management)	Not likely to adversely affect due to insignificant or beneficial effects
Wilderness	No effect
ACECs	No effect
Vegetation	Not likely to adversely affect due to discountable or beneficial effects

Cumulative Effects

Cumulative effects include the effects of future state, local, or private actions that are reasonably certain to occur in the area. Since the desert yellowhead site is located entirely on federal surface, there is little or no potential for direct cumulative effects from future state, local, or private actions to affect the population.

5.0 CONSERVATION STRATEGIES

Implementation of the following conservation strategies is intended to minimize, or eliminate, adverse impacts that are likely to result from implementation of the management actions provided in the Lander RMP. In addition to the existing measures in the Lander RMP (items 1 through 5), the BLM has committed to implement conservation measures 1 through 10. The BLM will also consider implementing best management practices (BMPs) (items 1 through 7) to further protect the desert yellowhead and critical habitat. All conservation measures and BMPs apply to the known population of desert yellowhead and its critical habitat. In the event new populations are discovered, these measures would apply to the individual plants, and should include a 0.5-mile buffer around the new site until further investigation and consultation results in more appropriate management buffers.

EXISTING PROTECTIONS IN THE LANDER RMP

1. No activities will be permitted in habitat for Threatened and Endangered Species that would jeopardize the continued existence of such species (Lander RMP, p. 31).
2. No critical habitat will be exchanged or sold (Record of Decision, page 37, Map 19)
3. ORV use in this area is restricted to existing roads and vehicle routes (Lander RMP, p. 162; Record of Decision, p. 36).
4. Under the most recent version of the Southern Zone Suppression Plan (March 22, 2002), the desert yellowhead and its critical habitat are protected under the assigned suppression category where wildland fire is desired to manage ecosystems. The special considerations for the site specifically prohibit the use of heavy equipment, slurry dumps, or off-road travel. Should a fire occur in this area, the dispatcher is responsible for relaying this information to the firefighters (Record of Decision, page 38)
5. Institute an NSO restriction on designated desert yellowhead critical habitat for any possible future leases (Lander RMP, p. 31; Record of Decision, p. 32).

CONSERVATION MEASURES COMMITTED TO BY BLM

1. BLM agrees to withdraw the designated 360 acre critical habitat area from mineral location and entry under the General Mining Law of 1872.
2. BLM will not increase current permitted stocking levels.
3. BLM will not approve location of mineral supplements or additional water sources for livestock, wild horses, or wildlife on public lands within 2 miles of the site.
4. No supplemental feeding or straw placement can be done without proper authorization (43 Code of Federal Regulations 4140 (a)(3)) .
5. Livestock will not be intentionally herded within 0.5 mile of the desert yellowhead site, or in designated critical habitat.
6. BLM will work with all of the interested parties in the development and implementation of a monitoring plan for the desert yellowhead and its designated critical habitat. The plan will include regular patrol of the site for unlawful uses of the land, and the monitoring of invasive weed populations. This plan would also include, but is not limited to, the inventory and monitoring of all vehicle access to the area for the purpose of restricting access of vehicles that pose a threat to the desert yellowhead population.
7. Prohibit biological control of weeds in desert yellowhead habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. BLM will monitor biological control vectors.

8. Apply a COA on all APDs within the desert yellowhead site and designated critical habitat, prohibiting all surface-disturbing activities.
9. Prohibit the disposal of salable minerals in designated desert yellowhead critical habitat.
10. BLM will not conduct wild horse management actions (e.g., temporary gathering/holding facilities) within designated critical habitat.

BEST MANAGEMENT PRACTICES

The following BMPs are to be considered on a case-by-case basis at the project level, and implemented where appropriate, to further protect the desert yellowhead and its designated critical habitat.

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

6.0 REFERENCES

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