

**APPENDIX E**

**BIOLOGICAL ASSESSMENT  
FOR THE MAYSDORF LBA TRACT EIS**

## TABLE OF CONTENTS

	<u>Page</u>
E-1.0 INTRODUCTION.....	E-1
E-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES..	E-4
E-2.1 The Proposed Action .....	E-4
E-2.2 Alternatives to the Proposed Action.....	E-7
E-2.2.1 Alternative 1 .....	E-7
E-2.2.2 Alternative 2 .....	E-7
E-2.2.3 Alternative 3.....	E-9
E-3.0 CONSULTATION TO DATE .....	E-10
E-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT.....	E-12
E-4.1 Threatened Species.....	E-16
E-4.1.1 Bald eagle ( <i>Haliaeetus leucocephalus</i> ).....	E-16
E-4.1.2 Ute ladies'-tresses orchid ( <i>Spiranthes diluvialis</i> ) .....	E-20
E-4.2 Endangered Species .....	E-23
E-4.2.1 Black-footed ferret ( <i>Mustela nigripes</i> ) .....	E-23
E-5.0 SUMMARY OF DETERMINATIONS .....	E-25
E-6.0 REGULATORY REQUIREMENTS AND MITIGATION.....	E-26
E-7.0 CUMULATIVE IMPACTS .....	E-27
E-8.0 CREDENTIALS OF SURVEY PERSONNEL .....	E-30
E-9.0 REFERENCES AND LITERATURE CITED .....	E-31

## LIST OF TABLES

Table E-1. Effects Evaluation of Federal T&E Species in the Area of the Maysdorf LBA Tract.....	E-25
--	------

## LIST OF FIGURES

Figure E-1. General Location Map with Federal Coal Leases and LBA Tracts .....	E-2
Figure E-2a. Maysdorf LBA Alternative Tract Configurations .....	E-3
Figure E-2b. Maysdorf LBA Preferred Alternative Tract Configuration .....	E-3
Figure E-3. Surface Ownership Within and Adjacent to the Maysdorf LBA Tract.....	E-5
Figure E-4. T&E Animal Species Survey Area for the Cordero Rojo Mine and Maysdorf LBA Tract. ....	E-14
Figure E-5. Bald Eagle Roost Location with Respect to Nearby Disturbance Areas, Powerlines, and Sheep Ranching Operation.....	E-18

## **E-1.0 INTRODUCTION**

In 2001, Cordero Mining Company (CMC), operator of the Cordero Rojo Mine in Campbell County, Wyoming filed an application with the Bureau of Land Management (BLM) to lease the federal coal reserves included in a maintenance coal tract under the regulations at 43 CFR 3425, Leasing on Application. The environmental impacts of leasing this tract are being evaluated in the Maysdorf Coal Lease Application Environmental Impact Statement (EIS). The tract, referred to as the Maysdorf Lease by Application (LBA) Tract, and applicant mine are shown in Figures E-1, E-2a, and E-2b. The Cordero Rojo Mine is comprised of the Cordero Mining Company (CMC) Mine and the contiguous Caballo Rojo, Inc. (CRI) Mine. CMC is presently consolidating the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) mining permits for the CMC and CRI Mines into a single WDEQ/LQD mining permit for the Cordero Rojo Mine; the combined permit area will include approximately 16,804 acres.

The purpose of this Biological Assessment is to provide information about the potential effects that leasing the Maysdorf LBA Tract would have on federally listed threatened or endangered (T&E) species. T&E species are managed under the authority of the Endangered Species Act (ESA) of 1973 (PL 93-205, as amended). The ESA requires Federal agencies to ensure that all actions which they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of their critical habitat. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

This Biological Assessment was prepared to disclose the possible effects to T&E species (plant and animal) that are known to be present or that may be present within the area influenced by the Proposed Action and the alternatives to the Proposed Action being evaluated by the BLM. It was prepared in accordance with Section 7 of the ESA.

Biological Assessment objectives are:

1. To comply with the requirements of the ESA that actions of federal agencies not jeopardize or adversely modify critical habitat of federally listed species.
2. To provide a process and standard by which to ensure that threatened or endangered species receive full consideration in the decision making process.

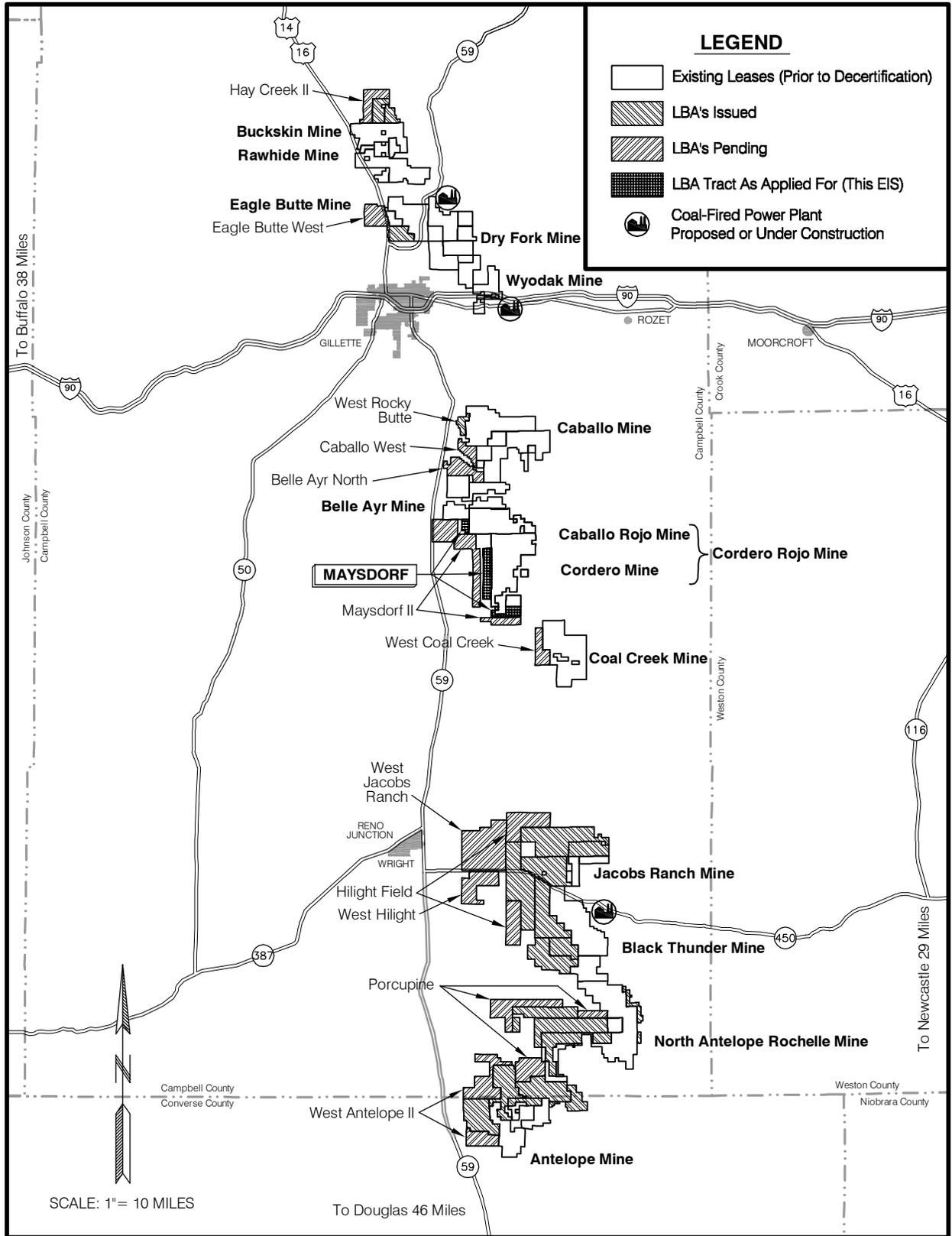


Figure E-1. General Location Map with Federal Coal Leases and LBA Tracts.

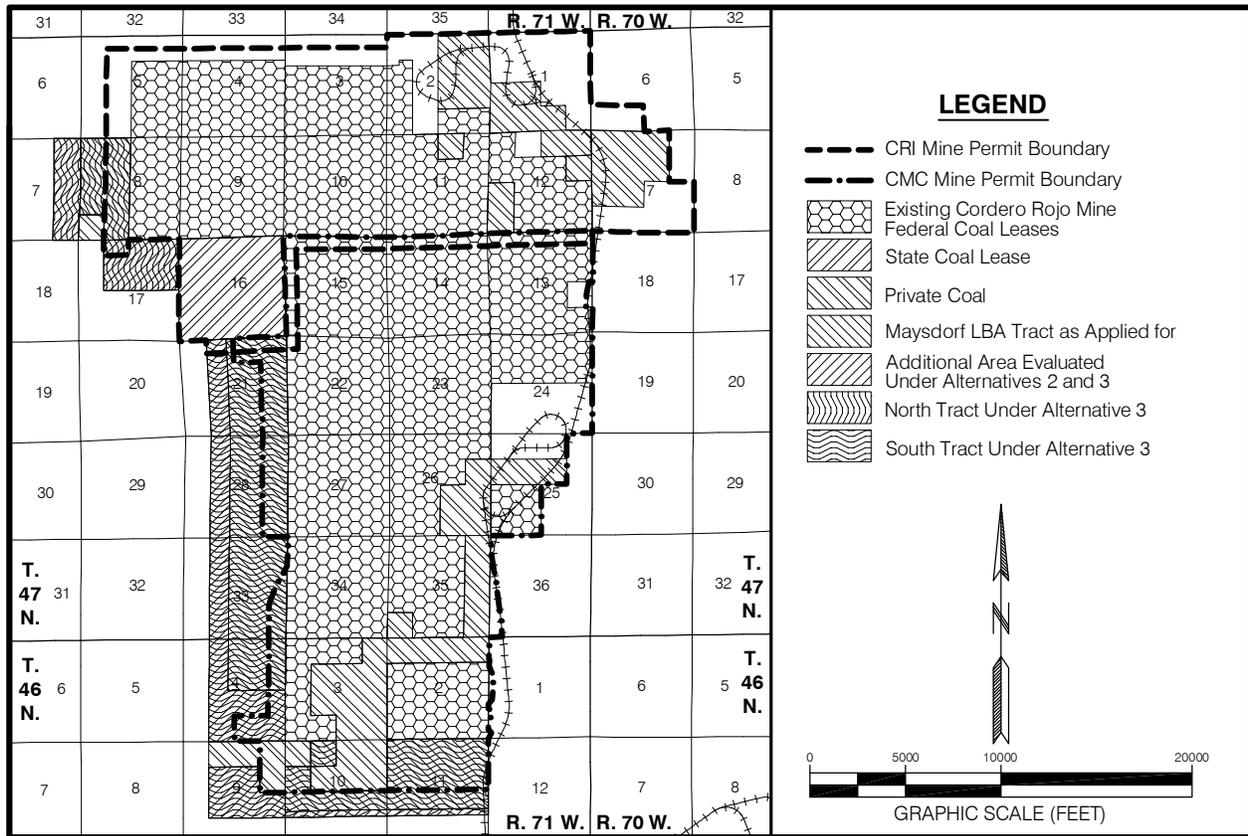


Figure E-2a. Maysdorf LBA Alternative Tract Configurations.

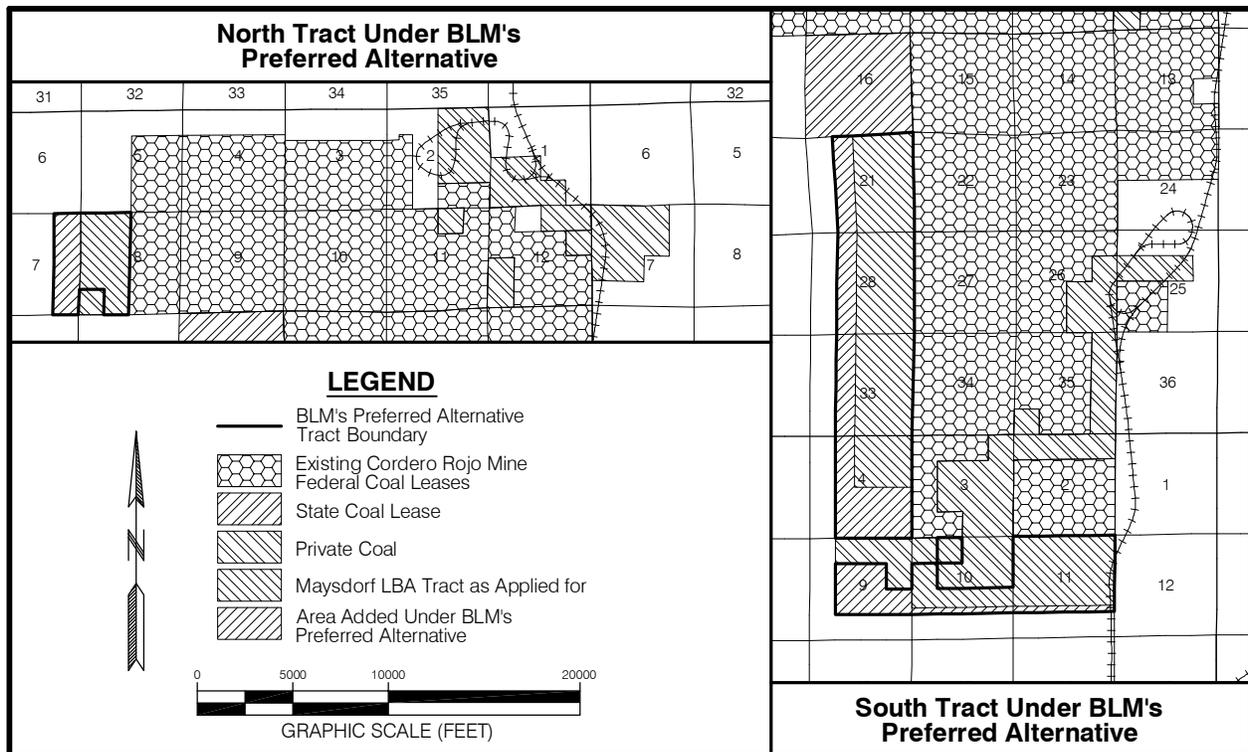


Figure E-2b. Maysdorf LBA Preferred Alternative Tract Configuration.

**E-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

**E-2.1 The Proposed Action**

On September 20, 2001, CMC filed an application with the BLM to lease federal coal reserves in a tract located west of and immediately adjacent to the Cordero Rojo Mine. Under the Proposed Action for the Maysdorf LBA Tract, the tract as applied for by CMC would be offered for lease at a sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the Maysdorf LBA Tract lease application (Figures E-2a and E-2b). The Proposed Action assumes that CMC will be the successful bidder on the Maysdorf LBA Tract if it is offered for lease.

The legal description of the proposed Maysdorf LBA Tract coal lease lands as applied for by CMC under the Proposed Action is as follows:

T.46N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 4: Lots 5, 6, 7(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 10(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 11, and 12;	185.05
Section 10: Lots 1, 2, 3(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), 4(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), 5(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), and 6(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ );	203.32
Section 11: Lots 1 through 8, 9(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), 10(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), 11(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ ), and 12(N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ );	446.80

T.47N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 8: Lots 3 through 6 and 11 through 13;	278.36
Section 21: Lots 1, 2, 3(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 7 through 10, 11(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 14(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 15, and 16;	364.77
Section 28: Lots 1, 2, 3(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 7 through 10, 11(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 14(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 15, and 16;	369.71
Section 33: Lots 1, 2, 3(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 7 through 10, 11(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 14(E $\frac{1}{2}$ E $\frac{1}{2}$ ), 15, and 16;	371.38

Total Acreage: 2,219.39

The coal estate underlying this tract is owned by the federal government and administered by the BLM. The surface estate on this tract is privately and federally owned. The federal surface estate is administered by the BLM. Surface ownership is shown in Figure E-3.

The tract as applied for includes approximately 2,219.39 mineable acres. It is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside of the tract would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

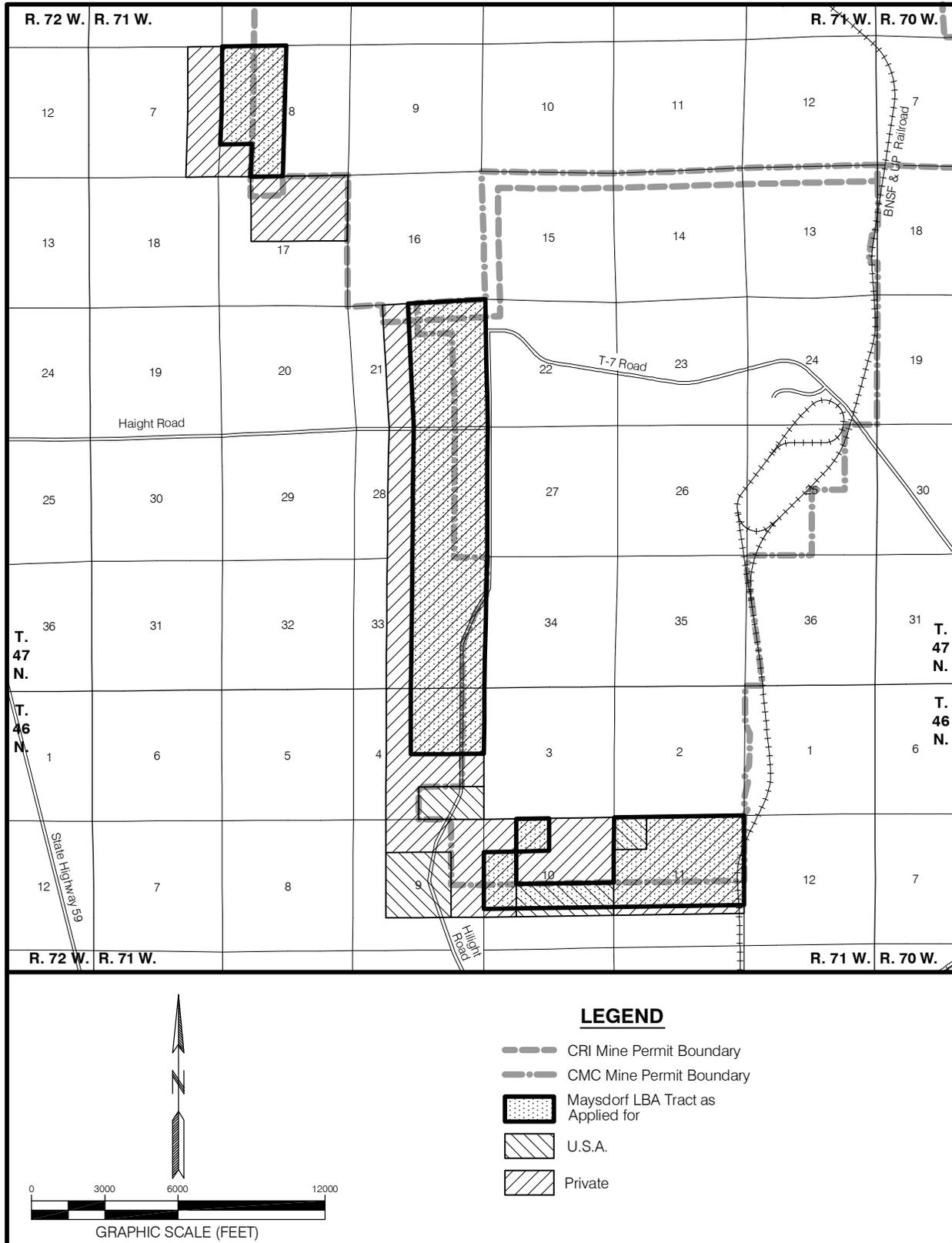


Figure E-3. Surface Ownership Within and Adjacent to the Maysdorf LBA Tract.

Under the Proposed Action for the Maysdorf LBA Tract, if a decision is made to hold a competitive lease sale and if there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. The tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming Powder River Basin (PRB). The stipulations that would be attached to a lease for the Maysdorf LBA Tract are listed in Appendix D of the Maysdorf Coal Lease Application EIS. The following stipulation relating to T&E species is one of the special stipulations developed for the Wyoming PRB:

***THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES*** - *The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened or endangered under the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq., or that have other special status. The Authorized Officer may recommend modifications to exploration and development proposals to further conservation and management objectives or to avoid activity that will contribute to a need to list such species or their habitat or to comply with any biological opinion issued by the Fish and Wildlife Service for the Proposed Action. The Authorized Officer will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act. The Authorized Officer may require modifications to, or disapprove a proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species, or result in the destruction or adverse modification of designated or proposed critical habitat.*

*The lessee shall comply with instructions from the Authorized Officer of the surface managing agency (BLM, if the surface is private) for ground disturbing activities associated with coal exploration on federal coal leases prior to approval of a mining and reclamation permit or outside an approved mining and reclamation permit area. The lessee shall comply with instructions from the Authorized Officer of the Office of Surface Mining Reclamation and Enforcement, or his designated representative, for all ground disturbing activities taking place within an approved mining and reclamation permit area or associated with such a permit.*

Not all of the coal included in the Maysdorf LBA Tract is considered to be mineable at this time. CMC estimates that approximately 4.5 million tons of the coal included in the tract are located within the BNSF & UP railroad ROW. The coal underlying the ROW is considered to be unmineable at this time because the cost of moving the railroad would make recovery of the underlying coal economically unfeasible. Although the coal included in the ROW would not be recovered from these lands, they are included in the tract to allow maximum recovery of all the mineable coal outside of the railroad ROW and associated buffer zone and to comply with the coal leasing regulations, which do not allow leasing of less than 10-acre aliquot parts.

The Maysdorf tract also includes an area where no coal is present due to erosion or non-deposition (a “no-coal” zone). It trends east-west throughout the central portion of Section 4, T.46N., R.71W. It is postulated (CMC 2004) that an ancient drainage channel (or paleochannel) eroded and removed the coal and replaced it with unconsolidated fine sand, occasional gravel, and silty clays. The “no-coal” zone is included in the tract to allow maximum recovery of all of the surrounding mineable coal.

Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing Cordero Rojo Mine. As a result, under the Proposed Action, the coal included in the tract would be mined by existing employees, using existing facilities and roads.

## **E-2.2 Alternatives to the Proposed Action**

### E-2.2.1 Alternative 1

Under Alternative 1, the No Action Alternative, the application to lease the federal coal included in the Maysdorf LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not be mined. This would not affect permitted mining activities and employment on the existing leases at Cordero Rojo Mine and would not preclude an application to lease the federal coal included in the Maysdorf LBA Tract in the future. Portions of the surface of the Maysdorf LBA Tract would be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

### E-2.2.2 Alternative 2

Under Alternative 2 for the Maysdorf LBA Tract, BLM would reconfigure the tract, hold a competitive coal sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. In order to evaluate the potential that an alternate configuration of the tract would provide for more efficient recovery of the federal coal, increase competitive interest in the Maysdorf LBA Tract, and/or reduce the potential that some of the remaining unleased federal coal in this area would be bypassed in the future, BLM identified a study area, shown in Figure E-2a. The BLM study area includes unleased federal coal adjacent to the western and southern edges of the tract as applied for. The modified tract would be subject to standard and special lease stipulations developed for the PRB and this tract if it is offered for sale, as discussed above. Alternative 2 for the Maysdorf LBA Tract assumes that CMC would be the successful bidder on the tract if a lease sale is held and that the tract would be mined as a maintenance lease for the Cordero Rojo Mine. Other assumptions are the same as for the Proposed Action. The lands that BLM is considering adding to the tract are:

Appendix E

T.46N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 4: Lots 7(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 10(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 13 through 15, and 18 through 20;	305.99
Section 9: Lots 1 through 5;	204.50
Section 10: Lots 3(S $\frac{1}{2}$ S $\frac{1}{2}$ ), 4(S $\frac{1}{2}$ S $\frac{1}{2}$ ), 5(S $\frac{1}{2}$ S $\frac{1}{2}$ ), and 6(S $\frac{1}{2}$ S $\frac{1}{2}$ );	40.66
Section 11: Lots 9(S $\frac{1}{2}$ S $\frac{1}{2}$ ), 10(S $\frac{1}{2}$ S $\frac{1}{2}$ ), 11(S $\frac{1}{2}$ S $\frac{1}{2}$ ), and 12(S $\frac{1}{2}$ S $\frac{1}{2}$ );	40.48

T.47N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 7: Lots 5, 12, 13, and 20;	167.53
Section 17: Lots 1 through 3, and 5 through 7;	241.27
Section 21: Lots 3(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 11(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), and 14(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ );	119.62
Section 28: Lots 3(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 11(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), and 14(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ );	124.16
Section 33: Lots 3(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 6(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), 11(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ ), and 14(W $\frac{1}{2}$ , W $\frac{1}{2}$ E $\frac{1}{2}$ );	123.80
Total Acreage:	<u>1,368.01</u>

In evaluating the study area, BLM has made a decision to include all of the study area except for Section 17, T.47N., R.71W. in the Maysdorf LBA Tract, if a decision is made to offer the tract for lease.

The legal description of the BLM's preferred reconfiguration of the Maysdorf LBA Tract under Alternative 2 is as follows:

T.46N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 4: Lots 5 through 7, 10 through 15, and 18 through 20;	491.04
Section 9: Lots 1 through 5;	204.50
Section 10: Lots 1 through 6;	243.98
Section 11: Lots 1 through 12;	487.28

T.47N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 7: Lots 5, 12, 13 and 20;	167.53
Section 8: Lots 3 through 6, and 11 through 13;	278.36
Section 21: Lots 1 through 3, 6 through 11, and 14 through 16;	484.39
Section 28: Lots 1 through 3, 6 through 11, and 14 through 16;	493.87
Section 33: Lots 1 through 3, 6 through 11, and 14 through 16;	495.18
Total Acreage:	<u>3, 346.13</u>

CMC estimates that the reconfigured tract includes approximately 342.3 million tons of in-place coal. After eliminating coal that lies within the BNSF & UP railroad ROW (and the adjacent buffer zone), which would not be mined as discussed above, and the no-coal zone, CMC estimates that the reconfigured tract includes approximately 337.9 million tons of mineable coal. Using CMC's projected recovery factor of 94 percent, the reconfigured tract would contain about 317.6 million tons of recoverable coal.

E-2.2.3 Alternative 3

Under Alternative 3 for the Maysdorf LBA Tract, BLM is considering dividing the tract and offering two tracts for sale at separate, competitive sealed bid sales (Figure E-2b). The two tracts would each be subject to standard and special lease stipulations developed for the PRB and for each tract if they are offered for sale, as discussed above. Alternative 3, offering two tracts for sale, is the BLM's preferred alternative.

Alternative 3 for the Maysdorf LBA Tract assumes that CMC would be the successful bidder on the two tracts if lease sales are held and that the tracts would be mined as maintenance leases for the Cordero Rojo Mine. Other assumptions would be the same as for the Maysdorf LBA Tract Proposed Action.

As shown in Figure E-2a, the Maysdorf LBA Tract is comprised of three non-contiguous blocks of federal coal. Under Alternative 3, the North Maysdorf LBA Tract would consist of the northernmost block of coal and the South Maysdorf LBA Tract would consist of the two southern blocks of coal, as shown in Figure E-2b. BLM is considering dividing the tract because the north tract would potentially be of competitive interest to more than one mine.

As discussed under Alternative 2, BLM has identified a study area, described above and shown in Figure E-2a as the "Area Added Under Alternative 2". Under Alternative 3, the BLM could add all, part, or none of the study area to the Maysdorf LBA Tract as applied for.

In evaluating the study area, BLM has made a decision to include all of the study area except Section 17, T.47N., R.71W. in the Maysdorf LBA Tract, if a decision is made to offer the tract for lease.

The lands that would be included in the north tract under BLM's preferred alternative are:

T.47N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 7: Lots 5, 12, 13, and 20;	167.53
Section 8: Lots 3 through 6 and 11 through 13;	278.36

## Appendix E

---

Total Acreage: 445.89

The lands that would be included in the south tract under BLM's preferred alternative are:

### T.46N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

	<u>Acres</u>
Section 4: Lots 5 through 7, 10 through 15, and 18 through 20;	491.04
Section 9: Lots 1 through 5;	204.50
Section 10: Lots 1 through 6;	243.98
Section 11: Lots 1 through 12;	487.28

### T.47N., R.71W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 21: Lots 1 through 3, 6 through 11, and 14 through 16;	484.39
Section 28: Lots 1 through 3, 6 through 11, and 14 through 16;	493.87
Section 33: Lots 1 through 3, 6 through 11, and 14 through 16;	495.18

Total Acreage: 2,900.24

Under the Alternative 3 reconfiguration of the Maysdorf LBA Tract, the north tract would include approximately 445.89 acres containing approximately 52.8 million tons of in-place coal and the south tract would include 2,900.24 acres containing approximately 289.5 million tons of in-place coal, according to information provided by the applicant. The south tract includes the area that would not be mined within the BNSF & UP railroad ROW (and the adjacent buffer zone) and the no-coal zone, as discussed above.

### **E-3.0 CONSULTATION TO DATE**

The locations of the existing Cordero Rojo Mine coal leases, the existing approved mine permit area, and the Maysdorf LBA Tract are shown in Figure E-2a.

The Cordero Rojo Mine and Maysdorf LBA Tract are included in the area determined to be "acceptable for further consideration for leasing" as part of the coal screening process. The coal screening process is a four-part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5. BLM has applied these coal screens to federal coal lands in Campbell County several times, starting in the early 1980s. Most recently, in 1993, BLM began the process of reapplying these screens to federal coal lands in Campbell, Converse, and Sheridan Counties. The results of this analysis were included as Appendix D of the 2001 *Approved Resource Management Plan for Public Lands Administered by the BLM Buffalo Field Office* (BLM 2001), which can be viewed on the Wyoming BLM website at <http://www.wy.blm.gov> in the NEPA documents section. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the

unsuitability findings under Criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), Criterion 11 (Bald or Golden Eagle Nests), Criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), Criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and Criterion 14 (Habitat for Migratory Bird Species).

The coal screening process is discussed in Chapter 1, Section 1.5 of the Maysdorf Coal Lease Application EIS.

Appendix B of the Maysdorf Coal Lease Application EIS summarizes the unsuitability criteria, describes the general findings for the screening analyses discussed above, and presents a validation of these findings for the Maysdorf LBA Tract based on the current information.

Consultation with USFWS has previously been completed for the area included within the Cordero Rojo Mine's existing approved mining permit area, shown in Figure E-2a, as part of the mining and reclamation plan approval process. This process began when the CMC Mine and the CRI Mine were initially permitted in 1975 and 1980, respectively.

A letter dated February 11, 2002, from Michael Long, USFWS, Cheyenne, Wyoming to Debbie Messenheimer, Kennecott Energy, Gillette, Wyoming, documented approval of the current updated Raptor and Migratory Birds of High Federal Interest (MBHFI) Monitoring and Mitigation Plan for the CRI Mine.

A letter dated March 18, 2005, from Brian Kelly, USFWS, Cheyenne, Wyoming, to Jim Orpet (wildlife consultant for the Cordero Rojo Mine) of Intermountain Resources (IR) approved CMC's current Migratory Birds of High Federal Interest and Raptor Monitoring and Mitigation Plan.

USFWS provided scoping comments, including a list of the T&E species that may be present in the Maysdorf coal lease project area, to the BLM in a memorandum from Brian T. Kelly, USFWS, Wyoming Field Office, Cheyenne, Wyoming, to James Murkin, BLM, Casper Field Office, Casper, Wyoming dated February 15, 2005 (USFWS 2005). The following list of species that was provided by USFWS represents the federally listed T&E species that may be present in Campbell County, Wyoming:

Bald eagle (*Haliaeetus leucocephalus*): Threatened

Black-footed ferret (*Mustela nigripes*): Endangered

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The February 15, 2005 memorandum provided recommendations for protective measures for T&E species in accordance with the ESA. Protective measures for migratory birds in accordance with the Migratory Bird Treaty Act (MBTA) and

the Bald and Golden Eagle Protection Act (BGEPA) and recommendations for the protection of wetlands (under Executive Order 11990 and Section 404 of the Clean Water Act) and for other fish and wildlife resources (under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956) were also included. The memorandum identified the greater sage-grouse as a species of specific interest and the importance of identifying grouse habitats within the lease area and appropriate mitigation measures to minimize potential impacts to this species.

The Wyoming Game and Fish Department (WGFD) provided BLM with scoping comments for the CMC Maysdorf tract coal lease application in two letters from Bill Wichers, Deputy Director, WGFD, Cheyenne, Wyoming, to Nancy Doelger, BLM, Casper Field Office, Casper, Wyoming, dated March 31 and July 19, 2005 (WGFD 2005a and 2005b). WGFD recommended consideration be given to possible impacts to big game, sage grouse and their habitat, and aquatic resources of the Belle Fourche River, particularly the black bullhead, which is categorized by the state as a Status 3 species.

#### **E-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT**

The CMC Mine began producing coal in 1976 and the CRI Mine began producing coal in 1983. Wildlife monitoring has been conducted annually for the two mines since the early 1980s. This wildlife monitoring was designed to meet the WDEQ/LQD, WGFD, and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The monitoring programs were conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations. Because the areas covered in the wildlife surveys included the mines' permit areas and a large perimeter around the mines' permit boundaries, the entire Maysdorf LBA Tract has been included in baseline inventories and annual wildlife surveys conducted for the CMC and CRI Mines since wildlife surveys began.

Both the approved CMC Mine Permit 237 Term T7 (CMC 2004) and CRI Mine Permit 511 Term T6 (CRI 2002) include monitoring and mitigation measures for the Cordero Rojo Mine that are required by SMCRA and Wyoming State Law. CMC is working with the WDEQ/LQD to consolidate the CMC and CRI mining permits into a single mining permit for the Cordero Rojo Mine. CMC anticipates approval of the permit consolidation in late 2006 or early 2007. If the Maysdorf LBA Tract is acquired by CMC, these monitoring and mitigation measures would be extended to cover operations on the LBA tract when the Cordero Rojo Mine's mining permit is amended to include the tract. This amended permit would have to be approved before mining operations could take place on the tract. These monitoring and mitigation measures are considered to be part of the Proposed Action and the Alternatives 2 and 3 during the leasing process because they are regulatory requirements.

Background information on T&E species in the vicinity of the Maysdorf LBA Tract was drawn from several sources, including: wildlife survey reports submitted by CMC and CRI to the WDEQ/LQD from the 1970s through 2005, the Final South Powder River Basin Coal EIS (BLM 2003), a Wyoming Natural Diversity Database search (University of Wyoming 2001), and from WGFD and USFWS records and contacts in 2005.

Site-specific data for a substantial portion of the tract as applied for and the study area for Alternatives 2 and 3 were obtained from several sources, including WDEQ/LQD permit applications and annual wildlife reports for the CMC and CRI Mines and other nearby coal mines. Baseline wildlife studies were conducted by Intermountain Resources (IR) expressly for the Maysdorf LBA Tract beginning in February of 2005 and continuing through December of 2005. Figure E-4 depicts T&E animal species survey areas for the Cordero Rojo Mine and Maysdorf LBA Tract.

The topography within the vicinity of the LBA tract is mainly gently rolling and of moderate relief influenced by the Belle Fourche River. Elevation ranges from approximately 4,510 to 4,770 feet above sea level.

Predominant habitat types within the LBA tract and adjacent area consist primarily of sagebrush-grassland, with areas of sandy-grassland. Rough breaks and streamside bottomland areas occur primarily in the southern portion. Various relatively small parcels of crested wheatgrass pasture occur throughout the area and networks of road and well-pad disturbance areas overlay much of the sagebrush-grassland and sandy-grassland areas. There are also numerous tank batteries and miles of pipeline disturbance with varying degrees of recovering vegetation cover.

The Belle Fourche River passes through the southern part of the Maysdorf LBA Tract. All streams, including the Belle Fourche River, within and adjacent to the LBA tract are ephemeral. In response to surface discharge of groundwater associated with coal bed natural gas (CBNG) production upstream of the LBA tract, which is a relatively recent phenomenon, streamflow occurrence in the river is now more persistent. The Belle Fourche River and the distinctive shallow pools that are present along its natural course in the general analysis area are now seldom completely dry, resulting in an increase in habitat for waterfowl, shorebirds, and aquatic species. Six reservoirs used for livestock water are located in the tract, all of which are in T.47N., R.71W. Two areas on the tract do not drain toward any stream: a roughly 30-acre playa formed by a natural topographic depression exists in the northern portion of Section 4, T.46N., R.71W., and roughly a 40-acre playa formed by a natural topographic depression exists in the west-central portion of Section 21, T.47N., R.71W.

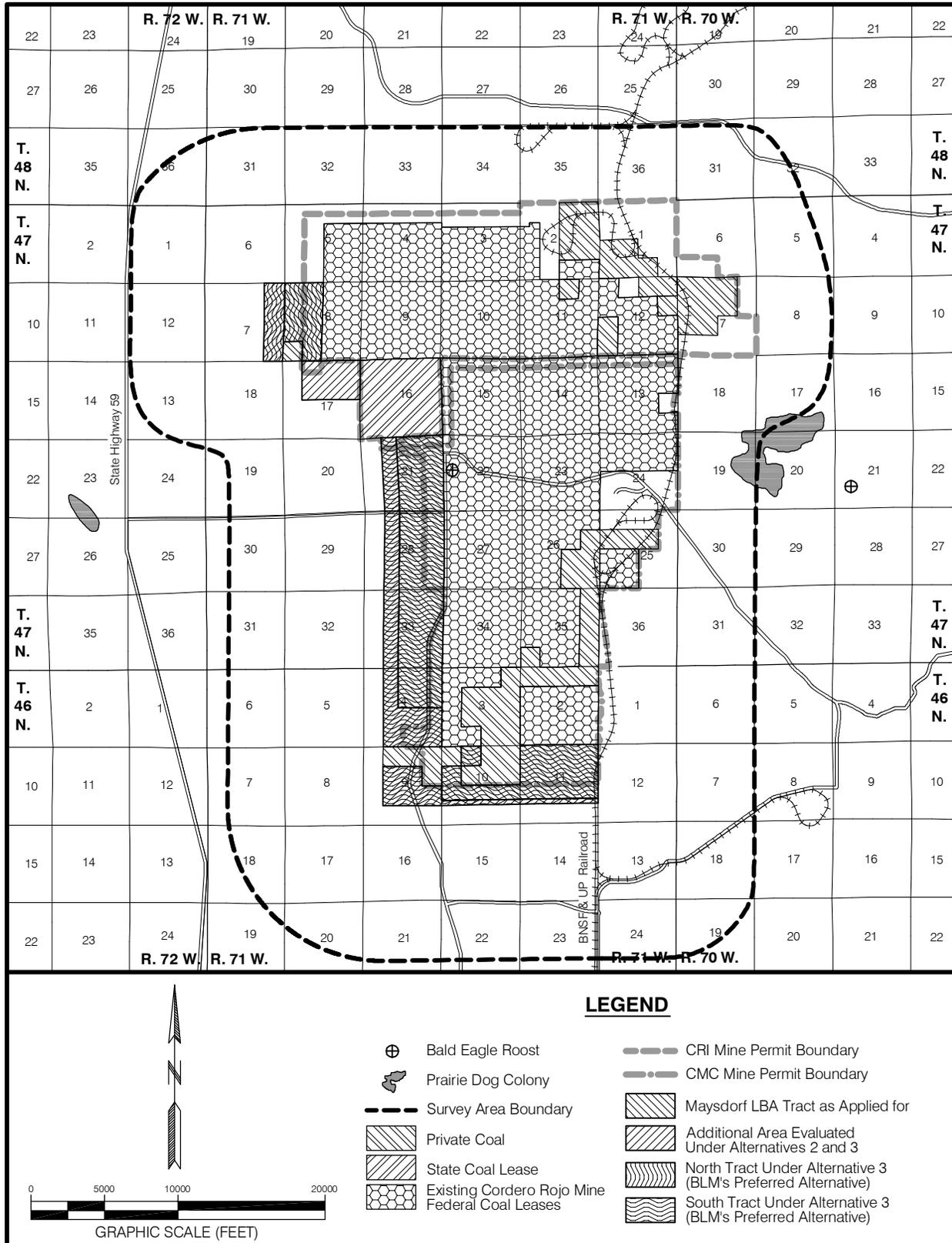


Figure E-4. T&E Animal Species Survey Area for the Cordero Rojo Mine and Maysdorf LBA Tract.

CMC's approved mining plan currently allows disturbance of the Belle Fourche River channel. The Belle Fourche River flows roughly east-northeast through the southern portion of the LBA tract and is currently diverted from its natural channel in this area to facilitate mining within the existing Cordero Rojo Mine permit area. The diversion channel was constructed in 1995. The diversion begins within the LBA tract area, near and parallel to the northern edge of Section 11, T.46N., R.71W., then extends to the north-northeast into the mine's existing permit area, across most of Section 2, T.46N., R.71W., where it rejoins the natural channel. Another channel diversion was constructed in 1977 in Sections 25 and 26, T.47N., R.71W., as part of the mine's railroad spur and loop construction. CMC would propose another diversion of the Belle Fourche River if they acquire a lease for the Maysdorf LBA Tract.

Wetland inventories, based on USFWS NWI mapping and vegetation mapping in the field, were completed in 2005 within a 5,590.65-acre area by CMC. The wetland analysis area includes the Maysdorf LBA Tract as applied for, the lands added under Alternatives 2 and 3, and a ¼-mile disturbance buffer around the tract sufficient to mine and reclaim the tract as a part of the existing Cordero Rojo Mine operation. A formal wetland delineation has been confirmed by the U.S. Army Corps of Engineers (COE) for the portion of the wetland analysis area (1,245.96 acres) that is within the current Cordero Rojo Mine permit area. The wetland inventory for the remainder of the area would be submitted to COE for verification as part of the mining and reclamation permit process, if the tract is leased.

Within the entire wetland analysis area, a total of 154.2 acres of Waters of the U.S. have been identified, including a total of 33.2 acres of jurisdictional Waters of the U.S. Approximately 30.0 of those acres are jurisdictional wetlands. Identified jurisdictional wetlands occur immediately along the banks of the Belle Fourche River channel and at intermittent locations in upland swale drainages adjacent to the river. The 3.2 acres of jurisdictional other Waters of the U.S. that did not qualify as jurisdictional wetlands consist primarily of the open water of the Belle Fourche River.

Wetland areas previously mapped by the USFWS NWI project have been recently altered somewhat due to CBNG-related water production within and upstream of the Maysdorf tract wetland analysis area. There are an additional 121.0 acres of non-jurisdictional Waters of the U.S. also contained in the wetland analysis area that includes a large flooded playa, stockponds, depressions, and several ephemeral riverine systems that are isolated. The non-jurisdictional wetlands (78.4 acres) are associated with stockponds, depressions, and ephemeral riverine drainages that are isolated. The non-jurisdictional other Waters of the U.S. (42.6 acres) occur as an area of open water in Section 21, T.47N., R.71W., where water produced from nearby CBNG development wells is regularly discharged, which has resulted in year-round ponding in a depression/playa area.

Within the proposed lease area and adjacent study area there is no “critical” habitat designated by USFWS for T&E species. The following discussion describes species’ habitat requirements and their occurrence in the area of the Maysdorf LBA Tract and evaluates the potential environmental effects of the Proposed Action and Alternatives 2 and 3 on federally listed species.

#### **E-4.1 Threatened Species**

##### E-4.1.1 Bald eagle (*Haliaeetus leucocephalus*)

On February 14, 1978, the bald eagle was listed as endangered in all of the coterminous United States except Minnesota, Wisconsin, Michigan, Oregon, and Washington, where it was classified as threatened (43 F.R. 6233). The USFWS reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states on July 12, 1995 (60 F.R. 36000). The bald eagle was proposed for delisting on July 6, 1999 (64 F.R. 36454). Currently, the proposal has not been finalized or withdrawn.

Biology and Habitat Requirements: Adult bald eagles establish life-long pair bonds and nest primarily in remote areas free of disturbance, in large trees that are near rivers, lakes, marshes, or other wetland areas. In Wyoming, this species builds large nests in the crowns of large mature trees such as cottonwoods or pines. Typically, there are alternate nests within or in close proximity to the nest stand. Snags and open-canopied trees near the nest site and foraging areas provide favorable perch sites. This species is a common breeding resident in some areas of Wyoming (Luce et al. 1999 and USFWS 2005).

Food availability is probably the single most important determining factor for bald eagle distribution and abundance (Steenhof 1976). Fish and waterfowl are the primary sources of food. Big game and livestock carrion, including domestic sheep carcasses, as well as rodents (e.g., ground squirrels, prairie dogs, etc.) also can be important dietary components where these resources are available (Ehrlich et al. 1988). Bald eagles are opportunistic foragers. They prefer to forage in areas with the least human disturbance (USFWS 1978, McGarigal et al. 1991).

Bald eagles that have open water or alternate food sources near their nesting territories may stay for the winter; other eagles migrate southward to areas with available prey. During migration and in winter, eagles often concentrate on locally abundant food resources and tend to roost communally at night. Communal roosts (defined as six or more eagles on any give night) usually are located in large mature trees, usually in secluded locations that offer protection from harsh weather. Large, live trees in sheltered areas provide a favorable thermal environment and help minimize the energy stress encountered by wintering eagles. Communal roosting also may facilitate food finding (Steenhof 1976) and pair bonding. Bald eagles often return to use the same nest and winter roost year after year (USFWS 2005). Freedom from human disturbance

is also important in communal roost site selection (Steenhof et al. 1980, U.S. Bureau of Reclamation 1981, USFWS 1986, Buehler et al. 1991). Continued human disturbance of a night roost may cause eagles to abandon an area (Hansen et al. 1981, Keister 1981). The proximity of night roosts to the other habitats required by wintering eagles, such as hunting perches and feeding sites, is important (Steenhof et al. 1980). Roosts may be several miles from feeding sites. The absence of a suitable roost may limit the use of otherwise suitable habitat.

**Existing Environment:** Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. Limited suitable roosting habitat is present within the current Cordero Rojo Mine permit area and the Maysdorf LBA Tract. There are no trees on the LBA tract. No known nest sites, or consistent yearly concentrated prey or carrion sources for bald eagles are present in the area of the Cordero Rojo Mine, including the Maysdorf LBA Tract and adjacent study area. However, this species is commonly observed in the general vicinity of the Maysdorf LBA Tract in the winter.

A sheep ranching operation is located west of the mine's western permit boundary on the north side of Haight Road (Figure E-5). Eagles may prey upon adult sheep carcasses in this area in the winter, although that source of food would not be consistent or abundant, and wintering migrant eagles have typically left the area prior to spring lambing season.

A known historical communal bald eagle roost is over five miles to the east of the LBA tract (SW $\frac{1}{4}$  of Section 21, T.47N., R.70W.)(Figure E-4). More than 25 bald eagles were counted in this roost area on February 16 of 2005. Several isolated bald eagle nesting attempts have been recorded in the region, but all known attempts have been over 20 miles away from the Maysdorf LBA Tract.

In the winters of 2004-2005 and 2005-2006, the bald eagle was far more common and abundant in the area than in previous years and frequently used a large windbreak within the existing Cordero Rojo Mine permit area in the NW $\frac{1}{4}$  of Section 22, T.47N., R.71W (see Figures E-4 and E-5). This may have been a result of mild winter conditions and the abundance of lagomorphs (rabbits) to prey upon. Lagomorph numbers appeared to be at or near a peak in their cycle. Bald eagles were first observed congregating at this site in January of 2005 but had not previously been observed concentrating in this windbreak during 25+ years of wildlife surveys in this area for the Cordero Rojo Mine and its neighboring mines. A maximum of 29 bald eagles were observed at this roost site on February 16 of 2005. When the eagles began congregating, mining operations were taking place less than  $\frac{1}{4}$  mile away on an existing federal coal lease. The T-7 and Hilight Roads are located within 200 yards north and west of the windbreak, respectively (Figure E-5). The Maysdorf LBA Tract borders the west side of Hilight Road in Section 21, T.47N., R.71W. The

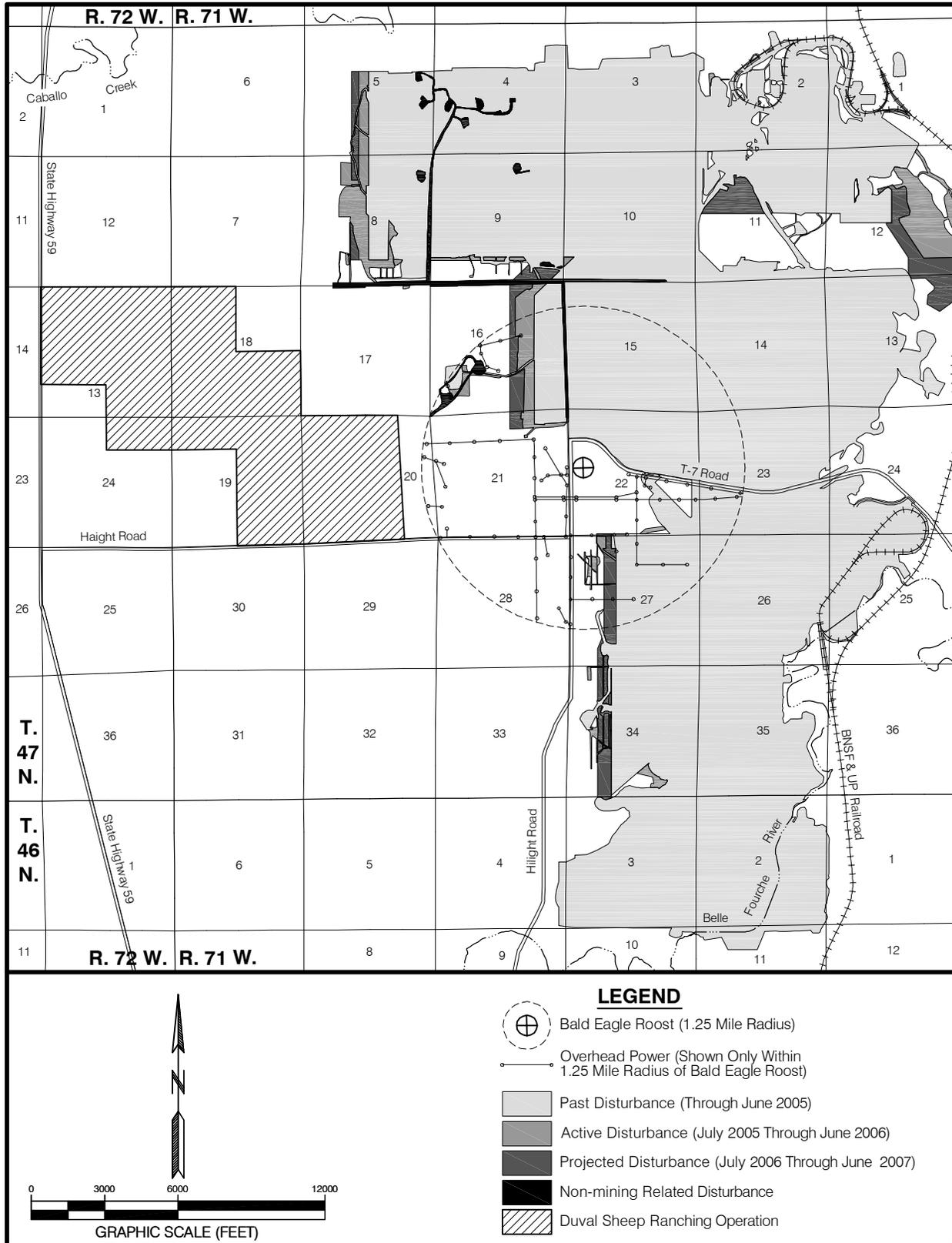


Figure E-5. Bald Eagle Roost Location with Respect to Nearby Disturbance Areas, Powerlines, and Sheep Ranching Operation.

bald eagles have commonly been observed around mining activities and feeding on road-killed rabbits on the nearby roads.

As indicated above, this eagle roost is located on an existing federal coal lease within the current permit area for the Cordero Rojo Mine, in an area that has been approved for mining. The coal underlying the roost area is scheduled to be mined beginning in 2010. Topsoil removal would take place prior to 2010.

Bald eagle roosts or concentration areas were not observed on the Maysdorf LBA Tract during the winters of 2004-2005 or 2005-2006 or during prior wildlife monitoring surveys. No other consistently used areas with fewer than six eagles have been identified on or near the LBA tract.

**Effects of the Proposed Project: Mining the federal coal lease included in the Maysdorf LBA Tract, if the tract is leased under the Proposed Action or Alternatives 2 and 3, may affect, but is not likely to adversely affect bald eagles.** If the federal coal in the Maysdorf LBA Tract is leased under the Proposed Action or Alternatives 2 or 3, there would be an expansion of human disturbance onto the tract when it is mined. Mining operations on the Maysdorf LBA Tract could impact wintering bald eagles in the area. The tract is located alongside and west of the Hilight Road, which is near the windbreak where wintering bald eagles were observed congregating during the winters of 2004-2005 and 2005-2006 (Figure E-5). However, the windbreak is located on an existing federal coal lease (Figure E-4), which is scheduled to be disturbed by currently approved mining operations before disturbance would occur on the Maysdorf LBA Tract.

Existing overhead power lines within a 1.25-mile radius of the bald eagle roost and county roads in the area are shown in Figure E-5. These powerlines and roads would need to be removed or relocated in advance of mining operations on the existing Cordero Rojo leases and/or Maysdorf LBA Tract. The potential for bald eagles to collide with or be electrocuted by electric power lines on the mine site would be reduced due to use of raptor-safe power lines, which is required under SMCRA (30 CFR 816.97). Mine-related traffic would continue to use roads accessing Cordero Rojo Mine when the Maysdorf LBA Tract is mined, which would perpetuate the potential for vehicle-wildlife collisions and the presence of roadside carcasses and the associated potential for road kills of bald eagles foraging along roads in this area.

Disturbance to nesting eagles can cause nest failure, nest abandonment, and unsuccessful fledging of young; however, no bald eagle nests are known to exist in the area. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation; however, the Cordero Rojo Mine and Maysdorf LBA Tract areas do not provide any consistent, reliable or concentrated food sources for eagles. The loss of any potential foraging habitat would be short-term. Foraging habitat that is lost during mining would be

replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity.

Cumulative Effects: Mineral development, including CBNG development, conventional oil and gas development, and surface coal mining, is a leading cause of habitat loss within the PRB. Extensive CBNG development has occurred in and adjacent to this area. Surface coal mining has been ongoing at the Cordero Rojo Mine for almost 30 years.

#### E-4.1.2 Ute ladies'-tresses orchid (*Spiranthes diluvialis*)

Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from north-central Colorado, northern and south-central Utah, and southeastern Nevada. As of September 2005, it had also been found in western Nebraska, southeastern Wyoming, southwestern Montana, and north-central Washington, while new populations had been documented in northwestern Colorado and northern Utah (Fertig et al. 2005). USFWS has determined that a petition to remove the Ute ladies'-tresses orchid from federal protection under the ESA provides substantial biological information to indicate that removal may be warranted. The petition was received from the Central Utah Water Conservancy District (USFWS 2004).

Biology and Habitat Requirements: Ute ladies'-tresses is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches tall arising from tuberous-thickened roots. This species typically flowers from late July through August. The flowers are white or ivory and clustered into a spike at the top of the stem; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October (USFWS 2005). Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species is currently estimated to be 60,000 individuals (USFWS 2004). Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses has been found in a variety of habitats, including moist meadows associated with perennial stream terraces, floodplains and oxbows, seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lakeshores. They have also been discovered along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands. The elevation range of known occurrences is from 720-1,830 feet in Washington to 7,000 feet in northern Utah (Fertig et al. 2005). Soils where the orchid has been found typically range from fine silt/sand to gravels and cobbles, as well as to highly organic and peaty soil types. The Ute ladies'-tresses orchid is not found in heavy or tight clay soils or in extremely saline or alkaline soils and seems intolerant of shade. Small scattered groups are found primarily in areas

where vegetation is relatively open (USFWS 2005). The Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, and arrowgrass.

Populations are often dynamic and “move” within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999). The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbly edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid may establish in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995).

Prior to 2005, four orchid populations had been documented within Wyoming, all discovered between 1993 and 1997 (Fertig and Beauvais 1999). Five additional sites were located in 2005 (Heidel 2005). The new locations were in the same drainages as the original four populations, with two on the same tributary and within a few miles of an original location. Drainages with documented orchid populations include Antelope Creek in northern Converse County, Bear Creek in northern Laramie and southern Goshen Counties, Horse Creek in Laramie County, and Niobrara River in Niobrara County. No occurrences have been recorded in Campbell County.

Existing Environment: Areas of suitable habitat within the Maysdorf LBA Tract and adjacent study area were surveyed by ESCO Associates in the latter half of August 2005 and again during the same period in August 2006. Topographical and wetland delineation maps for the study area were reviewed to identify all drainages that may contain the orchid. Suitable habitat factors included less steep stream banks, light soil texture and well drained soils, close lateral or vertical distance to perennial water source during the flowering period, lack of plant competition, lack of general soil alkalinity/salinity, and current or historical management practices that did not promote overgrazing and extensive use of riparian areas. Suitable habitat was traversed on foot during the time of actual flowering of the known population, and it involved walking entire lengths of the drainages documenting locations of potential habitat and searching for this species.

No individuals of the Ute ladies'-tresses orchid were located during the 2005 and 2006 surveys. Most of the suitable habitat within the Maysdorf LBA Tract and adjacent study area is found along the Belle Fourche River and its tributaries. The river, which flows generally from west to east through the southern portion of the Maysdorf LBA Tract, is classified as an ephemeral stream in this area. Limited portions of the river receive recharge from bank storage making the stream locally intermittent. In response to surface

discharge of groundwater associated with CBNG development upstream of the Maysdorf tract, which is a relatively recent phenomenon, streamflow occurrence is now more persistent and the river's channel is seldom completely dry. Several unnamed and named ephemeral tributaries of the Belle Fourche River drain portions of the Maysdorf LBA Tract. As discussed above, there are six stock reservoirs and two playas on the tract. The stock reservoirs are present on these ephemeral drainages and all are constructed earthen berms or dams. These ponds generally contain water only in early spring, then dry up in summer. There is one roughly 30-acre playa formed by a natural topographic depression in the northern portion of Section 4, T.46N., R.71W., and a second roughly 40-acre playa formed by a natural depression exists in the west-central portion of Section 21, T.47N., R.71W.

As discussed in Section E-4.0, a total of 154.2 acres of Waters of the U.S., including approximately 30.0 acres of jurisdictional wetlands and 3.2 acres of jurisdictional other Waters of the U.S., has been identified within the Maysdorf tract as applied for, the area added by Alternatives 2 and 3, and a buffer area around the tract sufficient to mine and reclaim the tract as a part of the existing Cordero Rojo Mine operation.

**Effects of the Proposed Project: Mining the federal coal included in the Maysdorf LBA Tract, if the tract is leased under the Proposed Action or Alternatives 2 and 3, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Typical suitable habitat for this species is present on the tract along the Belle Fourche River valley. Outside of the Belle Fourche River valley, typical suitable habitat is rare in the study area. Surveys of the existing suitable habitat at the Cordero Rojo Mine and other mines in this area have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Jurisdictional wetlands located in the Maysdorf LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined by the U.S. Army Corps of Engineers (COE). The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland. Replacement of non-jurisdictional and functional wetlands may be required by the surface landowner and/or WDEQ/LQD. WDEQ/LQD allows and sometimes requires mitigation of non-jurisdictional wetlands affected by mining, depending on the values associated with the wetland features. WDEQ/LQD also requires replacement of playas with hydrologic significance.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBNG development and discharged on the surface may also alter stream morphology and hydrology.

## **E-4.2 Endangered Species**

### E-4.2.1 Black-footed ferret (*Mustela nigripes*)

Biology and Habitat Requirements: The black-footed ferret is a federally-listed endangered species. The black-footed ferret historically occurred throughout Texas, Oklahoma, New Mexico, Arizona, Utah, Kansas, North and South Dakota, Montana, Wyoming, Nebraska, and Colorado. The last known wild population of black-footed ferrets was discovered in Meeteetse, Wyoming in 1981. This population became decimated by canine distemper so the remaining individuals were captured and raised in protective captive breeding facilities in an effort to prevent the species' extinction (Clark and Stromberg 1987). In the early 1990s, captive-bred black-footed ferrets were released in the Shirley Basin in the first reintroduction of the species in North America. Recent survey efforts in the Shirley Basin have confirmed a self-sustaining black-footed ferret population at this reintroduction site. The Forest Service has established a Black-Footed Ferret Habitat Management Area in the Thunder Basin National Grassland, located southeast of Wright, Wyoming, where they plan to reintroduce ferrets (USDA-FS 2002).

The black-footed ferret, a nocturnally active mammal, depends almost entirely upon the prairie dog for its survival. Prairie dogs are the main food source of black-footed ferrets, and few ferrets have been collected away from prairie dog colonies. Ferrets may be present within colonies of white-tailed or black-tailed prairie dogs. The USFWS has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog colony of greater than 200 acres, or a complex of smaller colonies within a 4.3 mile (seven kilometers) radius circle totaling 200 acres (USFWS 1989). Minimum black-tailed prairie dog colony size for ferrets is 80 acres (USFWS 1989).

The decline in ferret populations has been attributed to the reduction in the extensive prairie dog colonies that historically existed in the western United States. The three major impacts that have influenced black-tailed prairie dog populations are the initial conversion of prairie grasslands to cropland in the eastern portion of its range from approximately the 1880s-1920s; large-scale control efforts conducted from approximately 1918 through 1972, when an Executive Order was issued banning the use of compound 1080; and the introduction of sylvatic plague into North American ecosystems in 1908 (USFWS 2000). In Wyoming, this species historically occurred east of the

Rocky Mountain foothills and may have occupied millions of acres (USFWS 2000). The Bureau of Sport Fisheries and Wildlife estimated that there were approximately 49,000 remaining acres of black-tailed prairie dog colonies in Wyoming in 1961. USFWS estimated that about 125,000 acres of black-tailed prairie dog occupied habitat exists in Wyoming (USFWS 2000).

Existing Environment: The Maysdorf LBA Tract is within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. During the 1980s, WGFD, in cooperation with other agencies, conducted searches for black-footed ferrets in Wyoming in the places they were most likely to be found, but these searches were not successful (Martin Grenier, personal communication, 10/14/2003). In a February 3, 2004 memorandum to the Wyoming BLM State Director, the USFWS declared that black-footed surveys are no longer necessary in black-tailed prairie dog colonies within Wyoming after evaluating the potential for a previously unidentified black-footed ferret population to occur in Wyoming.

No ferrets have been sighted during multiple years of wildlife surveys covering the CMC and CRI Mines and surrounding area.

IR has mapped the current acreage of prairie dog colonies in the vicinity of the Cordero Rojo Mine by walking the perimeters of colonies and delineating them on topographic maps. No colonies are currently present on or within two miles of the Maysdorf LBA Tract as proposed and the area added by Alternatives 2 or 3. One black-tailed prairie dog colony exists within one mile east of the Cordero Rojo Mine's current permit area while another town is located more than three miles west of the current mine permit area and the Maysdorf LBA Tract (Figure E-4). The town located east of the CMC mine permit area is currently smaller than that depicted. The boundaries shown on Figure E-4 are historical town boundaries and, although black-tailed prairie dogs still exist in the area, their numbers and distribution are much smaller than previously recorded. No evidence of ferrets has been recorded during general or specific ferret surveys over the last 29 years (1976-2005) conducted by wildlife consultants for the CMC and CRI Mines and other mines in this area.

Effects of the Proposed Project: **Mining the federal coal included in the Maysdorf LBA Tract, if a lease is issued under the Proposed Action or Alternatives 2 and 3, would have no effect on black-footed ferrets.** The black-footed ferret is almost entirely dependent on the prairie dog for survival and there are no black-tailed prairie dog colonies present on the Maysdorf LBA Tract or within the BLM study area under Alternatives 2 and 3. General wildlife surveys and specific ferret surveys have been conducted for many years at the CMC and CRI Mines, and at other mines in this area. No black-footed ferrets have ever been observed during these surveys.

The reductions in black-tailed prairie dog populations due to poisoning prior to 1972 and due to recent plague outbreaks have reduced the potential for black-footed ferret survival in northeastern Wyoming. Searches of the best remaining

black-footed ferret habitat in Wyoming conducted in the 1980s were not successful in finding any ferrets.

**Cumulative Effects:** Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs and associated habitat for black-footed ferrets in this area. However, black-tailed prairie dogs have been recorded invading and establishing towns on reclaimed coal mined lands in northeastern Wyoming (IR 2005).

Potential ferret habitat is also affected by other impacts to prairie dog populations. Plague can infect and eliminate entire prairie dog colonies. Poisoning and recreational prairie dog shooting may locally reduce prairie dog populations, but seldom completely eliminate colonies.

#### **E-5.0 SUMMARY OF DETERMINATIONS**

Table E-1 summarizes the determinations for federally listed T&E species in the area of the Maysdorf LBA Tract that may result from implementing the Proposed Action or Alternatives 2 and 3.

<b>Status</b>	<b>Species Common Name</b>	<b>Potential Effects</b>
Threatened:	Bald eagle	May affect <sup>1</sup>
	Ute ladies'-tresses	May affect <sup>1</sup>
Endangered:	Black-footed ferret	No effect

<sup>1</sup> Not likely to adversely affect individuals or populations.

## **E-6.0 REGULATORY REQUIREMENTS AND MITIGATION**

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and Wyoming State regulations. SMCRA gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. Pursuant to Section 503 of SMCRA, the WDEQ developed, and in November 1980 the Secretary of the Interior approved a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of SMCRA, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of SMCRA.

If the Maysdorf LBA Tract is leased, it would be a maintenance lease for the existing Cordero Rojo Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, such as the Maysdorf LBA Tract, the existing MLA mining plan and State mining and reclamation plan must be amended to include any newly leased area before that area can be mined. In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations on any newly acquired lease. WDEQ/LQD would review the permit application package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired lease.

Protection of fish, wildlife, and related environmental values is required under SMCRA regulations at 30 CFR 816.97, which state:

“No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended.”

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals. Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional measures to ensure compliance with the ESA and SMCRA can be developed when the detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine.

The following is a partial list of measures related to federally-listed species that are required as part of the mining and reclamation permits:

- avoiding bald eagle disturbance;
- restoring bald eagle foraging areas disturbed by mining;
- using raptor safe power lines; and
- surveying for Ute ladies'-tresses if habitat is present.

#### **E-7.0 CUMULATIVE IMPACTS**

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBNG development; uranium mining; sand, gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining, construction and agricultural activities, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for T&E plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

BLM is in the process of completing a regional technical study of current and proposed or potential development activity in the PRB to help the agency evaluate the impacts of coal development in the PRB. The *Powder River Basin Coal Review* consists of three tasks: Task 1 updates the BLM's 1996 status check for coal development in the PRB, Task 2 develops a forecast of reasonably foreseeable development in the PRB through the year 2020, and

Task 3 predicts cumulative impacts that would be expected to occur as a result of the projected development. The information about existing development in the following paragraphs is taken from the *Powder River Basin Coal Review Task 2* report (BLM 2005) and BLM lease records. The completed *Powder River Basin Coal Review* reports can be accessed at the BLM Wyoming website at <http://www.wy.blm.gov/minerals/coal/prb/prbdocs.htm>.

The project area for Tasks 1 and 2 of the *Powder River Basin Coal Review* encompasses over eight million acres and includes all of Campbell, Sheridan, and Johnson Counties and the northern portion of Converse County in northeastern Wyoming.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBNG) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBNG resources from the coal beds is a more recent occurrence, with CBNG production in the Wyoming PRB starting in the late 1980s. As of 2003, an estimated 187,761 acres had been disturbed in the coal review project area as a result of oil and gas development activities, but approximately 115,045 acres of that disturbance has been reclaimed. This includes conventional oil and gas and CBNG wells and associated facilities and major transportation pipelines.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 121,185 acres. The currently pending federal coal LBA tracts (including the Maysdorf LBA Tract) include approximately 35,350 additional acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within some of the existing mine permit areas. All of the current and proposed federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located in eastern Campbell County and the extreme northeastern edge of Converse County. As of 2003, the baseline year for the *Powder River Basin Coal Review*, the surface coal mining operations along the Wyodak outcrop had disturbed approximately 68,794 acres. Approximately 24,097 of those acres of disturbance are occupied by “permanent” mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation until after coal mining operations end. Of the remaining 44,697 acres of disturbance available for reclamation, approximately 21,238 acres had been reclaimed.

The *Powder River Basin Coal Review* identified an estimated 4,891 additional acres of coal-related development disturbance (i.e., coal-fired power plants, railroads, and coal technology projects) as of 2003.

The estimated total development-related disturbance in the Wyoming PRB in 2003 was 264,704 acres. In addition to the coal and oil and gas development discussed above, this total includes other types of development disturbance, such as reservoirs and industrial fabrication firms, as well as public and

private infrastructure, such as highways and roads, government buildings, and residential and commercial real estate development. It should be noted that some of these disturbances overlap one another. In such cases, the disturbance acreage is counted separately under each category, but is not counted twice in determining the total area of disturbance.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover, and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, habitat fragmentation, displacement of bald eagle prey species and the resultant change in bald eagle foraging, and mortality caused by equipment activities, motor vehicle collisions, power line collisions, and power line electrocution. The existing mines have developed mitigation procedures, as required by SMCRA (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the Maysdorf LBA Tract, if it is leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

## **E-8.0 CREDENTIALS OF SURVEY PERSONNEL**

### **Intermountain Resources of Laramie, Wyoming**

#### Jim Orpet

Mr. Orpet obtained a Bachelors of Science degree in Wildlife Management and a Master of Science degree in Range Management from the University of Wyoming and has accumulated over 27 years of field experience in wildlife surveys. This experience includes surveys for T&E species, surveys for species of high state or federal interest and preparation of wildlife reports for over 100 projects throughout Wyoming. Mr. Orpet was qualified in 1987 by the WDEQ/LQD to conduct T&E and other plant and animal surveys on Abandoned Mine Lands (AML) projects within the state. Qualification at that time was based on review and approval of Mr. Orpet's credentials by the WGFD and the USFWS. Mr. Orpet has also completed numerous wetland surveys that have been approved by the COE.

#### Russel Tait

Mr. Tait obtained a Bachelor of Science degree in Wildlife Management from the University of Wyoming and has accumulated 13 years of field experience in wildlife surveys in Wyoming. Mr. Tait has assisted Mr. Orpet in completion of wildlife inventories for over eight years on coal mines and other resource development projects in Wyoming, including black-footed ferret surveys, bald eagle surveys, sage grouse lek surveys and surveys for other species of high federal or state interest.

### **ESCO Associates Inc. of Boulder, Colorado**

#### David Buckner

Mr. Buckner obtained a Bachelors of Arts degree, Master of Arts degree, and Ph.D. in Plant Ecology from the University of Colorado and has accumulated over 20 years of field experience in vegetation and rare plant surveys.

Mr. Buckner's rare plant survey experience includes:

- *Asclepias ruthiae*, Grand County, Utah, 1982;
- *Stellaria irrigua*, La Plata County, Colorado;
- *Sclerocactur glaucus*, Mesa and Garfield Counties, Colorado, 1987;
- *Penstemon harringtonii*, Eagle, Grand, and Routte Counties, Colorado, 1982, 1990, 1991, 1993, and 1994.

Mr. Buckner's familiarity with *Spiranthes diluvialis* includes:

- observation of flowering populations in Boulder County, Colorado, 1991-2005;
- observation of vegetative sprouts of individuals occurring in Boulder County populations, January to April 1982, June 1993, and May 1995.

---

**E-9.0 REFERENCES AND LITERATURE CITED**

- Bureau of Land Management (BLM), 2001, Approved Resource Management Plan (RMP) for Public Lands Administered by the Bureau of Land Management, Buffalo Field Office, Buffalo, Wyoming.
- \_\_\_\_\_, 2003, Final South Powder River Basin Coal Environmental Impact Statement, December 2003, Casper Field Office, Casper, Wyoming.
- \_\_\_\_\_, 2005, Task 2 Report for the Powder River Basin Coal Review, Past, Present, and Reasonably Foreseeable Development Activities. Prepared for BLM Casper Field Office, Casper, Wyoming, by ENSR Corporation, Fort Collins, Colorado, October 2005.
- Buehler, D.A., T.J. Mersmann, J.D. Fraser, and J.K.D. Seegar, 1991, Non-breeding bald eagle communal and solitary roosting behavior and roost habitat on the northern Chesapeake Bay. *Journal of Wildlife Management* 55(2): 273-281.
- Caballo Rojo, Inc. (CRI), 2003, Caballo Rojo Mine Permit, WDEQ/LQD Surface Mine Permit No. 511-T6, approved May 6, 2003. On file with WDEQ/LQD, Cheyenne and Sheridan, Wyoming.
- Clark, T.W., and M.R. Stromberg, 1987, *Mammals in Wyoming*. University of Kansas, Museum of Natural History.
- Cordero Mining Company (CMC), 2004, Cordero Mine Permit, WDEQ/LQD Surface Mine Permit No. 237-T7, approved September 16, 2004. On file with WDEQ/LQD, Cheyenne and Sheridan, Wyoming.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye, 1988, *The Birder's Handbook: A Field Guide to the Natural History of North American Birds*. Simon and Schuster, New York.
- Fertig, W., and G. Beauvais, 1999, Wyoming Plant and Animal Species of Special Concern. Unpublished report. Wyoming Natural Diversity Database, Laramie, Wyoming.
- Fertig, W., R. Black and P. Wolken, 2005, Rangewide status review of Ute ladies'-tresses (*Spiranthes diluvialis*). Report prepared for the U.S. Fish and Wildlife Service and Central Utah Water Conservancy District, September 30, 2005.
- Grenier, Martin, Wyoming Game and Fish Department, personal communication with Nancy Doelger, BLM Casper Field Office, October 14, 2003.

- Hansen, A.J., M.V. Stalmaster, and J.R. Newman, 1981, Habitat characteristics, function, and destruction of bald eagle communal roosts in western Washington. In R.L. Knight, G.T. Allen, M.V. Stalmaster, and C.W. Servheen, eds. Proceedings of the Washington bald eagle symposium. The Nature Conservancy, Seattle, Washington, 254 pp.
- Intermountain Resources (IR), 2005, WWC Engineering's personal communication with Jim Orpet, December 13, 2005.
- Heidel, Bonnie, 2005, personal communication between Tom Bills, wildlife biologist, BLM Buffalo Field Office, Buffalo, Wyoming, and Bonnie Heidel, botanist, Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.
- Keister, G.P., 1981, Characteristics of winter roosts and populations of bald eagles in Klamath Basin. M.S. Thesis. Oregon State University, Corvallis, 82 pp.
- Luce, B., A. Cerovski, B. Oakleaf, J. Priday, and L. Van Fleet, 1999, Atlas of Birds, Mammals, Reptiles, and Amphibians in Wyoming. Wyoming Game and Fish Department, Wildlife Division, Cheyenne, Wyoming.
- McGarigal, K., R.G. Anthony, and F.B. Isaacs, 1991, Interactions of humans and bald eagles on the Columbia River estuary. Wildlife Monograph 115:1-47.
- Steenhof, K., 1976, The ecology of wintering bald eagles in southeastern South Dakota. M.S. Thesis. University of Missouri, Columbia, 148 pp.
- Steenhof, K., S.S. Berlinger, and L.H. Fredrickson, 1980, Habitat use by wintering bald eagles in South Dakota. Journal of Wildlife Management 44(4): 798-805.
- University of Wyoming, 2001, Data search for species listed with the Wyoming Natural Diversity Database. Letter and computer printouts from A.J. Fedder to G. McKee (TWC), dated April 16, 2001.
- U.S. Department of Agriculture-Forest Service (USDA-FS), 2002, Supplemental Information Report disclosing changes to black-tailed prairie dog habitat within proposed management area 3.63 of the Thunder Basin National Grassland Plan resulting from the 2001 Sylvatic plague outbreak. January 14, 2002.
- U.S. Bureau of Reclamation, 1981, A survey of wintering bald eagles and their habitat in the Lower Missouri Region. Denver, Colorado, 96 pp.
- U.S. Fish and Wildlife Service (USFWS), 1978, Management of wintering bald eagles. FWS/OBS-78/79. Washington, D.C., 59 pp.

- \_\_\_\_\_, 1986, Recovery plan for the Pacific bald eagle. Portland, Oregon, 160 pp.
- \_\_\_\_\_, 1989, Black Footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. U.S. Fish and Wildlife Service, Denver, Colorado and Albuquerque, New Mexico.
- \_\_\_\_\_, 1995, Ute ladies'-tresses draft recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado, 46 pp.
- \_\_\_\_\_, 2000, 12-month finding for a petition to list the black-tailed prairie dog as threatened. Federal Register 65(24): 5476-5488.
- \_\_\_\_\_, 2002, Biological and Conference Opinion for the Powder River Basin Oil and Gas Project, Campbell, Converse, Johnson, and Sheridan Counties, Wyoming, Cheyenne, Wyoming, 51 pp.
- \_\_\_\_\_, 2004, Endangered and threatened wildlife and plants; 90-day finding on a petition to delist the Ute ladies'-tresses orchid and initiation of a 5-year review. Federal Register 69(196): 60605-60607.
- \_\_\_\_\_, 2005, Memorandum from Brian Kelly, Field Supervisor, USFWS Wyoming Field Office, Cheyenne, Wyoming, to James Murkin, BLM, Field Office Manager, Casper Field Office, Casper, Wyoming, dated February 15, 2005.
- Wyoming Game and Fish Department (WGFD), 2005a, Letter from Bill Wichers, Deputy Director, WGFD, Cheyenne, Wyoming, to Nancy Doelger, BLM, Casper Field Office, Casper, Wyoming, dated March 31, 2005.
- \_\_\_\_\_, 2005b, Letter from Bill Wichers, Deputy Director, WGFD, Cheyenne, Wyoming, to Nancy Doelger, BLM, Casper Field Office, Casper, Wyoming, dated July 19, 2005.