Powder River Basin Oil and Gas Project
Biological Assessment for ESA Consultation Reinitiation
BLM Buffalo and Casper Field Offices
Thunder Basin National Grasslands

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INTRODUCTION

Formal consultation on the Powder River Basin Oil and Gas Project was completed December 17, 2002 with completion of the Final Biological Opinion (FBO) (WY6633); the Record of Decision for the project was signed April 30, 2003. Since that time new information has become available on effects to listed species and listed species presence within the Basin. The action agencies and the U.S. Fish and Wildlife Service (FWS) have also realized the original project description was incomplete particularly in terms of surface well distribution. Site-specific projects which did not adequately match the original project description were unable to tier to the FBO, resulting in potentially longer consultation time-frames.

Regulation 50 CFR §402.16, includes four requirements for the reinitiation of formal consultation: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the action is modified in a manner causing effects to listed species or critical habitat not previously considered; (4) a new species is listed or critical habitat is designated that may be affected by the action. The relevant criteria applicable to the Powder River Basin (PRB) project are (2) new information and (3) action modification.

The reinitiation should be beneficial for all affected parties, action agencies, FWS, industry, conservation groups and most importantly the listed species for the following reasons:

- It clarifies and broadens the project description, and
- It will further streamline the consultation process.

This Biological Assessment (BA) will amend the Final Biological Assessment (FBA) for the PRB Oil and Gas Project (September 3, 2002). It will only discuss the new information, action modification, and changes to conservation measures to which the action agencies are committing. Information that has not changed, such as species biology, will not be included. The September 2002 FBA has been attached for reference.

SPECIES CONSULTED

Species considered in the original PRB consultation included bald eagle (*Haileetus leucocephalus*), black-footed ferret (*Mustela nigripes*), mountain plover (*Charadrius montanus*), and Ute ladies'-tresses orchid (*Spiranthes diluvialis*). The mountain plover was proposed as Threatened at the time; the listing proposal has since been determined to be not warranted and withdrawn (USFWS 2003). Mountain plover is not being included within this consultation. However, the action agencies do remain committed to the conservation of this species as demonstrated by the reaffirmation of the conservation measures from the original BA.

The remaining species (bald eagle, black-footed ferret, and Ute ladies'-tresses orchid) are consistent with the most recent species list supplied to the BLM Buffalo Field Office (BFO) by the Service as those listed species potentially occurring within the PRB Oil and Gas Project area (Kelly 2006).

The Service has recommended that the action agencies consider pallid sturgeon (*Scaphirhynchus albus*) in the consultation reinitiation. The pallid sturgeon does not inhabit the project area; rather project activities may have downstream effects on the sturgeon. Pallid sturgeon shall be included in this consultation.

CONSULTATION HISTORY

Informal discussions regarding consultation reinitiation began in 2005. The BFO requested issues and comments from all partners (Casper Field Office, Thunder Basin National Grasslands, and the Service) concerning reinitiation in autumn 2005. Reinitiation was discussed at the Northeast Wyoming Level I Streamlining Team meeting on November 17, 2005. The principal biologists (Thomas Bills, BFO and Bradley Rogers, FWS) presented their managers with a reinitiation outline on November 21, 2005.

The BLM Washington Office was briefed on the PRB consultation reinitation in March 2006. Numerous informal conversations have taken place between Thomas Bills and Bradley Rogers during the preparation of this BA. A rough draft BA was presented for review and discussion among project partners at the June 21, 2006 Level I meeting. The Service supplied their draft BA comments on August 24, Thomas Bills and Bradley Rogers met the same day to discuss.

PROJECT DESCRIPTION

For analysis purposes, the PRBEIS (p. 2-15) assumed an 80 acre spacing pattern for new wells with one to three wells per location. However, the site-specific project proposals have not always conformed to these assumptions. Where site-specific projects have not conformed to the PRBEIS assumptions, the FWS maintains it is inappropriate to tier the site-specific consultations to the programmatic consultation. This reinitiation will broaden the programmatic project description thereby decreasing the number of non-tiered site-specific consultations. Most site-specific projects should be able to tier to the programmatic consultation's streamlined time-frame.

Well Distribution

The general Wyoming spacing order provides for oil and gas development at 40-acre well spacing (16 wells/section) throughout the state. Production results indicated that the Powder River Basin coalbed natural gas (CBNG) resource was sufficiently recoverable, both efficiently and economically, at 80 acre spacing (8 wells/section). Special rules issued in March 2001 specific to PRB CBNG development changed the spacing order to 80-acres/well. Some operators have found 160 acre spaced (4 wells/section) projects efficient and economical; however, there is no current proposal before the Wyoming Oil and Gas Conservation Commission (WOGCC) to further reduce the spacing density. When requested in areas previously developed with 40-acre well spacing, the WOGCC has continued to authorize 40-acre well spacing. Prior to March 2001, 40 acre coalbed natural gas (CBNG) development occurred within, but not limited to, two primary areas; the Interstate corridor between Buffalo and Sheridan, and east of the Powder River (See Map - CBNG Wells February 2001).

Spacing is defined as the position of the well bore terminus within a specific geologic reservoir. The PRBEIS failed to define spacing. During the PRBEIS analysis, spacing was mis-interpreted to mean the surface distribution of all oil and gas wells, independent of reservoir or bore-hole terminus. In 2003 all CBNG wells had been vertical bores, and the majority of current projects still propose vertical bores. In cases where there is only CBNG development with vertical bores, the surface distribution of well locations and spacing are essentially the same.

However, there is a long history of conventional oil and gas development within the Powder River Basin and where CBNG development is proposed within conventional fields, the surface distribution of all oil and gas wells is frequently denser than 80 acres. In these situations, site-specific projects do not conform to the PRBEIS assumptions, and it is inappropriate to tier the site-specific consultations to the programmatic consultation. Much of the conventional development has occurred in defined fields (See Map – Conventional Oil & Gas Units, Table 1). It is within these fields or federal units where conventional development and CBNG most commonly overlap, but it may occur outside the units also.

BLM encourages operators to locate new wells with existing wells to reduce surface disturbance and

habitat fragmentation. However, if an 80 acre spacing (8 wells/section) CBNG project is proposed within a 40-acre spaced (16 wells/section) conventional field without any well co-location, then well densities could be as high as 24 wells/section or 26 acre spacing. On very rare occasions three reservoirs might overlap (oil, conventional gas, and CBNG) with spacing of 40 acres, 40 acres, and 80 acres respectively; this scenario without co-location would result in 40 wells per section or 16 acre spacing. There is potential for oil and gas facilities for even more reservoirs to overlap (i.e. four or five reservoirs, etc.)

Table 1. Conventional Oil and Gas Units within the Powder River Basin Project Area.

Unit	Serial Number	Township	Range	Acres
Buffalo Field Office				
ALICIA	WYW109402	51N	75W	242
AMKIRK	WYW115049	460	70W	691
ANDY	WYW109405	50N	75W	1517
BARBER CREEK	WYW109412	49N	76W	3219
BIG FOOT	WYW138273	46N	71W	440
BIG HAND	WYW153765	47N	70W	353
BONE PILE	WYW109433	48N	72W	3815
BOOS	WYW109435	47N	70W	500
BREEN	WYW126843	47N	71W	1791
CALAMITY SPRINGS	WYW127626	56N	74W	440
CENTRAL HILIGHT	WYW109452	44N	70W	26306
CHAN MUDDY SAND	WYW109453	56N	73W	2754
CLABAUGH MNLS	WYW136023	47N	71W	476
CRAWFORD DRAW	WYW10947	41N	77W	1360
CULP DRAW	WYW109477	45N	76W	13093
DEAD HORSE CK-CAB	WYW109478	48N	75W	4358
DEAD HORSE CRK N.	WYW109479	49N	75W	2652
DEAD HORSE CRK S.	WYW109480	49N	75W	2780
DITTO LAKE	WYW142535	50N	71W	160
DOE	WYW124661	48N	73W	360
DRY GULCH	WYW109088	49N	72W	840
E SWARTZ DRAW	WYW148336	57N	74W	400
FALCON RIDGE	WYW115054	49N	70W	595
FELIX	WYW109506	51N	75W	1966
FENCE CREEK	WYW109507	58N	76W	1549
FISH	WYW126496	48N	70W	600
FORT RENO	WYW109513	45N	78W	680
GAS DRAW	WYW109521	53N	72W	8159
GRADY	WYW109528	45N	71W	9482
HARTZOG DRAW	WYW109544	43N	74W	35494
HAWK POINT	WYW114173	47N	72W	1123
HELDT DRAW	WYW109545	45N	77W	1880
HILIGHT SOUTH	WYW109547	43N	70W	14174
HOUSE CREEK (SUSSEX)	WYW109552	43N	72W	24111
HOUSE CREEK NORTH	WYW114211	45N	73W	9681
HUNTER RANCH	WYW109554	57N	72W	1554
INDIAN CREEK	WYW109555	47N	78W	6286
JAYSON	WYW109558	46N	69W	13766
JEPSON-HOLLER DR	WYW138274	44N	77W	14619

Table 1. (Cont.) Conventional Oil and Gas Units within the Powder River Basin Project Area.

Unit	Serial Number	Township	Range	Acres
JOE CREEK	WYW109561	56N	75W	1543
KINGSBURY CREEK	WYW109564	50N	74W	680
LAZY B	WYW109574	49N	73W	3953
MALMQUIST	WYW153774	48N	71W	362
MAYSDORF	WYW109592	47N	71W	1401
NO BUCK DRAW(DKOT)	WYW106652	41N	73W	8838
NORTH BARBER CREEK	WYW109615	50N	76W	812
NORTH CARSON	WYW115092	54N	73W	786
NORTH RAINBOW RCH	WYW109624	49N	70W	1131
NORTH STAR	WYW138887	45N	72W	413
NORTH TIMBER CRK	WYW109626	49N	70W	602
NW TIMBER CREEK	WYW109629	49N	71W	1170
OXBOW	WYW116914	47N	72W	440
PAUL (MUDDY)	WYW128877	55N	73W	720
PINE TREE	WYW109643	41N	75W	7312
PINNACLE DIVIDE	WYW109645	49N	73W	680
PUMPKIN BUTTES	WYW150202	43N	75W	4371
RECORD	WYW125264	50N	71W	320
RENO	WYW109658	45N	79W	2648
RICH	WYW129785	50N	70W	511
RIDGEVIEW	WYW119636	48N	72W	492
ROCK CREEK	WYW127601	47N	73W	520
ROGERS	WYW109668	55N	73W	1715
SA CREEK MNLS	WYW149552	57N	75W	407
SHARP	WYW109685	49N	71W	480
SUPERHORNET	WYW125262	50N	71W	480
SUSSEX	WYW109720	42N	78W	6886
SW BIG HAND	WYW132724	47N	71W	360
SWARTZ DRAW	WYW109721	56N	74W	926
TA BUTTES	WYW109082	49N	71W	447
TABLE MOUNTAIN	WYW125236	44N	76W	10474
TAYLOR	WYW109722	41N	76W	3281
TIMBER CREEK MNLS	WYW143327	49N	70W	1094
TRIANGLE U (SUSSEX)	WYW109734	47N	75W	6355
TRUE GRIT	WYW148363	57N	72W	156
UTE MUDDY SAND	WYW109737	57N	72W	4683
W D	WYW121867	48N	71W	482
WEST FORK	WYW129781	44N	72W	400
WIDGE	WYW116985	46N	72W	855
WINTER DRAW	WYW115064	49N	70W	688
Casper Field Office				
AFRICAN SWALLOW	WYW142503	38N	75W	1945
BEAR CREEK	WYW109415	38N	75W	357
BLIZZARD	WYW109430	36N	75W	633
DERRICK DRAW	WYW114171	36N	76W	430
DIAMONDBACK	WYW156957	38N	75W	2076

Table 1. (Cont.) Conventional Oil and Gas Units within the Powder River Basin Project Area.

Unit	Serial Number	Township	Range	Acres
MOORE	WYW109602	40N	76W	2767
NORTHEAST COLE	WYW109628	36N	75W	273
PINE TREE	WYW109643	41N	75W	7447
POWELL PRESSURE	WYW109649	38N	74W	26560
SAND DUNES	WYW123877	36N	75W	12086
TAYLOR	WYW109722	41N	76W	3351

In addition to conventional gas units, units may also be established for the CBNG reservoirs. An advantage of units is that they provide greater flexibility for well placement. The overall well density for the unit generally conforms to the defined well spacing orders, changed in March 2001 from 40 acres to 80 acres for PRB CBNG, but within the unit well density may vary. Operators have the flexibility to move the wells within the unit without seeking an exception request with the WOGCC. This may lead to areas within the unit where wells are concentrated, denser than 80 acres/well, and other areas where wells are sparse, fewer than 80 acres/well (See Map – CBNG Units, Table 2).

Table 2. Coalbed Natural Gas Units within the Powder River Basin Project Area.

Unit	Serial Number	Township	Range	Acres
ALL NIGHT CREEK	WYW148817	42N	73W	25888
AUGUSTA	WYW159266	50N	76W	16326
BEAR DRAW	WYW151909	49N	79W	13747
BIG CORRAL	WYW149551	53N	78W	24957
BIG GEORGE	WYW149537	47N	77W	15106
BIG MIKE	WYW157751	48N	77W	12935
BULLWHACKER CK	WYW149561	42N	77W	23726
CABIN CREEK	WYW158166	57N	77W	15793
CAMP JOHN	WYW159267	50N	75W	22040
CARR DRAW	WYW150647	50N	75W	21460
CAT CREEK	WYW152373	48N	78W	5720
CEDAR DRAW	WYW148838	53N	75W	11808
COAL GULCH	WYW152950	50N	78W	10500
CROSSROADS	WYW158112	48N	75W	10970
DHC	WYW158127	47N	75W	13622
ECHETA	WYW151544	51N	75W	4008
FORTIFICATION CRK	WYW156996	52N	75W	11942
HIGHLAND	WYW151581	51N	77W	9891
JEWELL DRAW	WYW154740	53N	78W	20469
JUNIPER DRAW	WYW154735	49N	78W	6075
KINGSBURY	WYW150648	46N	77W	23889
KINNEY DIVIDE	WYW148331	50N	77W	24762
LONG DRAW	WYW156615	53N	74W	16481
MIDDLE PRONG	WYW156636	54N	75W	12098
POWDER VALLEY	WYW149556	49N	77W	21396
REMINGTON	WYW160315	58N	79W	23965
RIVER	WYW151535	48N	77W	11351
ROSE DRAW	WYW152919	52N	77W	16338
SCHOONOVER ROAD	WYW148333	48N	76W	22614

Table 2. (Cont.) Coalbed Natural Gas Units within the Powder River Basin Project Area.

Unit	Serial Number	Township	Range	Acres
SOUTH PRONG BC	WYW153772	49N	75W	15345
SOUTHWEST WILLOW	WYW155177	44N	77W	5483
SPOTTED HORSE	WYW158113	55N	76W	23534
TRIANGLE UNIT	WYW152375	47N	75W	11735
TWENTY MILE BUTTE	WYW155167	52N	74W	6648
WEST PINE TREE	WYW154379	41N	76W	19513
WEST ROUGH DRAW	WYW158114	52N	74W	16076
WHISKEY DRAW	WYW148368	47N	78W	13234
WILD TURKEY	WYW151534	48N	76W	6367
WILLIAMS DRAW	WYW146611	49N	76W	25335
WORMWOOD	WYW151545	46N	76W	8777

With multiple coal seams underlying the Powder River Basin, operators frequently target more than one seam with their development. Some operators produce multiple seams with a single well bore (co-mingling) while other prefer to drill a well to each seam resulting in multiple wells at a single location (co-locating). The PRBEIS assumed one to three wells per location. However, three does not represent the maximum number of wells per location; some developments have had as many as six wells per location. There is not an established maximum, six wells per location is rare and it is highly unlikely a company would propose more than six wells per location. The action agencies encourage co-mingling to reduce surface disturbance and habitat fragmentation.

Weed Treatment and Reclamation

The BLM Buffalo Field Office (BFO) prepared an Environmental Assessment (EA) (WY-070-05-248) and Biological Assessment (BA) for weed treatments associated with the Powder River Basin Oil and Gas Project. An independent ESA consultation for weed treatment was not completed as the action (weed treatment) is interrelated and interdependent to the Powder River Oil and Gas Project. Below is a summary of the proposed treatments. A project description is included in the Powder River Basin Oil and Gas Pesticide Use Proposal EA (WY-070-05-248).

Future weed treatments will be analyzed in NEPA documentation tiered to BLM's Vegetation Treatment EA (WY-070-05-248). Future NEPA documentation will also analyze any other integrated pest management (chemical, biological, physical, and cultural) activities as appropriate and reflect any changes in policy and/or procedures.

The use of herbicides requires an approved Pesticide Use Proposal (PUP). The PUP is authorized for one to five years and is specific to an applicator and project area as defined on the PUP. PUPs are specific to an herbicide or mixture of herbicides. Each PUP is submitted and signed by the originator; signed by the certified applicator; reviewed and signed by the BLM Office Weed and Pesticide Coordinator and BLM Field Manager.

All herbicides will be applied in conformance with labeling. All products used will be EPA approved herbicides listed on the most recent "Herbicides Approved for Use on BLM Lands List" which is updated periodically. These herbicides have undergone EPA testing and environmental analysis in BLM's Vegetation Treatment on BLM Lands EIS.

Herbicides will typically be applied by truck, ATV, and backpack sprayers. All equipment will be calibrated to apply the appropriate application rate. Applications will be done by licensed applicators.

Treatments for broadleaf species will normally occur in the spring, summer, and fall depending on the target species and the number of flushes. Cheatgrass or downy brome treatments are most effective in the fall. Salt cedar can be treated in any season, particularly via cut stump treatment.

For a given treatment, the amount of time taken to treat the weeds will depend on the extent of the infestation and how it occurs on the landscape (roadside vs. uplands). Weed treatments may require follow up treatment. Infestations that require follow up in the same year would not likely occur until late summer or fall and only in compliance with the label.

Spring and early summer weed treatments coincide with the bald eagle nesting season. Although there are not many eagle nests within the Powder River Basin (Figure 3), if weed treatment were proposed in proximity to a nest (less than one mile) it would conflict with the terms and conditions of the original biological opinion. It may be possible to perform weed treatment activities during the bald eagle breeding season while minimizing adverse effects.

Upon completion of treatments, the applicator is required to submit Pesticide Application Records to the BLM. For biological control (insects etc.), the originator must submit a Biological Control Agent Release Proposal and follow up with a Biological Control Agent Release Record after treatment.

Reclamation is an essential step in restoring wildlife habitats affected during oil and gas development. Autumn reclamation and seeding provides the best opportunity for cool season grass and forb success. However, with the PRB's year-round oil and gas construction activities, there is value to spring time reclamation and seeding of areas disturbed over the winter. It may be possible to perform certain low disturbance breeding season activities within occupied bald eagle nesting habitat, for example short-duration activities occurring more than one-half mile from active nests after the young are able to thermo regulate.

Wildlife Surveys

Current survey results for projects containing suitable Threatened, Endangered, Proposed, or Candidate species habitat must be submitted in writing to the BFO with project (POD) submittals. Surveys are not necessary if the project proponent agrees in writing to abide by all conservation measures and terms and conditions identified for Threatened, Endangered, Proposed, or Candidate species for which project activities are proposed within the protection zone around suitable habitat.

CONSERVATION MEASURES

In the FBA, the action agencies proposed conservation measures to minimize direct, indirect, and cumulative impacts of the project to listed and proposed species, as well as the habitats for these species by incorporating conservation measures into the proposed project. The conservation measure numbers are taken from the December 16, 2002 FBO, while the verbiage is taken from the September 3, 2002, FBA. Many of the original conservation measures are still applicable and are being reaffirmed; other conservation measures are being revised to reflect new information, to combine similar measures, to include terms & conditions from the FBO, or to address species status change; and some original conservation measures are no longer necessary and are being deleted. A few conservation measures are being added to address new information, changed conditions, and/or project modifications. Mountain plover conservation measures are included to demonstrate that the action agencies remain committed to the conservation of this species. However, the mountain plover is not a part of the formal consultation.

Reaffirmed Conservation Measures

Bald Eagle

CM6. Special habitats for raptors, including wintering bald eagles, would be identified and

considered during the review of the Application for Permit to Drill/Plan of Development (APD/POD) or Sundry Notices.

CM7. Surveys for active bald eagle nests and winter roost sites will be conducted within suitable habitat by a Bureau-approved biologist. Surface disturbing activities will not be permitted within 1-mile of suitable habitat prior to survey completion.

Black-footed ferret

CM13. Site-specific project areas will be evaluated for suitable black-footed ferret habitat prior to permit approval. Suitable habitat consists of a black-tailed prairie dog town or complex greater than 80 acres (USFWS 1989). A prairie dog town is a group of intact prairie dog holes whose density exceeds 8 burrows/acre; a complex consists of 2 or more neighboring prairie dog towns each less than 4.34 miles (7 kilometers) from the other (USFWS 1989).

CM14. Prairie dog colonies will be avoided wherever possible.

CM16. If any black-footed ferrets are located, the Service will be consulted. Absolutely no disturbance will be allowed within prairie dog colonies inhabited by black-footed ferrets.

Ute ladies'-tresses

CM18. At the discretion of the surface owner, native species would be planted to re-establish special habitats.

CM19. Site-specific project areas will be evaluated for suitable Ute ladies'-tresses orchid habitat prior to permit approval. Suitable habitat is characterized by moist soils near springs, lakes, or perennial streams; most occurrences are in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows in the floodplains of perennial streams (USFWS 1995).

CM22. Moist soils near wetlands, streams lakes or springs in the project area will be promptly revegetated if construction activities impact the vegetation in these areas. Revegetation will be designed to avoid the establishment of noxious weeds.

Mountain Plover

CM26. Site-specific project areas will be evaluated for suitable mountain plover nesting habitat prior to permit approval. Flat areas of short-grass prairie or low shrubs with a prevalence of bare ground characterize suitable mountain plover nesting habitat. Typically the vegetation height is less than 4 inches, and bare ground is greater than 30 percent.

CM33. Where possible, roads will be located outside of mountain plover nesting habitat. Maximum allowed travel speed on roads within 0.5 mile of identified mountain plover nesting areas shall not exceed 25 miles per hour from March 15 to July 31.

CM35. Work schedules and shift changes should be set to avoid the periods from 30 minutes before to 30 minutes after sunrise and sunset during June and July, when mountain plovers and other wildlife are most active.

CM39. Reclamation of areas of previously suitable mountain plover habitat would include the seeding of vegetation to produce suitable habitat for mountain plovers.

Revised Conservation Measures

Some conservation measures are being revised to reflect new information, to include terms & conditions

from the FBO, to address species status change, and/or to combine similar measures. The revised conservation measures are as follows:

All Species

CM1. In the event that a dead or injured Threatened, Endangered, Proposed, or Candidate species is located during any Powder River Basin Oil & Gas Project related activity, the Service's Wyoming Field Office (307- 772-2374) and the Service's Law Enforcement Office (307-261-6365) will be notified within 24 hours. The appropriate authorizing agency shall also be notified: BLM Buffalo Field Office (307-684-1100), BLM Casper Field Office (307-261-7600), or Thunder Basin National Grasslands (307-358-4690).

CM3. The Bureau shall monitor all Threatened, Endangered, Proposed, and Candidate Species habitat loss associated with the preferred alternative. The actual measurement of disturbed habitat is the responsibility of the Bureau but can be delegated to the Bureau's agent (consultant, contractor, etc). A written summary will be provided to the Service's Wyoming Field Office annually. The annual report will include field survey reports for endangered, threatened, proposed and candidate species for all actions covered under the FEIS for the Powder River Basin Oil and Gas Project and the Record of Decision (ROD). The annual reports will include all actions completed 30 days prior to the reporting dates. The first report will be due - one-year after the signing of the FBO and on the anniversary dates of the signing of the FBO. Reporting will continue for the life of the project.

CM4. The BFO shall document big-game carcasses along operator-maintained project roads. At a minimum, BFO employees will record any big-game carcasses they encounter while performing other field related duties. Carcasses provide a food resource which could attract scavenging Threatened, Endangered, Proposed or Candidate species (i.e. bald eagle) increasing their risk to motor vehicle collision and/or increase predation risk by attracting predators of Threatened, Endangered, Proposed, or Candidate species.

CM11. Maximum design speed on all operator constructed and maintained roads shall not exceed 25 miles per hour to minimize the chance of a collision with wildlife and livestock.

CM12. Additional measures may be necessary if the site-specific project is determined by a Bureau biologist to have an adverse affect on a Threatened, Endangered, Proposed, or Candidate species or their habitat.

Bald Eagle

CM2. Site-specific project areas will be evaluated for suitable bald eagle nesting and roosting habitat prior to permit approval. Suitable nesting habitat is any mature trees capable of supporting a bald eagle nest (i.e. ponderosa pine or cottonwood) in association with a reliable prey source. A bald eagle winter roost shall be defined as mature trees where bald eagles consistently perch during winter. Small stature trees such as juniper, chokecherry, and box elder are not considered bald eagle habitat.

CM5. All overhead power lines shall be built to protect raptors, including bald eagles, from accidental electrocution using the most recent "suggested practices for raptor protection" by the Avian Power Line Interaction Committee (current version 2006) and any additional practices provided by the FWS. It should be noted that raptor protection can be achieved through insulation and/or wire spacing and that there are multiple configurations capable of protecting raptors.

CM8. A disturbance-free buffer zone of at least 0.5 mile would be established year round for all bald eagle nests. This buffer may be adjusted based on topographic features, visibility, disturbance and human activity levels, land use plans, and other factors. A seasonal minimum disturbance-free buffer zone of at least 1-mile would be established for all bald eagle nest sites (February 1 - August 15). These buffer zone restrictions will be based on site specific information and coordinated the Service's Wyoming Field Office which will provide written concurrence.

CM10. A year-round disturbance-free buffer zone of at least 0.5 mile will be established for all bald eagle roost sites. This buffer may be adjusted based on topographic features, visibility, disturbance and human activity levels, land use plans, and other factors. A seasonal minimum disturbance-free buffer zone of at least 1-mile would be established for all bald eagle roost sites (November 1 – April 1). These buffer zone restrictions will be based on site specific information and coordinated the Service's Wyoming Field Office which will provide written concurrence.

Ute Ladies'-Tresses Orchid

CM20. Suitable Ute ladies'-tresses habitat will be avoided wherever possible. If suitable habitat for Ute ladies'-tresses cannot be avoided, surveys will be conducted in compliance with the most current FWS guidelines (USFWS 1995) by a Bureau-approved biologist or botanist. Surveys can only be conducted between July 20 and August 31.

CM23. Companies operating in areas identified with weed infestations or suitable Ute ladies'-tresses orchid habitat will be required to submit an integrated pest management plan prior to APD approval. Mitigation will be determined on a site-specific basis and may include such measures as spraying herbicides prior to entering areas and washing vehicles before leaving infested areas. Noxious weed infestation areas have been identified through the County Weed and Pest Districts.

Mountain Plover

CM28. No project activities shall occur in suitable nesting habitat prior to surveys for nesting mountain conducted ini compliance with the most recent Mountain Plover Survey Guidelines (USFWS 2002). An approved biologist will conduct the surveys. Project activities shall be limited within identified nesting areas in a manner to avoid the abandonment of these areas.

CM30. A disturbance-free buffer zone of 0.25 mile shall be established around occupied mountain plover nesting habitat between March 15 and July 31.

CM31. Project-related features that encourage or enhance the hunting efficiency of avian mountain plover predators shall not be constructed within 0.5 mile of documented mountain plover nesting habitat. Creation of hunting perches or nest sites for avian predators within 0.5 mile of identified nesting areas shall be avoided by burying power lines, using the lowest possible structures for fences and other structures, and by incorporating perch-inhibiting devices into their design. BLM shall encourage all capped and abandoned wells to be identified with below surface markers; no capped and abandoned well markers within 0.5 mile of mountain plover nesting areas shall be taller than 4 feet or will have perch inhibiting devices installed to avoid creating raptor hunting perches.

CM32. Construction of ancillary facilities (e.g., compressor stations, processing plants) shall not be located within 0.5 mile of documented mountain plover nesting habitat.

CM40. To minimize destruction of nests and disturbance to breeding mountain plovers from reclamation activities, no grading, seeding, or other ground-disturbing activities shall occur from April 10 to July 10 unless surveys consistent with the most recent approved mountain plover survey guidelines (currently USFWS 2002) find that no mountain plovers are nesting in the area.

Deleted Conservation Measures

Conservation Measure nine was combined with CM10. Conservation Measure nine is no longer necessary.

The FWS and the Wyoming Game and Fish Department (WGFD) have concluded that it is unlikely that a wild black-footed ferret population persists in Northeast Wyoming; therefore the FWS no longer recommends that ferret surveys be conducted prior to authorizing surface disturbing activities (Kelly 2004, Grenier 2003). Conservation Measure 15 is no longer applicable.

The FBA included species specific conservation measures discussing that additional mitigation measures may become necessary. The first conservation measure addressing additional mitigation was revised to incorporate all species. Those conservation measures for subsequent species (CM17, CM24, and CM41) are no longer necessary.

The FWS withdrew the mountain plover's proposed listing in September 2003 because new information indicated that the threats to the species included in the proposed listing were not as significant as believed earlier (USFWS 2003). The action agencies consider the mountain plover a sensitive species and are committed to conserving the species. This commitment is demonstrated by the conservation measures included above that remain in place as originally written or in their revised format. Conservation measures 25, 27, and 29 are no longer applicable as the FWS is no longer directly involved with mountain plover conservation.

The FBA included two measures for road design criteria; they were combined into one measure. Conservation measure 34 has been deleted.

The FBA included two measures regarding road side carcass monitoring; they were combined into one measure. Conservation measure 36 has been deleted.

Three mountain plover conservation measures pertaining to avian predation were combined into one measure (CM31); the other measures (CM37 and CM38) are no longer necessary.

Additional Conservation Measures

1. A year round disturbance-free zone of at least 0.5 miles shall be established for the following riparian corridors consistently used by bald eagles: Clear Creek, Crazy Woman Creek, Piney Creek, Powder River, and Tongue River. This buffer may be adjusted to 1.0 mile or greater based on topographic features, visibility, disturbance and human activity levels, and other factors. This buffer zone restriction will be based on site specific information and coordinated with the Service's Wyoming Field Office which will provide written concurrence. Consistent use is evident by the documentation of nests along several of these streams (Clear Creek, Piney Creek, Powder River, and Tongue River) and eagle use along the streams throughout the winter over multiple winters.

2. Weed treatment and limited reclamation activities (i.e. seeding) may occur within a 0.5 to 1.0 mile radius of active bald eagle nests between May 15 and June 15. Operators must contact the authorizing agency who will coordinate with and receive written confirmation from the FWS before application of this measure. Eaglets at two weeks of age are able to thermoregulate and are able to

survive periods when the adult is off the nest due to temporary disturbance (Bortolotti 1984, Watson and Rodrick 2001, Watts et. al. 2004). Just before fledging, eaglets are sensitive to disturbance and can be frightened off the nest before being able to fly (Watson and Rodrick 2001). Eaglets within the Powder River Basin typically reach two weeks of age by the middle of May and fledge in early July.

3. If reclamation or weed treatment is proposed within suitable Ute ladies'-tresses habitat and during the orchid's growing season (July 1 – September 30) then a survey for the orchid, according to FWS protocol, shall be conducted prior to treatment. If any orchids are found, in order to minimize potential effects the Service shall be consulted with prior to implementation.

4. BLM shall not authorize any new surface-disturbing activities within known populations of Ute ladies'-tresses orchid.

SPECIES EVALUATED

Effects determinations for species originally consulted on have not been changed. Determinations are provided in Table 5 following the species discussions.

Bald Eagle

The Service is currently accepting comments on a proposal to remove the bald eagle from the Federal list of Threatened and Endangered species. If delisting occurs, the action agencies shall remain committed to bald eagle conservation through the continued application of the conservation measures identified in this BA and any resulting terms and conditions in the resulting BO.

New bald eagle information since the original consultation is primarily related to habitat selection, nesting and winter roosting, and road effects.

Nesting Habitat

Range-wide, bald eagle nests are typically associated with a water body representing a reliable prey base. A reliable prey base is the critical component, bald eagles within the Powder River Basin and other arid environments have been documented nesting in areas without an aquatic prey base. Three new nests were documented within the PRB project area in 2006 (Rogers pers. Comm., Byer pers comm.). Two of these nests are located in stands of just a few cottonwood trees and are not associated with a fish-bearing water body. Small mammals (i.e. prairie dogs, rodents, rabbits) and carcasses (i.e. domestic sheep, big game) are the typical terrestrial prey bases in the Powder River Basin.

The association with a water body and forest stand shall be removed from the nesting habitat definition used in the original PRB BO (p. 13). **Bald eagle nesting habitat shall be defined as any mature trees capable of supporting a bald eagle nest (i.e. ponderosa pine or cottonwood) in association with a reliable prey source.** Small stature trees such as juniper, chokecherry, and box elder are not considered bald eagle habitat.

Winter Roosts

The BFO and CBNG operators have conducted many winter roost surveys over the last three winters. The PRB FBO (p. 14) defined a roost as a stand of mature or old growth conifer or cottonwood trees that harbors at least six bald eagles on any given night. The recent winter roost surveys have revealed that rarely are six bald eagles at one location on any given night, but that many areas are consistently used by wintering bald eagles. Recent surveys have also illustrated that today bald eagles are primarily roosting in riparian cottonwood habitat, where historically they also roosted in upland conifer habitats (Figure 3). The WGFD has identified several of the consistently used riparian corridors as primary winter habitat.

Application of the "six" eagle roost definition does not provide the conservation level sought during the original PRB consultation and will therefore be replaced. **A bald eagle winter roost shall be defined as mature trees where bald eagles consistently perch during winter.** Small stature trees such as juniper, chokecherry, and box elder are not considered bald eagle habitat. Consistent use is defined as a location where bald eagles are observed on more than one occasion within a single winter (at least one week apart) or over multiple winters. Multiple eagles attracted to a one-time food resource is not a roost.

It should be noted that Patterson and Anderson (1985) whom originally identified many of the bald eagle winter roosts afforded protection in the BFO RMP and the PRBEIS did not use a minimum number of eagles in identifying a roost. The definition Patterson and Anderson used was areas where eagles were observed perched more than once, where white-wash was found on trees and fresh castings were on the ground, or where previous surveys had identified a roost.

Road Effects

Monitoring efforts by the BFO and Thunder Basin National Grasslands (TBNG) have identified that oil and gas project roads pose essentially no risk for bald eagles. The original consultation identified vehicle traffic on project roads as a potential supplier of animal carcasses; a negative effect in that bald eagles feeding on roadside carcasses may then collide with vehicles.

Collision risk increases with automobile travel speed. In one year of monitoring road-side carcasses, the BLM BFO reported 439 carcasses; 226 along Interstates (51%), 193 along paved highways (44%), 19 along gravel county roads (4%), and 1 along an improved CBNG road (<1%) (Bills 2004). No vehicle related eagle mortalities were reported. Eagles were observed feeding on 16 of the reported road-side carcasses (<4%). TBNG data from 1998 through 2002 indicates that no bald eagles were killed or injured in motor vehicle collisions on TBNG project level roads (crowned and ditched gravel roads) (USFS 2004).

Other local data sources support the BFO and TBNG observations. Records obtained from Northeast Wyoming bird rehabilitators indicate six bald eagles were injured within the Powder River Basin as a result of motor vehicle collisions between 1995 and 2003 (USFWS 2004). Three eagle/motor vehicle collisions occurred on paved roads and three on graveled County roads. Coal mines are required to monitor federally listed species and report any occurrence of a dead or injured bald eagle. Coal mines associated with the TBNG have not recorded any bald eagle/motor vehicle collisions dating back to 1994 (USFS 2004).

Buffalo Field Office carcass monitoring results are similar to published results from an eight year Yellowstone National Park study (Gunther et al. 1998). The Yellowstone study concluded that vehicle speed was the primary factor contributing to vehicle-wildlife collisions and that road design appeared to influence vehicle speed more than the posted speed limit. Most (85%) road-kills occurred on roads with posted speed limits of 45 mph (44%, n=418) or 55 mph (41%, n=382). Most Yellowstone roads are posted 45 mph with only the Gallatin Canyon highway (US 191) posted 55 mph or greater. Large mammals were killed by vehicles significantly more than expected on roads with posted speed of 55 mph or greater and significantly less than expected on roads with posted speeds of 45 mph or less.

The above monitoring results and studies indicate that the risk of big-game vehicle related mortality along CBNG project roads is so insignificant or discountable that when combined with the lack of bald eagle mortalities associated with highway foraging leads to the conclusion that CBNG project roads do not effect bald eagles.

Black-footed Ferret

Since the original PRB BO, the WGFD presented a letter to the Service concluding that the combined

effects of poisoning and Sylvatic plague on black-tailed prairie dogs have greatly reduced the likelihood of a black-footed ferret population persisting east of the Big Horn Mountains (Grenier 2003). The Service agreed with the WGFD conclusion further stating that black-tailed prairie dog colonies within Wyoming are unlikely to be inhabited by black-footed ferrets (Kelly 2004). The Service issued a block-clearance where ferret surveys would not be required within the clearance area (Kelly 2004), which includes the PRB project area.

Pallid Sturgeon

Pallid sturgeon, not included within the original consultation, will be included as the PRB is upstream of occupied habitat (Yellowstone River) and the lower Powder River is potential pallid sturgeon habitat. The Service recommended that pallid sturgeon be included in the consultation reinitiation. The Bighorn National Forest included pallid sturgeon in their recently completed Forest Plan revision consultation (Bighorn 2006); pallid sturgeon is also being considered in the consultation on Montana BLM's supplemental oil and gas environmental impact statement.

This species was listed as Endangered on September 6, 1990 (55 FR 36641). They are found in large rivers with high turbidity and a natural flow with rocky or sandy substrates (Forbes and Richardson 1905). They evolved in large rivers with high turbidity and a natural hydrograph that included spring flooding and other high runoff events. Preferred habitat is a natural riverine environment with a diversity of depths and velocities formed by braided channels, sandbars, islands, sand flats and gravel bars (Erickson 1992, Gilbraith et al. 1988, Bramblett and White 2001). In altered reaches, pallid sturgeon are usually found in deeper holes below sandbars and in riverine reaches of reservoirs (Kallemeyn 1983, Erickson 1992, Clancey 1991).

Historically, pallid sturgeon were found in the Missouri River below Fort Benton, Montana. Large tributaries, such as the Yellowstone and Platte Rivers are also believed to be important (Bailey and Cross 1954, Kallemeyn 1983, USFWS 1993, Bramblett and White 2001). Historically in Montana, pallid sturgeon occupied reaches of the Yellowstone River from about Miles City to its confluence with the Missouri River (USFWS 1993, Montana Natural Resource Information System 2005).

The historic range has been drastically reduced due to habitat loss and alteration. Much of the alteration is a result of the Missouri River dams and channel structures built for navigation or flood control (USFWS 2000). The lowhead dam at Intake, Montana restricts upstream movement of pallid sturgeon and defines the upstream limit of all or the majority of pallid sturgeon in the Yellowstone River (Bramblet and White 2001; USFWS 2000). These dams altered the hydrograph (timing, duration and intensity), temperature regimes (colder in summer, warmer in winter) and reduced turbidity as well as dividing the river into segments. These segments contain isolated populations of pallid sturgeon. Pollution and commercial fishing are also considered to have played a role in pallid sturgeon decline.

There are two pallid sturgeon recovery priority management areas (RPMAs) in Montana, with RPMA 2 including the Missouri River downstream of Fort Peck Dam and the lower Yellowstone River (upstream to the mouth of the Tongue River). The Powder River Basin Oil and Gas Project activities within Wyoming have the potential to affect downstream pallid sturgeon within RPMA2.

While the lower Yellowstone River is believed to support relatively high survival of hatchery-reared pallid sturgeon, no known recruitment has occurred in the Yellowstone River for at least 30 years. Thus without intervention this species will likely be extirpated from this area by 2024 (Klungle and Baxter 2004). Hatchery raised pallid sturgeon have been reintroduced to the Yellowstone River above Intake Dam have survived for the duration of transmitter life suggesting suitable habitat is available above the dam (Missouri River FWMAO 2005). A total of 15306 juvenile pallid sturgeon were introduced in Recovery Area 2 between 1998 and 2004 (Jordan 2006). These efforts have temporarily increased

population numbers; however, the primary concerns of reduced reproduction and recruitment from habitat alterations created by the reservoirs and diversions along the Yellowstone and Missouri rivers remain. Current efforts are underway to design and implement upstream passage measures at Intake Dam, when implemented, will effectively eliminate this structure as a barrier to pallid sturgeon movement (George Jordan, pers. Comm..)

Project Effects

The Tongue River enters Montana southeast of Decker and reaches the Yellowstone River at Miles City, a distance of approximately 100 miles, while the Powder River enters Montana southwest of Moorhead and enters the Yellowstone River at Locate approximately 30 miles east of Miles City, a distance of approximately 150 miles. Agricultural water depletion and reservoir management appear to be the primary threats to sturgeon recovery (FWS 2000). Wyoming CBNG activities would likely have no effect on Yellowstone and Missouri River reservoir management but may help offset water depletion.

Federal oil and gas development must conform to requirements to protect hydrologic resources through produced water disposal methodology and water quality standards. CBNG operators are required to develop a Water Management Plan as part of their overall plan of development (POD) that describes how impacts would be minimized or mitigated, and how a discharge could occur without damaging the watershed—in accordance with a required and approved NPDES Permit and water quality laws. Restrictions prohibiting surface occupancy or use of water bodies, floodplains of major rivers, riparian areas, and steep slopes would further avoid impacts.

The primary effects related to CBNG development in Wyoming would be water quantity, temperature influence, and water quality. The POD Water Management Plans establish site-specific requirements for produced water that could be discharged to surface waters from federal CBNG wells. These requirements are consistent with those limitations stipulated in the Wyoming Pollutant Discharge Elimination System (WYPDES) discharge process. Wyoming CBNG activities in 2005 contributed less than 13 cfs, 38 cfs, and 12 cfs to the Tongue, Powder, and Little Powder Rivers respectively. The additional CBNG water would compensate for some of the water lost through domestic depletions and the increased evaporation from the reduced flows resulting from the depletions. However, water diversions from the Powder and Tongue Rivers in Montana likely remove far more water than CBNG discharges add. There are additional depletions occurring in Wyoming downstream of CBNG discharge points. US Geological Survey monitoring data presented in Tables 3 and 4 illustrate the mean monthly flows of the Powder and Tongue Rivers entering Montana pre and post CBNG development, and do not indicate any significant change in flow rate with the addition of CBNG water. The first CBNG well drilled in the Powder River Basin was in 1987 (Braun et al. 2002).

Temperatures of CBNG discharge water frequently varies from that of the water body it is discharged into. Due to the distance the water must travel, over one-hundred miles, and the quantity of water discharged compared to the flow of the Tongue or Powder Rivers, the water temperature would be equalized with that of the receiving river prior to reaching occupied sturgeon habitat in the Yellowstone River or potential habitat in the lower Powder River. Furthermore, Sheehan et al. (1998) stated that temperature would not seem to have an affect on either habitat use or habitat selection by pallid sturgeon.

The POD Water Management Plans also establish site-specific thresholds for the quality of produced water that could be discharged to surface waters from federal CBNG wells. These requirements correspond to the surface water quality discharge limitations stipulated in the Wyoming Pollutant Discharge Elimination System (WYPDES) discharge process. The Montana Department of Environmental Quality (MTDEQ) has established non-degradation standards for the Tongue and Powder River, where discharges into these rivers can not degrade the established standards. Upstream states such as Wyoming are required by Federal law to ensure waters entering Montana meet the standards.

Wyoming is contesting the Montana regulation as natural storm events have been demonstrated to exceed the standards. Wyoming Department of Environmental Quality (WYDEQ) requires water quality monitoring above and below CBNG discharge points. If monitoring indicates that water quality thresholds would be exceeded, no further discharge would be allowed until the operator could demonstrate compliance.

US Geological Survey long-term monitoring of sodium absorption ratio (SAR) and specific conductance (SC) within the Tongue and Powder Rivers indicate these parameters are within the historic range of variability and have not increased since CBNG development within the PRB began (Bobst 2006). SAR and SC are designated by Montana as harmful parameters.

Little information is provided in the 2000 Missouri River Management BO regarding water quality, pollution, or contaminants (FWS 2000). The BO mentions potential contaminant sources along the occupied habitats but does not speculate on potential upstream contaminant sources. The BO concludes that further investigations are needed to identify and assess the role of contaminants in the decline of pallid sturgeon populations.

The characteristics of the Powder and Tongue Rivers make it unlikely that Wyoming CBNG discharge will have any influence on waters which reach the Yellowstone. The Powder remains a free-flowing prairie river with widely fluctuating flows. In dry summers, the Powder does not maintain a continuous flow even with current CBNG discharges. During high flows the added CBNG waters are an insignificant contribution to the total flow. The Tongue flows continuously in Wyoming, but is stopped at the Tongue River Reservoir near Decker. Potential contaminants carried into the reservoir from Wyoming CBNG discharges would likely settle out. Water releases from the reservoir are largely influenced by agricultural demands; additional Wyoming CBNG water would have little or no influence on reservoir management.

Conservation Measures

There are no specific conservation measures identified. The BLM will include, and enforce appropriate mitigation measures for aquatic resources during the site-specific, POD evaluation and approval stage. Measures to further avoid or reduce impacts in addition to those included at the plan-approval stage may be recommended.

Determination

With water protection regulations in place and being enforced, given the quantity and quality of water being discharged, the volume of “natural” water in the Tongue and Powder Rivers, the distance the Wyoming CBNG must travel to reach potential pallid sturgeon habitat, and the volume of “natural” water in potential sturgeon habitat the potential that Wyoming CBNG activities will affect the pallid sturgeon is below the insignificant, or discountable threshold. Therefore, Wyoming CBNG activities will have **no effect** on pallid sturgeon.

Table 3. Mean Monthly Powder River Flows at Moorhead, Montana.

YEAR	Monthly mean flow in cubic feet/second (cfs)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1990	161.1	308.9	583.3	360.5	585.5	986.5	213.7	328.3	118.1	200.5	226.7	136.8
1991	105.2	388.6	400.8	471.5	1,685	1,905	204.5	57.7	113.2	167.5	268.2	211
1992	241.3	325.6	293.8	301.9	179.1	866	952.1	223.6	150	192.2	259.2	134.7
1993	109.5	124.3	623.9	450.1	1,590.00	2,180.00	772.7	382.6	163.1	295.3	253.8	226.5
1994	204.5	423.2	701.4	525.7	667	79.2	249.1	59.4	46.8	897.1	318.2	160
1995	174.5	700.5	401.7	307.4	1,783	3,634	988.4	100.9	104.5	295.5	298.6	184.1
1996	140.8	534.7	699.4	614.5	1,062	1,486	166.2	33.1	46	175.4	240.2	115.6
1997	245.2	389.6	764.9	548.1	1,120.00	1,937	804.4	724	231.5	334.3	284.7	226.1
1998	211.6	316.1	532.1	664.4	1,300.00	857.8	537.5	410.6	357.7	621.1	660.4	215.6
1999	217.1	305.7	353.7	814.3	2,381	2,153	378.7	115.8	191	272.5	265.9	232.6
2000	261.9	282.8	320.7	387.7	1,026	535.8	107.6	41.1	109.8	232.4	164.6	144.2
2001	139.4	143.6	293.5	230.2	177	93	173	2.57	7.65	55.2	127.2	133.9
2002	195.5	237.1	184.8	312	181.3	67.2	53.8	249.6	184.6	159.8	190.4	130.6
2003	153.9	201.4	587.5	578.1	573.5	666.3	155.4	26.3	64	79	91.3	156.5
2004	56.6	76.4	368.4	211.5	123.9	31.1	117.2	33.3	58.1	162.3	221.6	141.8
Mean	174.54	317.23	473.99	451.86	962.28	1165.19	391.62	185.924	129.73	276.00	258.06	170
Pre-CBNG (1930-1986)	144.653	271.69	633.54	511.13	1063.96	1407.13	479.014	167.98	142.63	204.19	203.98	154.36

Table 4. Mean Monthly Tongue River Flow at Decker, Montana.

YEAR	Monthly mean flow in cubic feet per second (cfs)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1990	271.6	310.4	294.3	371.4	974.3	1,856	461.4	187.9	156.4	237.1	212.7	153.7
1991	163.2	209.3	284.3	306.7	1,639	1,695	241.9	102	174.4	183.3	201	177.7
1992	181.6	201.4	173.5	228.8	626.5	1,214	1,012	279.1	272.2	229	217	150.2
1993	137.3	139.5	277.5	211.7	1,200.00	1,499	671.8	275.5	230.8	263.8	241.6	229.4
1994	200.6	199.3	464.3	579.6	1,261	376.5	162	93.6	120.6	292.4	224	198.4
1995	147.7	160.7	260.5	242.5	1,180.00	3,069	1,022	222.9	253.6	278.3	259.9	198.7
1996	165.8	303.6	384.4	373.1	1,147	1,808	294.3	114	154.8	216.5	197.8	151
1997	160	203.9	333.3	415.5	1,290.00	2,250.00	691.3	400.4	261.7	270	230.5	210.6
1998	170	185	259.5	334.8	739.3	1,018	433.3	357.9	320.5	332.6	311.2	173.5
1999	174.8	193.2	192.7	382	1,373	2,102	356.7	94.8	256.2	253.9	192.3	159.7
2000	139.8	159	211.5	256	1,416	995	246.5	101.3	137.2	192.3	178.6	140.5
2001	171.9	199.5	232.6	203.3	323.2	175.5	54.7	13.1	73.3	117.4	125.9	106.8
2002	78.7	79.8	88.5	146.8	268.2	354.4	83.3	78.1	128.2	147.7	135.9	121.9
2003	144.8	144.6	443	306.9	970.5	1,264	287	69.9	168.4	174.4	180.2	144.4
2004	129.4	149.8	168.8	159.2	192	181.1	149.8	63.5	103.7	157.4	138.7	115.5
Mean	162.48	189.26	271.24	301.22	973.33	1323.83	411.2	163.6	187.46	223.07	203.15	162.13
Pre-CBNG (1961-1986)	187.26	252.98	330.45	379.33	1217.05	1872.69	502.00	179.58	231.42	271.66	234.66	191.08

Ute Ladies'-tresses Orchid

Ute ladies'-tresses have been proposed for delisting, FWS should act on the proposal in 2007. Survey efforts have intensified within the PRB project area since completion of the PRB FEIS. However, until 2005 no new colonies were found. Five additional sites were located statewide in 2005 (Heidel pers. Comm.). The new locations were in the same drainages as the original 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.

Antelope Creek remains the only documented population within the PRB. The Antelope Creek watershed comprises the majority of the project area south of WY387 and east of Wright (southern Campbell County and northern Converse County). Antelope Creek is in the Cheyenne River watershed. No orchids have been documented in the other major watersheds of the PRB project area, Belle Fourche River, Powder River, or Tongue River.

Table 5. Habitat descriptions and projected effects on Threatened, Endangered, and Proposed species.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Endangered				
Black-footed ferret (*Mustela nigripes*)	At least 1000 acres of black-tailed prairie dog colony, separated by no more than 1.5 kilometers.	NS	NLAA	No documented occupancy within project area. Ferret reintroduction within project area unlikely.
Pallid sturgeon (*Scaphirhynchus albus*)	Missouri and Yellowstone River mainstems.	NP	NE	Water resource protections in place. Separation from potential/occupied habitat.
Threatened				
Bald eagle (*Haliaeetus leucocephalus*)	Mature forest cover often within one mile of large water body.	K	LAA	Overhead power poses risk. Suitable habitat to be developed.
Utes ladies'-tresses orchid (*Spiranthes diluvialis*)	Riparian areas with permanent water	K	LAA	Minimal development within suitable habitat

Presence
K Known, documented observation within project area.
S Habitat suitable and species suspected, to occur within the project area.
NS Habitat suitable but species is not suspected to occur within the project area.
NP Habitat not present and species unlikely to occur within the project area.

Effect Determinations

LAA Likely to adversely affect
NE No Effect.
NLAA May Affect, not likely to adversely effect individuals or habitat

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