

APPENDIX G

BIOLOGICAL ASSESSMENT OF THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES FOR THE ATLANTIC RIM NATURAL GAS PROJECT

**Biological Assessment
of
Threatened, Endangered, Proposed, and Candidate Species
for the
Atlantic Rim Natural Gas Project**

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1.0 Project Description

This Biological Assessment (BA) discusses the potential effects of the proposed Atlantic Rim Natural Gas Project on threatened, endangered, and proposed species pursuant to the Endangered Species Act (ESA) of 1973. Candidate species for listing under the ESA are also discussed. This BA also presents recommendations to assure that the construction and subsequent operation of the proposed project will neither jeopardize the continued existence of those species nor result in the destruction or adverse modification of their critical habitats. Analysis of effects of this proposed project on threatened, endangered, and proposed species complies with the provisions of the ESA. The Bureau of Land Management (BLM) maintains an interest in protecting candidate species under their sensitive species policy (BLM Manual 6840), with the goal that actions on BLM administered lands consider the welfare of these species and do not contribute to the need to list any of the sensitive species under the provisions of the ESA.

Anadarko Petroleum Company has notified the BLM, Rawlins Field Office that Anadarko and other cooperators intend to drill additional exploration and development wells within the Atlantic Rim Project Area (ARPA). While the Atlantic Rim Environmental Impact Statement (EIS) is being prepared, BLM has allowed the interim drilling of about 116 natural gas wells in six pod locations within the ARPA. The objective of the interim drilling program is to allow the ARPA operators to drill, complete, and produce the wells to determine which geologic objectives are gas productive, which drilling and completion techniques are economical, if dewatering of the drilling objectives can be achieved, and what depths or pressure windows may be preferred to target economic gas production. In addition to those wells drilled under the Atlantic Rim IDP, 210 previously approved wells, with accompanying production-related facilities, also exist within the ARPA.

Four alternatives have been developed for the proposed project: the Proposed Action, Alternative A (no action), Alternative B (sequential development), and Alternative C (spatial). Descriptions of each alternative are discussed in detail in Chapter 2 of the Draft Environmental Impact Statement (DEIS) (USDI-BLM 2005) and are summarized below.

Proposed Action

The proponents for the Atlantic Rim project propose the following:

- The Proposed Action consists of drilling approximately 1,800 CBNG wells to and throughout the Mesa Verde formation targeting the coals. In addition, approximately 200 conventional gas wells targeting sands at deeper depths are proposed throughout the project area, totaling 2000 wells all together. The planned production and development activities would occur primarily in and adjacent to the existing POD locations.
- The drilling activities for the 2,000 natural gas wells would be in addition to the approximately 116 ARPA exploration wells drilled during the interim drilling period. Also, this proposal is in addition to the 210 existing wells previously approved by the BLM for drilling to deeper, conventional formations in the ARPA prior to this proposed action.
- Proposed well spacing is 8 wells per section (80 acre spacing) throughout the project area and may be reduce to 4 wells per sections dependent on the geology and ability to release the water and pressure sufficient to release and recover the gas.
- Development would begin in 2006 (subsequent to the release of the Record of Decision) within the ARPA and continue for approximately 20 years, with a life-of-project (LOP) of

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30-50 years. Various drilling and production related facilities (e.g., roads, pipelines, water wells, disposal wells, compressor stations, and gas processing facilities) would also be constructed throughout the ARPA. The proposed action does not include any overhead or newly buried electrified lines.

- Under the proposed action, there would be approximately 4,500 acres of new short term (initial) surface disturbance from well pad locations and associated facilities 1,000 miles (approximately 9,700 acres) of new roads or upgrades of existing roads; 1,015 miles (about 5,460 acres) of new gathering gas and water pipelines; and 1,480 acres of ancillary facilities. The total new short-term (initial) disturbance resulting from the proposed action would be about 15,800 acres.
- Under the Proposed Action, planned reclamation would reduce the total acres of disturbance to 6,241 acres of long term (LOP) disturbance.

Alternative A – No Action

NEPA regulations require that EIS alternative analyses in the EIS “include the alternative of no action” (40 CFR 1502.14(d)).” For this analysis, “no action” means that the BLM would reject the Proponent’s proposal and “the proposed activity would not take place”.

Alternative B – Sequential Development

Alternative B involves the same number and spacing of wells to be drilled as in the proposed action. However, the principle difference would be that the of development (drilling and associated construction activity) would occur in three phases with the center portion of the project area (vicinity of Doty Mountain Pod, Sundog / Cow Creek Pod and Blue Sky Pod) being developed first over a 6 to 7 year period. As in the proposed action, the entire project area would eventually be developed over the planned twenty year period. The initial phase would involve up to 925 well locations within the Phase 1 portion of the project area. Once completed and in production, development would then be shifted to the second phase in the northern portion of the project area and lastly, the third phase in the southern portion of the project area would be developed. The boundary between Phase 1 and Phase 2 lies along Muddy Creek and the boundary between Phase 1 and Phase 3 lies along a watershed divide and is delineated to keep intact a mule deer migration corridor based on data from the Wyoming Game and Fish Department. There would be continued drilling within previously analyzed PODs under the existing interim drilling plan concurrently with development of the initial phase. However, this drilling and facility development would be limited.

Under this alternative, development would be concentrated to one third of the project area at any one time, thereby concentrating surface disturbing activities, such as traffic and noise. Each phased area or zone would contain two to three of the original PODs from the interim drilling program. The center, Phase 1 area, containing of the Doty Mountain, Cow Creek/Sun Dog, and Blue Sky PODs, would be the first to be developed. The other two zones would be inactive in the sense that construction activities would not occur. Development in those areas would not commence until drilling and interim reclamation operations are completed in the first phase areas and then the next.

POD boundaries would remain the same as they exist and were originally proposed. No additional development would occur outside the POD boundaries in inactive zones. BLM would authorize suspensions of operations and production for all leases within the no-activity areas except for where existing oil and gas development has already occurred. Proposals to develop

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leases within non-active zones would be denied until the zone in which it is located becomes active for development under the Atlantic Rim ROD. For those leases suspended by the BLM no lease rental fees would accrue and the lease term will be tolled during the period the zone remained in a “no activity” status. Active status would last from 6-7 years per zone and would include completion of interim reclamation.

Gas production operations would begin and continue within an active zone as construction occurs. The extent of gas production facilities would continue to accumulate as time passes with ultimately the same level of operational (production) disturbance as the other action alternatives at completion. Once developed, production would continue throughout the project area.

Alternative C - Spatial

Development for natural gas would occur as in the proposed action, but would be conditioned with the application of required development protection measures in those areas with sensitive or crucial resource values. Generally, constraints would focus on surface disturbance limits, limited operating periods, modification of drilling and construction practices, and, in some cases, no surface occupancy. Resource data, in the form of GIS layers, would be used to identify specific areas of resource concern. Examples of such areas are: unique cultural values, crucial wildlife and fish habitat, and areas with fragile soils. These types of areas are unique enough to require additional protective measures beyond what is already provided by applying the standard Best Management Practices (BMPs) (Appendices H and J), lease stipulations, and Conditions of Approval (COAs). As a end product, geographic information system (GIS) layers would be available to operators for development of site specific proposals for their planning of the annual program of work. Further details on development protection measures proposed are detailed in Chapter 2, Alternative C.

1.1 Project Area Location

The ARPA is located in the southwestern corner of Wyoming's Carbon County, within Townships 13 through 20 North (T13-20N) and Ranges 89 through 92 West (R89-92W) of the 6th principal meridian. The project area encompasses approximately 270,000 acres. Of this total, approximately 174,000 acres are managed by the U.S. Department of the Interior (USDI) BLM; 14,000 acres are managed by the State of Wyoming; and about 82,000 acres are private lands. A detailed description of the project area location can be found in Section 1.1 of the DEIS (USDI-BLM 2005).

2.0 Methods

The assessments and recommendations contained within this BA are based upon information obtained from several sources: (1) published literature, (2) unpublished agency reports and data, (3) personal communications with state and federal agency wildlife specialists, (4) meetings with state and federal agency plant and wildlife specialists, and (5) field surveys.

2.1 Published Literature

Published scientific documents that pertain directly to the specific circumstances and issues involved in this analysis were reviewed and incorporated into this BA. All published literature used in this assessment is appropriately cited.

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2.2 Unpublished Agency Reports and Data

Unpublished documents and data sets from the files of the Wyoming Game and Fish Department (WGFD) and U.S. Fish and Wildlife Service (FWS) were reviewed, utilized, and referenced in this BA. All available information on threatened and endangered species in the project area was reviewed in the preparation of the DEIS and this document. Materials reviewed include distribution and habitat maps, progress reports, recovery plans, sighting records, management plans, and survey guidelines for threatened and endangered species.

Some information concerning historical wildlife usage of the project area was obtained through the Rawlins BLM Field Office and District IV biologists of the WGFD. This information was specific to current and historical locations for wildlife species. Additional information was obtained from the WGFD, which maintains a computerized listing of all wildlife species reported in an area. This listing, known as the Wildlife Observation System (WOS) was accessed for information concerning all species of wildlife (birds, mammals, amphibians, and reptiles) that have been observed and recorded within the ARPA and a township buffer (T12-21N, R88-93W) as residents or seasonal migrants. The Wyoming Natural Diversity Database (WYNDD) was also queried for reports of rare or unique plant and wildlife species within the ARPA.

2.3 Personal Communications

Individuals interviewed during the fact-finding process, either directly or by telephone, included: Mr. Frank Blomquist (BLM Wildlife Biologist, Rawlins, WY), Ms. Pat Deibert (FWS Biologist, Cheyenne, WY), Ms. Kathleen Erwin (FWS Biologist, Cheyenne, WY), Mr. Walt Fertig (WYNDD Heritage Biologist, Laramie, WY), Ms. Mary Read (BLM Wildlife Biologist, Rawlins, WY), Mr. Andy Warren (BLM Supervisory Rangeland Management Specialist, Rawlins, WY), Mr. Greg Hiatt (WGFD Wildlife Biologist, Sinclair, WY) and Mr. Tim Woolley (WGFD Wildlife Biologist, Baggs, WY).

2.4 Meetings

Numerous meetings were held among state and federal wildlife specialists and Hayden-Wing Associates (HWA) concerning potential impacts to wildlife that may result from the proposed project. All of the concerns raised in these meetings regarding development of the proposed project have been addressed in either this document or the DEIS (USDI-BLM 2005).

2.5 Field Surveys

Existing special status wildlife information for the project area was supplemented through wildlife surveys conducted by HWA from 2000 to 2004. These data collections consisted of aerial and ground surveys to determine: (1) occurrence of threatened, endangered, proposed, candidate, or sensitive species and/or habitat that may occur on the project area; (2) the occurrence, location, size, and burrow density of white-tailed prairie dog colonies; and (3) the location and activity status of raptor nests within the project area and one-mile buffer zone.

2.6 BA Preparation

Personnel who cooperated in the preparation of this BA include the following: L.D. Hayden-Wing, principal investigator of HWA and a member of the Inter-Disciplinary Team, supervised the collection of wildlife data and compilation of the overall document. T. Olson, wildlife biologist

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with HWA and B. Parkhurst assisted in the preparation of the document. J. Winstead, K. Jones, T. Olson, L. Bennett, and D. Knowlton, wildlife biologists with HWA, assisted in the collection of field data.

3.0 Current Status and Habitat Use of Species

The FWS has determined that nine species, which are listed under the ESA as either threatened, endangered or proposed, or are candidates for listing under the ESA, are potentially present within the Rawlins BLM Field Office (USDI-FWS 2004a; Table 1). Additionally, ten species that are found downstream of the Rawlins Field Office in the Platte and Colorado River systems may potentially be impacted if water depletions occur. These species and their federal status under the ESA are listed in Table 1.

Table 1. Threatened, endangered, proposed, or candidate species that may potentially be present within the Rawlins BLM Field Office or that may potentially be impacted by the Proposed Action.

Common Name	Scientific Name	Status
Mammals		
Black-footed ferret	<i>Mustela nigripes</i>	Endangered
Canada lynx	<i>Lynx canadensis</i>	Threatened
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Threatened
Birds		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Candidate
Whooping crane*	<i>Grus americana</i>	Endangered
Interior least tern*	<i>Sterna antillarum</i>	Endangered
Piping plover*	<i>Charadrius melodus</i>	Threatened
Eskimo curlew*	<i>Numenius borealis</i>	Endangered
Amphibians		
Wyoming toad	<i>Bufo baxteri</i>	Endangered
Fish		
Colorado pikeminnow**	<i>Ptychocheilus lucius</i>	Endangered
Bonytail**	<i>Gila elegans</i>	Endangered
Humpback chub**	<i>Gila cypha</i>	Endangered
Razorback sucker**	<i>Xyrauchen texanus</i>	Endangered
Pallid sturgeon*	<i>Scaphirhynchus albus</i>	Endangered
Plants		

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Common Name	Scientific Name	Status
Blowout penstemon	<i>Penstemon haydenii</i>	Endangered
Ute-ladies'-tresses	<i>Spiranthes diluvialis</i>	Threatened
Colorado butterfly plant	<i>Gaura neomexicana ssp. coloradensis</i>	Threatened
Western prairie fringed orchid*	<i>Platanthera praeclara</i>	Threatened

* water depletions in the Platte River system may affect these species found downstream of the ARPA.

** water depletions in the Colorado River system may affect these species found downstream of the ARPA.

3.1 Threatened, Endangered, Proposed, and Candidate Species

Black-footed Ferret

The black-footed ferret's original distribution in North America closely corresponded to that of prairie dogs (Hall and Kelson 1959, Fagerstone 1987). In Wyoming, prairie dog (*Cynomys* spp.) colonies provide essential habitat for black-footed ferrets. Ferrets depend almost exclusively on prairie dogs for food and they also use prairie dog burrows for shelter, parturition, and raising young (Hillman and Clark 1980, Fagerstone 1987). Prairie dog towns occurring within the project area were initially located from the air and subsequently mapped from the ground in their entirety. Prairie dog colonies were mapped from an ATV or on foot using a hand-held GPS receiver. Additional studies identified a total of 295 white-tailed prairie dog colonies, comprised of 6,300 acres (2.3% of the area) existing within the ARPA.

On February 2, 2004, the U.S. FWS issued a letter stating that, in Wyoming, surveys for black-footed ferrets are no longer warranted in black-tailed prairie dog complexes and in many white-tailed prairie dog complexes, except for sixteen non-block cleared white-tailed prairie dog complexes (USDI-FWS 2004b). One of these complexes, the Dad Complex is located partially within the ARPA. For the ARPA, a total of 273 white-tailed prairie dog colonies covering 5,720 acres within the Dad Complex and are not included under the block clearance. Therefore, surveys for black-footed ferrets may be warranted prior to ground disturbing activities within these prairie dog colonies. Surveys would be conducted according to U.S. FWS guidelines (USDI-FWS 1989). The remaining white-tailed prairie dog colonies within the ARPA have been block cleared and surveys for black-footed ferrets are no longer warranted. However, these towns located within the block-clearance area should be examined for their potential to provide habitat for relocation of black-footed ferrets.

Canada Lynx

The Canada lynx is one of three major species of wildcats found in North America. Although Wyoming comprises part of the species' historic geographical range, no lynx sightings have been documented in the ARPA or within a six-mile buffer (WGFD 2003). The closest known sighting of a lynx to the ARPA is approximately 55 miles to the east (Reeve et al. 1986 and Beauvais et al. 2001). In a collaborative effort, the BLM and WYNDD completed a lynx habitat suitability map for the State of Wyoming (Beauvais et al. 2001); according to the habitat map, lands within the ARPA provide low to poor quality lynx habitat. Lynx could potentially travel through the ARPA, but the likelihood of this is very low due to a lack of suitable habitat.

Due to the facts that: (1) the project area does not include high elevation lodgepole pine/spruce-fir habitat types preferred by this species, (2) the project area does not support a population of

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snowshoe hares (WGFD 2003), (3) there are no recorded lynx sightings within a six-mile buffer in either the WOS (WGFD 2003) or the WYNDD (2003), and (4) the closest potential habitat is approximately 6 miles to the east in the Sierra Madre Mountains, it is unlikely that lynx occur on or near the ARPA and is therefore not discussed further in this document.

Preble's Meadow Jumping Mouse

In Wyoming, Preble's meadow jumping mouse is found within riparian habitat corridors east of the Laramie Range Mountains and south of the North Platte River (USDI-FWS 2004a). Preble's meadow jumping mouse is closely related to the western jumping mouse, and subspecies are generally identified by geographic location (Beauvais 2000). The ARPA is located more than 100 miles west of the known distribution of the Preble's meadow jumping mouse and this species is not expected to occur on the project area and is therefore not discussed further in this document.

Bald Eagle

Bald eagles typically build stick nests in the tops of coniferous or deciduous trees along streams, rivers, or lakes. Selection of nest sites likely depends upon availability of food in the early nesting season (Swenson et al. 1986). Although no bald eagle nests or nesting habitat occurs on the project area, nesting habitat does occur south of the project area along the Little Snake River. Primary wintering areas are typically associated with concentrations of food sources including major rivers that remain unfrozen where fish and waterfowl are available and ungulate winter ranges where carrion is available (Montana Bald Eagle Working Group 1990).

Bald eagles have been observed on the project area primarily during December, January, and February (WGFD 2003). The majority of bald eagle locations on the project area are in the southern portion of the ARPA, close to the Little Snake River. Bald eagles may utilize the project area for foraging during winter months because a large portion consists of winter range for antelope, mule deer, and elk.

The bald eagle winters and nests in proximity to the project area along the Little Snake River. Several ecological factors probably allow for seasonal and/or year-round use by bald eagles along the Little Snake River: (1) some water may remain open on the river year-round providing an adequate supply of fish and waterfowl, (2) the river is adjacent to crucial ungulate winter range, and (3) the riparian zone has many large cottonwood trees for roosting and nesting. This habitat along the Little Snake River is located ½ to 2 miles south of the ARPA. Upland habitat use by bald eagles within the project area would probably be limited to winter scavenging forays. Few trees large enough for eagle roosting or nesting exist on the project area. Inspection of BLM raptor nest records, WGFD WOS records, and results of aerial and ground raptor nest surveys performed by HWA revealed that no bald eagle nests occur within the ARPA.

Yellow-billed Cuckoo

The yellow-billed cuckoo is a neotropical migrant that winters in South America and breeds from southeast Canada, throughout most of the United States (except the northern Great Plains to the northwest coast) and northern Mexico (Payne 1997). In North America, the cuckoo population is divided into two subspecies. The population west of the Continental Divide is considered the Western or California subspecies and the population east of the Continental Divide is the Eastern subspecies. Trends developed from Breeding Bird Survey (BBS) data indicate that the yellow-billed cuckoo is declining throughout its range but the most dramatic declines have been associated with the Western subspecies. As a result, the yellow-billed

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cuckoo has twice been petitioned as an endangered species pursuant to the Endangered Species Act (ESA). The Southwest Region of the U.S. Fish and Wildlife Service rejected the first petition submitted in 1987. The second petition was submitted in 1998 and called for the listing of cuckoos west of the Continental Divide as a subspecies or a geographically, morphologically, behaviorally, and ecologically distinct population from cuckoos east of the Continental Divide. In July 2001, the FWS concluded that the petitioned action was warranted but precluded by higher priority listing actions. Currently, the western subspecies of yellow-billed cuckoo (located west of the Continental Divide) is considered a candidate species.

Observations of the yellow-billed cuckoo in Wyoming are very rare, with approximately 24 documented observations since 1982 (Bennett 2002). The yellow-billed cuckoo is a BLM sensitive species throughout all of Wyoming and it may be found in cottonwood/riparian habitats below 7,000 feet and in urban areas throughout the state (WGFD 1999). In Wyoming, it is thought to prefer cottonwood stands for foraging and willow thickets for nesting. The ARPA does not include any large riparian areas with well-developed cottonwood/riparian habitats, therefore it is unlikely that the yellow-billed cuckoo occurs on the project area and it has not been documented on the ARPA (WGFD 2003, WYNDD 2003) and is therefore not discussed further in this document.

Wyoming Toad

The Wyoming toad was historically associated with floodplain ponds along the Big and Little Laramie Rivers in Albany County (Baxter and Stone 1992). Currently, the Wyoming toad is only known to occur at Mortenson Lake National Wildlife Refuge. However, reintroduction efforts are underway in other portions of its former range. The Wyoming toad did not historically, and does not currently occur on or near the ARPA and is therefore not discussed further in this document.

Blowout Penstemon

Blowout penstemon is a member of the Scrophulariaceae (Figwort) family (Fertig 2001) and is probably the rarest plant species native to the Great Plains (Nebraska Game and Parks Commission [NGPC] 2002). The species is most common in the open, sandy habitats of wind-excavated depressions (blowouts) in dune tops. In Wyoming, the species has also been documented on very steep, unstable sand dunes (Fertig 2000). Within these limited habitats, this short-lived perennial frequently occurs in large, multi-stemmed clumps. In June and July, when in bloom in Wyoming, its lavender-purple flowers stand out against other sparse vegetation found in and around sandy blowouts. In addition to features of its leaves and flowers, blowout penstemon's lavender or vanilla-like fragrance distinguishes it as only one of two fragrant species of the 300 penstemons in the world (NGPC 2002).

The reproductive life history of the species has led, in part, to the decline of blowout penstemon populations in Wyoming and other native regions. The primary limiting factor in seedling establishment is moisture availability. For blowout penstemon seeds to germinate, and for the roots to reach a depth where moisture is available and constant, blowout sand must remain damp for at least two weeks during the growing season (NGPC 2002). In the arid environment of sandy blowouts, these conditions usually only occur in one out of every eight to ten years (NGPC 2002). Exacerbating the effects of limited germination and establishment conditions is the loss of blowout habitats. Active fire suppression programs and improved range management practices have led to increases in prairie vegetation cover with decreases in sandy areas. The species now remains in only a few locations where wind erosion has maintained sandy blowouts (NGPC 2002).

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Blowout penstemon is known to occur in certain habitats south of the Ferris Mountains in the northern part of Carbon County. The plant has the potential to occur on the project area (Fertig 2001, USDI-FWS 2002), especially in the Sand Hills area where a few, active sand dunes are known to exist (Warren 2002). However, the species was not found during field surveys of this area by WYNDD personnel in June 2000 (Fertig 2000).

Ute ladies'-tresses

Ute ladies'-tresses is a perennial, terrestrial orchid with stems 8 to 20 inches tall, and flowers consisting of white or ivory flowers clustered into a spike arrangement at the top of the stem. The plant blooms mainly from late July through August, however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October. Habitat for Ute ladies'-tresses can occur in major riparian corridors subject to fluvial erosion/deposition, or more ideally, in moist to very wet meadows along streams. It has also been found in abandoned stream meanders that still have ample ground water, near springs, and lakeshores. The habitat on which the species depends has been drastically modified by urbanization, agriculture, and development (description adapted from NatureServe 2003).

Ute ladies'-tresses was designated as threatened in 1992 when it was only known from Colorado, Utah, and Nevada. Since that time, it has been found in Wyoming, Montana, Nebraska, and Idaho (NatureServe 2003). The known locations of the species in Wyoming include Converse, Goshen, Laramie, and Niobrara Counties. Much of the ARPA is located above the upper known elevation of occurrence (6,800 feet) for this species (Fertig 2002) and the species is not known to occur within the ARPA. However, some areas along the eastern portion of the ARPA may contain marginal habitats for the Ute ladies'-tresses.

Colorado Butterfly Plant

The Colorado butterfly plant is a short-lived perennial herb that typically occurs on sub-irrigated soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000-6,400 feet (Fertig 2000). The species is often found a short distance from meandering stream channels. This species is known to occur in Laramie County in southeastern Wyoming, in southwestern Nebraska and in northeastern Colorado. This species is not known and is not expected to occur on or near the ARPA and is therefore not discussed further in this document.

3.2 Colorado River Species

Within the ARPA, a total of approximately 284 miles of intermittent, ephemeral, and perennial streams occur. Perennial surface water is relatively scarce within the ARPA due to limited precipitation (5.8 - 24.3 inches/year). The majority of drainages within the ARPA are ephemeral drainages. Ephemeral waters are those in which the water table is always below the stream channel and only flow in direct response to precipitation or snow melt. Ephemeral waters only support very limited aquatic communities for the short periods when surface flow is present. However, Muddy Creek, its tributaries McKinney Creek and Littlefield Creek, and Savery Creek are perennial streams and are classified as Class 2 and 3 streams by the WDEQ, which support game and non-game species. These streams are considered to be locally to regionally important trout fisheries by the WGFD (1991, 1998).

About 15 reservoirs and ponds (0.5 - 20 acres) are present within the Colorado River Watershed portion of the ARPA. Some of the ponds and reservoirs that currently exist within the ARPA are fed by waters recovered from wells drilled at upstream locations, while others are

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impoundments on small drainages. These man-made impoundments are generally designed to supply water for livestock and wildlife use.

Four federally endangered fish species may occur as downstream residents of the Colorado River system: Colorado pikeminnow (*Ptychocheilus lucius*), bonytail (*Gila elegans*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) (USDI-FWS 2004a). The Colorado pikeminnow, bonytail, and humpback chub are all members of the minnow family. The razorback sucker is a member of the sucker family. All four of these fish species share similar habitat requirements and historically occupied the same river systems.

The last sighting of any of these fish species in the Little Snake River was of a single Colorado pikeminnow in 1990. Because habitat for these species is not present within the ARPA, these fish species are not likely to be found in tributaries to the Little Snake River within the ARPA, and critical habitat for these species has not been designated in Wyoming (Upper Colorado River Endangered Fish Recovery Program 1999). However, the potential for project-related reductions in water quantity and/or quality to these tributaries to the Colorado River warrant their inclusion in this document.

Colorado Pikeminnow

The Colorado pikeminnow is the largest member of the minnow family and occurs in swift, warm waters of Colorado Basin rivers. The species was once abundant in the main stem of the Colorado River and most of its major tributaries throughout Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, California, and Mexico. It was known to occur historically in the Green River of Wyoming at least as far north as the City of Green River. In 1990, one adult was collected from the Little Snake River in Carbon County, Wyoming (Baxter and Stone 1995). Subsequent survey attempts to collect Colorado pikeminnow from this area of the Little Snake River by WGFD personnel failed to yield any other specimens.

Bonytail

Habitat of the bonytail is primarily limited to narrow, deep, canyon-bound rivers with swift currents and white water areas (Valdez and Clemmer 1982, Archer et al. 1985, Upper Colorado River Endangered Fish Recovery Program 1999). With no known reproducing populations in the wild today, the bonytail is thought to be the rarest of the endangered fishes in the Colorado River System.

The bonytail historically inhabited portions of the upper and lower Colorado River basins. Today, in the upper Colorado River Basin, only small, disjunct populations of bonytail are thought to exist in the Yampa River in Dinosaur National Monument, in the Green River at Desolation and Gray Canyons, in the Colorado River at the Colorado/Utah border and in Cataract Canyon (Upper Colorado River Endangered Fish Recovery Program 1999).

Humpback Chub

Habitat of the humpback chub is also limited to narrow, deep, canyon-bound rivers with swift currents and white water areas (Valdez and Clemmer 1982, Archer et al. 1985, Upper Colorado River Endangered Fish Recovery Program 1999). The humpback chub was historically found throughout the Colorado River System, and its tributaries, which are used for spawning (Valdez et al. 2000). It is estimated that the humpback chub currently occupies 68% of its original distribution in five independent populations that are thought to be stable (Valdez et al. 2000).

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Razorback Sucker

The razorback sucker is an omnivorous bottom feeder and is one of the largest fishes in the sucker family. Adult razorback sucker habitat use varies depending on season and location. This species was once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. Today, in the Colorado River Basin, populations of razorback suckers are only found in the upper Green River in Utah, the lower Yampa River in Colorado and occasionally in the Colorado River near Grand Junction (Upper Colorado River Endangered Fish Recovery Program 1999).

3.3 Platte River Species

A small portion of the ARPA drains into the Platte River system and according to the FWS (USDI-FWS 2004a), water depletions in the Platte River system may contribute to the destruction or adverse modification of designated critical habitat for the following species. None of these species or their habitats are found within the ARPA, but they could be impacted by actions taken on the ARPA.

Whooping Crane

Critical habitat for the whooping crane downstream of the ARPA is located along the Platte River Bottoms between Lexington and Dehman, Nebraska (Federal Register 1978). Whooping crane habitat consists of large expanses of wetlands that provide suitable food (insects, crayfish, frogs, small fish) and open expanses near wetlands for nightly roosting (Federal Register 1978).

Interior Least Tern

The interior least tern nests on un-vegetated sand-pebble beaches and islands of large reservoirs and rivers. Interior least terns avoid areas where relatively thick vegetation provides cover for potential predators. No habitat for the interior least tern is found on the ARPA, but habitat is located downstream of the ARPA along the Platte River in Nebraska (USDI-FWS 1990).

Piping Plover

Critical habitat for the piping plover includes prairie alkali wetlands and surrounding shoreline, including 200 feet of uplands above the high water mark; river channels and associated sandbars, and islands; reservoirs and their sparsely vegetated shorelines, peninsulas, and islands; and inland lakes and their sparsely vegetated shorelines and peninsulas (Federal Register 2002). Critical habitat for the species downstream of the ARPA in Nebraska begins at the Lexington Bridge and extends to the Platte's confluence with the Missouri River 252 mi (405.5 km) downstream (Federal Register 2002). Approximately $\frac{1}{4}$ of this part of the Platte River is also designated as critical habitat for the whooping crane. Open shorelines and sandbars of rivers, large reservoirs, alkali wetlands, lakes and rivers provide suitable breeding habitat for the piping plover.

Eskimo Curlew

The eskimo curlew migrates from wintering grounds in the pampas of Argentina, northward through Central America and the central Great Plains of North America to breeding grounds in northern Canada and Alaska (Gollop et al. 1986). The spring migration route passes through Nebraska (Gollop et al. 1986), where the birds may stopover along the Platte River. In the fall they migrate eastward to Labrador, then south over the Atlantic Ocean back to South America (Gollop et al. 1986). Habitat for the eskimo curlew includes grasslands, tundra, burned prairies, plowed fields, marshes, mudflats, meadows, and pastures. Burned prairies and marshes may

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be attractive during migration (Gollop et al. 1986). The loss of prairie habitat in North America may have contributed to the decline of the eskimo curlew, but the primary reason for the rarity of the bird was market hunting in the late 1800s and early 1900s (Gollop et al. 1986). No suitable habitat for the eskimo curlew occurs on the ARPA and the species has not been reported within or near the ARPA (WGFD 2003, WYNDD 2003).

Pallid Sturgeon

The pallid sturgeon is a native fish found in the Mississippi/Missouri River system. The pallid sturgeon is present in the Platte River, a tributary to the Missouri River, located downstream from a portion of the ARPA. Suitable habitat for the pallid sturgeon consists of large turbid rivers with sand or gravel bottoms. The pallid sturgeon is threatened by habitat degradation such as decreased turbidity, which can be caused by impoundments.

Western Prairie Fringed Orchid

The western prairie fringed orchid is a long-lived perennial herb with stems that can grow to 1.2 m tall from an underground tuber. The plant blooms for about a three-week period starting in mid-June in the southern portion of its range to late July in the north. Habitat of the western prairie fringed orchid is the western portions of the North American tallgrass prairie and it is most commonly observed on moist, calcareous soils, sub-saline prairies and sedge meadows (many flooded for a period of 1-2 weeks during the year). Published accounts and herbarium records suggest that this plant was widespread and perhaps locally common prior to European settlement. Declines are due to the extensive and on-going conversion of the tallgrass prairie to agricultural uses throughout its range (description adapted from NatureServe Explorer 2004).

The western prairie fringed orchid was designated as a threatened species in its entire range in 1989. Within the area covered by this listing, this species is known to occur in Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, Oklahoma, and in Manitoba Province, Canada (NatureServe 2003).

4.0 Direct and Indirect Impacts of the Proposed Project

Although the total acres of wildlife habitat that would be disturbed under the action alternatives over the next twenty years is known, the distribution of this disturbance will not be known until actual site specific well locations and other disturbance activities are determined. Therefore, in order to assess the direct and indirect impacts of the proposed project, it was assumed that any section of land may potentially be developed at the level of 8 locations per section under the Proposed Action and Alternative B. Under Alternative C disturbance levels would be reduced. The extent of disturbance reduction would be determined by the site specific proposals that come forward and the development protection measures that apply.

4.1 Proposed Action

Under the Proposed Action up to 15,800 acres of wildlife habitat would be disturbed by construction activities over the next 20 years. With concurrent reclamation of disturbed habitats the total un-reclaimed disturbance area at any given point in time would never equal the sequential total. Under the Proposed Action, reclamation would reduce impacts to about 6,200 acres or 2.3% of the ARPA by the end of the development phase of the project. Reclamation success will be influenced by timing of reclamation and climatic conditions.

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4.1.1 Threatened, Endangered, Proposed, and Candidate Species

Black-footed Ferret

295 white-tailed prairie dog colonies, comprised of 6,300 acres (2.3% of the area) existing within the ARPA. A total of 273 white-tailed prairie dog colonies within the ARPA, covering 5,720 acres, are located within the Dad Complex and are not included under the block clearance. These colonies meet requirements for consideration as black-footed ferret habitat (Biggins et al. 1989). Development of the Proposed Action would likely result in direct disturbance of some portions of these prairie dog colonies.

Surveys for black-footed ferrets may be required prior to ground disturbing activities within prairie dog colonies located in the Dad Complex. Surveys would be conducted according to U.S. FWS guidelines (USDI-FWS 1989). The remaining white-tailed prairie dog colonies within the ARPA are in the “block clearance” area, where surveys for black-footed ferrets are no longer required. However, these towns located within the block-clearance area should be examined for their potential to provide habitat for relocation of black-footed ferrets.

Projects would not be authorized within white-tailed prairie dog colonies within the Dad Complex unless surveys for black-footed ferrets have been completed. If surveys are required, consultation with the FWS will be initiated prior to surveys being conducted. If black-footed ferrets are found, no project related disturbance will occur within the prairie dog complex and all project related activities in such towns or complexes shall be suspended immediately. The FWS will be notified within 24 hours if a black-footed ferret or their sign is observed. Although black-footed ferrets may be affected by this project, as long as the prescribed avoidance and protective measures (listed in the *Conservation Measures* section) are implemented, they are unlikely to be adversely affected.

Bald Eagle

Bald eagles have been observed on the project area primarily during December, January, and February (WGFD 2003). The majority of bald eagle locations on the project area are in the southern portion of the ARPA, close to the Little Snake River. Bald eagles may utilize the project area for foraging during winter months because a large portion consists of winter range for antelope, mule deer, and elk.

Upland habitat use by bald eagles within the project area would probably be limited to winter scavenging forays. Few trees large enough for eagle roosting or nesting exist on the project area. Inspection of BLM raptor nest records, WGFD WOS records, and results of aerial and ground raptor nest surveys performed by HWA revealed that no bald eagle nests occur within the ARPA.

The southern portion of the project area, closest to the Little Snake River, has the highest potential for bald eagle occurrence. This portion of the ARPA contains crucial winter range for elk, mule deer, and pronghorn. The potential for vehicle collisions with big game would increase as a result of increased vehicular traffic associated with the presence of construction crews and activities in the project area. Because bald eagles commonly feed on carrion, particularly during the winter months, the presence of road-killed big game carcasses on and adjacent to the access roads is an attractant. Eagles feeding on these carcasses are in danger of being struck by moving vehicles. Any increase in the death rate of bald eagles from vehicular collisions will constitute a significant impact. Because the potential for an increase in the incidence of big game-vehicle-eagle encounters exists, measures to avoid and/or reduce such incidents will be

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taken. Such measures shall include: (1) requirement that regular drivers undergo training describing the circumstances under which vehicular collisions with bald eagles are likely to occur and the measures that can be employed to minimize them, including reduced speeds, (2) prohibition of unnecessary off-site activities of operational personnel and inform all project employees of applicable wildlife laws and penalties associated with unlawful take and harassment, (3) removal of vehicle-killed carcasses from the ROWs of access roads on the project area to eliminate the exposure of carrion-feeding eagles to the threat of being struck by vehicles, and (4) operators will internally enforce existing drug, alcohol, and firearms policies. Given the implementation of these measures, the bald eagle may be affected, but is not likely to be adversely affected.

Blowout Penstemon

Blowout penstemon is known to occur in certain habitats south of the Ferris Mountains in the northern part of Carbon County. The plant has the potential to occur on the project area (Fertig 2001, FWS 2002) only in the Sand Hills area where a few active sand dunes are known to exist (Warren 2002). However, the species was not found during field surveys of this area by WYNDD personnel in June 2000 (Fertig 2000). Given the presence of potential habitat within the ARPA, implementation of the action alternatives may directly impact some individual plants of this species. Should this species be found within the ARPA, the specific sites where it is found would be avoided to prevent any potential impacts.

Ute Ladies'-tresses

The known locations of Ute ladies'-tresses in Wyoming include Converse, Goshen, Laramie, and Niobrara Counties. Potentially suitable habitats for this species are very limited within the ARPA. This species is not known to occur within the ARPA and the likelihood of it occurring in the ARPA is low due to the following reasons: (1) much of the ARPA is very arid and there are few perennial streams, (2) the elevation of the project area is near the upper limit for the species, (3) very few moist riparian area meadows are present, (4) the transition from stream margins to upland vegetation is abrupt, and (5) the species has only been located in eastern and southeastern Wyoming (Fertig 2002). Given the presence of potential habitat within the ARPA, there is a slight chance of impacts due to the low likelihood of it occurring. If this species is found within the ARPA in the future, the specific sites where it is found would be avoided to prevent any potential impacts.

4.1.2 Colorado River Species

Four federally endangered fish species may occur as downstream residents of the Colorado River system: Colorado pikeminnow, bonytail, humpback chub, and razorback sucker (USDI-FWS 2004a). All four of these fish species share similar habitat requirements and historically occupied the same river systems. Declines in populations of these species are mainly attributed to impacts of water development (e.g. dams and reservoirs) on natural temperature and flow regimes, creation of migration barriers, habitat fragmentation, the introduction of competitive and predatory non-native fishes, and the loss of inundated bottom lands and backwater areas (Minckley and Deacon 1991, USDI-FWS 1993).

Under the action alternatives, no produced water will be discharged to the Colorado River system; therefore, produced water discharges do not pose a risk to these species. Implementation of all appropriate mitigation measures for water resources and soils identified in the ARPA would prevent potential downstream sedimentation and/or contamination caused by

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construction activities. Therefore, water quality in the Colorado River system is not expected to be impacted under any of the action alternatives.

Limited water depletions within the Colorado River system are expected from drilling activities within the ARPA. Water depletion from the Colorado River system as a result of road/pad construction and dust abatement would be approximately 10.3 acre-feet per year for the entire project area, and a mitigation fee would not be applicable. Water depletions to the Colorado River system as a result of this project may adversely affect these four fish species. This determination is based on the Recovery and Implementation Program for Endangered Fish Species in the Upper Colorado River Basin which was initiated on January 22, 1988. The Recovery program was intended to be the reasonable and prudent alternative to avoid jeopardy to the endangered fish by depletions from the Upper Colorado River. A part of the Recovery Program was the requirement that if a project was going to result in a depletion, a depletion fee would be paid to help support the Recovery Program. On July 5, 1994, the Service issued a biological opinion determining that the fee for depletions of 100 acre-feet or less would no longer be required. This was based on the premise that the Recovery Program has made sufficient progress to be considered the reasonable and prudent alternative avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat by depletions of 100 acre-feet or less.

4.1.3 Platte River Species

The whooping crane, interior least tern, piping plover, Eskimo curlew, pallid sturgeon, and western prairie fringed orchid are all found downstream of the ARPA along the Platte River. No habitat for any of these species occurs on the ARPA and they are not likely to occur there. Under any of the action alternatives, no produced water will be discharged to the Platte River system; therefore, produced water discharges do not pose a risk to these species. Implementation of all appropriate mitigation measures for water resources and soils identified in the ARPA would prevent potential downstream sedimentation and/or contamination caused by construction activities. Therefore, water quality in the Platte River system is not expected to be impacted under any of the action alternatives. No water depletion from the Platte River system will occur as a result of the proposed project.

4.2 Alternative A – No Action

Under Alternative A no wildlife habitat would be disturbed.

4.3 Alternative B – Sequential Alternative

Under this alternative construction activities would be focused into one of three discrete areas at any one time. This would localize and intensify wildlife and habitat disturbance within the area of construction activities, but would minimize disturbance throughout the remaining project area. Disturbance associated with operational activities would gradually increase throughout the ARPA as the project progresses and would be ultimately similar in effect to the Proposed Action when construction activities are completed.

4.4 Alternative C – Spatial

Development for natural gas would occur as in the proposed action, but would be conditioned with the application of required development protection measures in those areas with sensitive

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or crucial resource values. These types of areas are unique enough to require additional protective measures beyond what is already provided by applying the standard Best Management Practices (BMPs) (Appendices H and I), lease stipulations, and Conditions of Approval (COAs). With a focus on surface disturbance limits, limited operating periods, modification of drilling and construction practices, and, in some cases, no surface occupancy surface disturbance extents would be limited to about 50 % of the Proposed Action and Alternative B. Resource data, in the form of GIS layers, would be used to identify specific areas of resource concern. Geographic information system (GIS) layers would be available to operators for their development of the annual program of work, and to the BLM in assessing and approving those proposals while reducing adverse impacts to those sensitive and / or crucial resource values.

5.0 Cumulative Impacts

The cumulative impact analysis (CIA) approach is used to evaluate the influences of recent, past, present, and reasonably foreseeable future human developments on the local wildlife resources. This approach examines impacts associated with a proposed project in context with all other past and future developments, whether or not they are related. It also allows the wildlife manager and land management agency to evaluate impacts on a broader scale. The BLM recommends evaluating cumulative impacts on a watershed basis for natural resources related to watershed function and stability.

Existing disturbance within the ARPA is approximately 763 acres, or around 0.28 percent of the 270,000 acres comprising the project area. During the construction phase, the Proposed Action and Alternative B would disturb up to 15,800 acres or 5.9 % of the overall project area. Alternative A (no action) would not disturb any acreage. Alternative C is estimated to disturb approximately half that of the Proposed Action or 7,900 acres for 2.9 % of the overall project area. Disturbance areas within the ARPA would be reduced upon reclamation of pipeline ROWs, unused portions of the drill pad, portions of roads, and ancillary facility disturbances during the production phase for each alternative, resulting in long-term disturbance of about 6,200 acres under the Proposed Action and Alternative B, 3,100 acres under Alternative C, and no acreage under Alternative A.

Black-footed Ferret

Provided that avoidance measures outlined in this document are followed, the potential for an incremental increase in cumulative impacts due to the implementation of the Proposed Action or Alternatives B or C may affect the black-footed ferret but is not likely to adversely affect the black-footed ferret.

Bald Eagle

Bald eagles are not known to nest on the ARPA, but may use portions of the project area, especially during winter months when carrion is available. Provided that avoidance measures outlined in this document are followed, the potential for an incremental increase in cumulative impacts due to the implementation of the action alternatives (Proposed Action, B, C) or Alternative A (No Action) may affect but is not likely to adversely affect the bald eagle.

Blowout Penstemon

Implementation of the any of the alternatives is not expected to contribute cumulative impacts upon blowout penstemon due to a lack of confirmed occurrences of the species within the

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ARPA. Should surveys identify populations of blowout penstemon, such populations and associated habitats would be avoided.

Ute Ladies'-tresses

Implementation of the any of the alternatives is not expected to contribute to cumulative impacts upon Ute ladies-tresses due to a lack of confirmed occurrences of the species within the ARPA. Should surveys identify populations of blowout penstemon, such populations and associated habitats would be avoided.

Colorado River Species

On July 5, 1994, the Service issued a biological opinion determining that the fee for depletions of 100 acre-feet or less would no longer be required. This was based on the premise that the Recovery Program has made sufficient progress to be considered the reasonable and prudent alternative avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat by depletions of 100 acre-feet or less. Cumulative impacts to the endangered fish species that are downstream of the ARPA in the Colorado River are expected to be less than 100 acre-feet per year from the project, under any of the alternatives.

Platte River Species

These species do not occur on the ARPA and no water depletions to the Platte River system are expected, therefore implementation any of the alternatives would not contribute to cumulative impacts upon these species.

6.0 Conservation Measures to Avoid or Reduce Adverse Impacts

The following procedures will be implemented to eliminate or substantially reduce potential adverse effects of the proposed project to threatened, endangered, proposed, candidate, and petitioned species that may occur on or near the ARPA or that may be impacted by the project.

- If disturbance of prairie dog colonies located within the Dad Complex can not be avoided, black-footed ferret surveys will be conducted according to FWS guidelines (USDI-FWS 1989) if the affected towns meet the survey requirements.
- Well pads and disturbances shall be placed outside of (50 m) prairie dog colonies where feasible. In the non-block cleared areas of the ARPA, any construction would require block surveys for the presence of black-footed ferrets. In those area that are block cleared, disturbance is minimized to limit disturbance to as few a burrows as possible.
- Should black-footed ferrets be documented in a prairie dog complex located within the project area, impacts to the species or its habitat will be suspended immediately.
- The operators shall conduct educational outreach to employees regarding the nature, hosts, and symptoms of canine distemper, and its effects on black-footed ferrets, focusing attention on why pets should be prohibited from work sites.
- All suspected observations of black-footed ferrets, their sign, or carcasses on the ARPA, however obtained, shall be promptly (within 24 hours) reported to the BLM and FWS.

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- All drivers shall undergo a training session describing the type of wildlife in the area that are susceptible to vehicular collisions in order to reduce the potential for vehicle-big game collisions and subsequent jeopardy to bald eagles feeding on road-killed carrion. The circumstances under which such collisions are likely to occur, and the measures that could be employed to minimize them shall be discussed. Reduced speed limits shall be implemented to reduce potential for vehicle-wildlife collisions.
- Carcasses shall be removed from access roads, shoulders, and the ROWs to minimize bald eagle exposure to vehicles.
- Remote monitoring of project facilities would be utilized to the extent possible to reduce human activity levels within the gas field during the production phase.
- All appropriate sedimentation, erosion control, and produced water control measures included in the Record of Decision will be implemented to avoid changes in water quality or quantity in the streams within the ARPA.
- Construction equipment fueling and servicing areas shall be located at least 150 feet from surface water drainages and riparian areas and away from slopes that drain into those areas.
- High construction standards and rigid safety precautions that adhere to approved design criteria to minimize the potential for an accidental spill or discharge of any chemical or petroleum product into surrounding watershed systems shall be implemented.
- As a safety measure, buffer zones of undisturbed vegetation along water courses shall be maintained to inhibit transport of potentially contaminated runoff to surface waters.

7.0 Effects of the Project on the Expected Status of Species in the Future

Provided that the conservation measures described above are implemented, the proposed action and alternatives are not expected to alter the current status of, or result in any decreased survival of, any of the species discussed in this document during the project or after project completion.

8.0 Determination of Effects for Listed Species

Black-footed Ferret

Based upon the analyses of the alternatives, the current and potential status of the species in the project area, other land use activities in the area, and incorporation of the conservation measures recommended in this BA, it is concluded that implementation of the alternatives **may affect** but is **not likely to adversely affect** the black-footed ferret.

Canada Lynx

Based on the lack of suitable habitat in the project area it is unlikely that lynx would occur on the ARPA. Therefore, the alternatives would have **no effect** on the Canada lynx.

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Preble's Meadow Jumping Mouse

Based upon the known distribution of the Preble's meadow jumping mouse it is extremely unlikely that they would occur on the ARPA. Therefore, the alternatives would have **no effect** on the Preble's meadow jumping mouse.

Bald Eagle

Based upon the analyses of the alternatives, the current and potential status of the species in the project area, other land use activities in the area, and incorporation of the conservation measures recommended in this BA, it is concluded that implementation of the alternatives **may affect** but is **not likely to adversely affect** the bald eagle.

Wyoming Toad

Based upon the known and historic distribution of the Wyoming toad it is extremely unlikely that they would occur on the ARPA. Therefore, the alternatives would have **no effect** on the Wyoming toad.

Blowout Penstemon

Based upon the analyses of the alternatives, the current status of these species, other land use activities in the area, and incorporation of the conservation measures recommended in this BA, it is concluded that implementation of the alternatives **may affect** but is **not likely to adversely affect** blowout penstemon.

Ute ladies'-tresses

Based upon the analyses of the alternatives, the current status of these species, other land use activities in the area, and incorporation of the conservation measures recommended in this BA, it is concluded that implementation of the alternatives **may affect**, but is **not likely to adversely affect** Ute ladies'-tresses.

Colorado Butterfly Plant

Based upon the known distribution of the Colorado butterfly plant it is extremely unlikely that they would occur on the ARPA. Therefore, the alternatives would have **no effect** upon the Colorado butterfly plant.

Colorado River Species

On July 5, 1994, the Service issued a biological opinion determining that the fee for depletions of 100 acre-feet or less would no longer be required. This was based on the premise that the Recovery Program has made sufficient progress to be considered the reasonable and prudent alternative avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat by depletions of 100 acre-feet or less. Impacts to the endangered fish species that are downstream of the ARPA in the Colorado River are expected to be less than 100 acre-feet per year, under any of the alternatives.

The Colorado pikeminnow, bonytail, humpback chub, and razorback sucker do not occur on the ARPA and the minimal water depletions to the Colorado River system that may occur would impact these species. Therefore, it is concluded that implementation of the action alternatives is **likely to adversely affect** these fish species.

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Platte River Species

The whooping crane, interior least tern, piping plover, Eskimo curlew, pallid sturgeon, and western prairie fringed orchid do not occur on the ARPA and no water depletions to the Platte River system would occur. Therefore, it is concluded that implementation of the Proposed Action and any of the alternatives would have **no effect** upon these species.

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