WILDLIFE APPENDIX

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This appendix contains the letter from the BLM that formally submitted the Biological Assessment to the U.S. Fish and Wildlife Service (FWS) for review under Section 7 of the Endangered Species Act of 1973. Additional consultation with the FWS is described in Chapter 5. This appendix also contains a series of tables that are cited in Chapter 4 of the EIS Wildlife section. Following the tables is a copy of the CBM Programmatic Wildlife Monitoring and Protection Plan developed by the BLM for the EIS. A copy of the Biological Assessment and Biological Opinion are also attached.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Miles City Field Office
111 Garryowen Road
Miles City, Montana 59301-0940
http://www.mt.blm.gov/mcfo/

IN REPLY TO:
1310 CBMP

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

FEB 8 2002

R. Mark Wilson
Field Supervisor
USFWS - Ecological Services
100 North Park, Suite 320
Helena, Montana 59601

Dear Mr. Wilson:

The Bureau of Land Management (BLM), Miles City and Billings Field Offices, the Montana Board of Oil and Gas Conservation and the Montana Department of Environmental Quality have jointly prepared the "*Montana Statewide Draft Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans*" (EIS). The document primarily addresses coal bed methane development within southeastern and south-central Montana. A copy has been enclosed for your review.

Pursuant to BLM's responsibility under Section 7 of the Endangered Species Act of 1973, in accordance with Code of Federal Regulations 50 Part 407.12, and to also address your concerns from correspondence dated April 7, 2001, we are forwarding a copy of the "Biological Assessment for Coal Bed Methane Production in Montana" for your 30-day review.

We have found that there would be "no effect" to Canada lynx, gray wolf, grizzly bear, interior least tern and the warm spring zaitzevian riffle beetle. We have also determined a "may effect, but not likely to adversely impact" finding for Ute ladies-tresses orchid, black-footed ferret, mountain plover, bald eagle, pallid sturgeon and Montana arctic grayling. The black-tailed prairie dog is discussed but no finding is made as it is not a threatened, endangered or candidate species.

Please respond whether or not you concur with the findings of the Biological Assessment. Your review of this document and follow-up comments will be greatly appreciated. Your evaluation will also help guide BLM to other levels of Section 7 consultation should they be required.

If changes are made between the Draft and Final EISs that would have an effect on threatened or endangered species other than those described in the draft, the BLM will reinitiate consultation with you.

Please contact Larry Rau, Wildlife Biologist in the Miles City Field Office, at 233-2843 if you have any questions. Thank you for your continued assistance on this project.

Sincerely,

/S/ Aden L. Seidlitz

Aden L. Seidlitz
Associate Field Manager

2 Enclosures
1-Draft EIS (276pp)
2-Biological Assessment (21pp)

cc: Jay Parks, MT010

TABLE WIL-1
WILDLIFE SPECIES OF CONCERN

Common Name	Scientific Name	Counties	Additional Information			
			MT	BLM	USFS	Suitable Habitat
Mammals						
Pallid bat	*Antrozous pallidus*	Carbon	S1		S	Arid areas with rocky outcrops, dry forests, riparian forests, and ponderosa pine low slope forests in south-central Montana (UM).
Townsend's big-eared bat	*Corynorhinus (Plecotus) townsendii*	All	S2S3	SS	S	Arid scrub and pine forest, uses caves, snags, old mines and buildings the Custer and Gallatin National Forests (NM).
Spotted bat	*Euderma maculatum*	Big Horn, Carbon, Powder River	S1	SS	S	Various habitats in south-central Montana from open coniferous to pastureland.
Eastern red bat	*Lasiurus borealis*		S1			Open forest, woody draws, and farm shelter-belts (M).
Northern myotis	*Myotis septentrionalis*	None known in emphasis area.	S1			Mixed and coniferous forests with small woodland pools and streams, in clearings (NM). Lower Missouri River.
Pygmy rabbit	*Brachylagus idahoensis*	None known in emphasis area.	S2S3	SS	S	Areas with tall, dense sagebrush cover.
Hispid pocket mouse	*Chaetodipus hispidus*	Carter and Powder River	S1			Arid, open prairie land.
White-tailed prairie dog	*Cynomys leucurus*	Carbon	S1	SS	S	Grasslands and plains.
Black-tailed prairie dog	*Cynomys ludovicianus*	All	S3S4	SS	S	Short-grass and mixed-grass prairie in the east of the 110th meridian Fort Belknap Reservation, and Crow Reservation.
North American wolverine	*Gulo gulo luscus*	Park and Gallatin	S2	SS	S	Mature and old-growth fir, pine and larch forests, alpine shrub, talus, and riparian cottonwoods.
Spotted skunk	*Spilogale gracilis*	Carbon		SS		Rocky, brushy grasslands, riparian areas and forest/shrub ecotones.

TABLE WIL-1
WILDLIFE SPECIES OF CONCERN

Common Name	Scientific Name	Counties	Additional Information			
			MT	BLM	USFS	Suitable Habitat
Fisher	*Martes pennanti*	Park and Gallatin	S1S2	SS	S	Forests with mixed habitat, several structural classes, edges and riparian areas.
Merriam's shrew	*Sorex merriami*	All SE MT counties and Blaine	S3	SS		Sagebrush and mountain brush areas and arid forests with sagebrush or bunchgrass.
Northern bog lemming	*Synaptomys borealis*	None known in project area.	S2	SS	S	Damp pastures, tundra, cool bogs, peatlands, marshes, or moist meadows.
Preble's shrew	*Sorex preblei*	Carbon, Musselshell, Treasure, Rosebud, Big Horn	S3	SS		Dry sagebrush and sagebrush-grasslands.
Swift fox	*Vulpes velox*	All counties east of Continental Divide	S1	SS	S	Short to midgrass prairie habitat.
Herptiles						
Boreal/Western toad	*Bufo boreas*	Park, Carbon, Sweetgrass, Gallatin	S3S4		S	Breeding ponds, summer range, and overwinter refugia within lodgepole pine or spruce-fir forests.
Canadian toad	*Bufo hemiophyrs*	None known in project area.	S1	SS	S	Shallow wetlands, streams, ditches, margins of prairie wetlands.
Wood frog	*Rana sylvatica*	Big Horn**		SS		Temporary ponds, lakes, and streams with adjacent forests or brush with damp litter.
Northern leopard frog	*Rana pipiens*	All	S3S4		S	Streams, ponds, lakes, wet prairies, and other bodies of water, frequently moving into grassy, herbaceous fields or forest borders some distance from permanent water.
Snapping turtle	*Chelydra serpentiana*	Eastern Counties	S3	SS		Shallow, mud-bottomed backwaters and ponds with lush aquatic vegetation.
Spiny softshell	*Trionyx spiniferus*	Eastern Counties	S3	SS		Rivers, backwaters, lakes, and ponds with sand or mud areas for digging nests. Missouri and Yellowstone Rivers

TABLE WIL-1
WILDLIFE SPECIES OF CONCERN

Common Name	Scientific Name	Counties	Additional Information			
			MT	BLM	USFS	Suitable Habitat
Birds						
Swainson's hawk	*Buteo swainsoni*	All	S4B, SZN	SS		Shrub-steppe, prairie with scattered trees, or open woodlands.
Ferruginous hawk	*Buteo regalis*	All	S3B, SZN		S	Undisturbed plains or shrub-steppe with relatively unbroken terrain and scattered trees, rocks, or treed creek bottoms.
Northern goshawk	*Accipiter gentilis*	Carbon, Park, Gallatin, Powder River, Rosebud	S3S4	SS	S	Coniferous, deciduous, and mixed forests with a high density of large, old trees and high overstory canopy.
Burrowing owl	*Athene cunicularia*	All	S3S4	SS	S	Burrows made by prairie dogs or badgers in rangeland and prairie areas.
Great gray owl	*Strix nebulosa*	Carbon, Park, Gallatin, Sweetgrass	S3	SS		Dense, often moist, forests, with openings for hunting.
Flammulated owl	*Otus flammeolus*	Gallatin, Park	S3B,SZN	SS	S	Stands of mature ponderosa pine and Douglas fir with tree cavities.
Canvasback duck	*Aythya valisineria*	All		SS		Large, shallow prairie marshes bordered by dense emergent vegetation with areas of open water.
Harlequin duck	*Histrionicus histrionicus*	Carbon, Park, Gallatin	S2B,SZN	SS	S	Summer on mountain streams and rivers, nest on the ground near water's edge or in the hollows of dead trees.
Trumpeter swan	*Cygnus buccinator*	Carbon, Park, Gallatin	S2B, S2N	SS		Shallow freshwater marshes, ponds, lakes, and slow-moving rivers with both submerged and emergent vegetation.
White-faced ibis	*Plegadis chihi*	Carbon, Park	S1B, SZN	SS		Freshwater wetlands (marshes, ponds, swamps) with islands of emergent vegetation.
Long-billed curlew	*Numenius americanus*	All		SS		Open grasslands and prairies, often near water.

TABLE WIL-1
WILDLIFE SPECIES OF CONCERN

Common Name	Scientific Name	Counties	Additional Information			
			MT	BLM	USFS	Suitable Habitat
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	None known in project area	S1		S	Native bunchgrass and sagebrush-steppe with plant species diversity and structural diversity
Cassin's kingbird	*Tyrannus vociferans*	Southeastern counties	S1			Open country with pinyon-juniper or Ponderosa pine, open scrub, and shrub-steppe.
Loggerhead shrike	*Lanius ludovicianus*	All		SS		Edge habitat with open country, thinly wooded or scrubby land with clearings, meadows, and aspen stands bordering dense, ungrazed or lightly grazed grassland.
Blue-gray gnatcatcher	*Polioptila caerulea*	Carbon	S1			Juniper and limber pine in the Pryor Mountains of south-central Montana.
Sage sparrow	*Amphispiza belli*	NI		SS		Sagebrush steppe species, not confirmed in Montana.
Baird's sparrow	*Ammodramus bairdii*	Eastern Counties	S3S4B SZN		S	Open tall to mixed grass areas with mixture of mostly native prairie grasses and forbs.
Hairy woodpecker	*Picoides villosus*	All		SS		Various types of forest stands throughout Montana.
Pileated woodpecker	*Dryocopus pileatus*	Park, Gallatin		SS		Mature forests with large snags.
Three-toed woodpecker	*Picoides tridactylus*	Carbon, Park, Gallatin, Big Horn, Sweetgrass		SS		Pine-dominated mature forests and burned areas in early successional stages.
Black-backed woodpecker	*Picoides articusi*	Park, Gallatin	S3	SS	S	Coniferous forests, especially early post-fire habitat
Dickcissel	*Spiza americana*	Eastern Counties	S1	SS		Hayfields, pastures, weedy fallow fields, and the weedy margins of ditches and roadsides

TABLE WIL-1
WILDLIFE SPECIES OF CONCERN

Common Name	Scientific Name	Counties	Additional Information			
			MT	BLM	USFS	Suitable Habitat
Fish						
Yellowstone Cutthroat Trout	*Oncorhynchus clarki bouvieri*	Western Counties	S2	SS	S	Mountain lakes and streams with varying habitat structures and water velocities.
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisi*	Gallatin	S3	SS	S	Small, isolated streams in mountainous areas.
Blue sucker	*Cycleptus elongatus*	Eastern Counties	S3?	SS		Deep water of large rivers and reservoirs with low turbidity and swift current.
Paddlefish	*Polyodon spathula*	Eastern Counties	S1S2			Historically found in calm, open waters of large rivers in the Mississippi River drainage as far north as the Missouri River in Montana.
Shorthead sculpin	*Cottus confusus*	NI	S3		S	Cold, fast riffles in streams with gravel.
Northern redbelly dace X Finescale dace*	*Phoxinus eos X Phoxinus neogaeus*	Western Counties	S3	SS		Boggy lakes, creeks, and ponds, often with cool, dark, tea-colored water.

*Hybrid, always female.
**Possible/not confirmed.
M=migratory.
UM=unknown migration.
NM=nonmigratory, year-round resident.
NI=no information.
S and SS=species of concern.
S1=critically imperiled in the state.
S2=vulnerable to extinction.
S3=rare or restricted in range.
B= Breeding status of a migratory species.
Z= Ranking not applicable.
N= Non-breeding status of a migratory species.

TABLE WIL-2
AQUATIC RESOURCES CHARACTERISTICS OF MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN THE BILLINGS AND POWDER RIVER RESOURCE MANAGEMENT PLAN AREAS AND IN PARK, GALLATIN, AND BLAINE COUNTIES[1]

Location and Drainage	Length (miles)[2]	Aesthetics[3]	Fisheries Management[4]	Fisheries Resource Value[5]	Number of Fish Species Present	Dewatering Problem Identified?[6]
Billings Resource Management Area						
Yellowstone River West of Billings	134	National renown, clean stream and natural setting, stream and area fair	Trout	Outstanding, high, substantial	20	Periodic
Boulder River	66	Natural beauty, pristine	Trout	Outstanding, high, substantial	9	Chronic
Stillwater River	73	Natural beauty, clean stream and natural setting	Trout	Outstanding, high, substantial	9	No
Clarks Fork of the Yellowstone						
Downstream Section	43	Stream and area fair	Non-trout	Substantial	19	Periodic
Upstream Section	30	Clean stream and natural setting	Trout	Substantial	12	Chronic
Yellowstone River East of Billings	26	Clean stream and natural setting, stream and area fair	Warm/cool water and non-trout	High	28	Periodic
Bighorn River						
Downstream Section	59	Stream and area fair	Trout	High	30	Periodic
Little Bighorn River	116	Natural beauty, clean stream and natural setting	Warm/cool water and trout	Moderate	8	No
Upstream Section	38	National renown	Trout	Outstanding	17	No
Musselshell River	246	Clean stream and natural setting, stream and area fair	Trout	High, substantial	32	Chronic
Careless Creek	56	Clean stream and natural setting, stream and area fair	Warm/cool water and trout	Substantial, moderate, limited	10	Chronic
Powder River Resource Management Area						
Yellowstone River	64	Clean stream and natural setting	Non-trout	High	40	No
Rosebud Creek	208	Stream and area fair	Undesignated	High, substantial	21	No

TABLE WIL-2
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Location and Drainage	Length (miles)[2]	Aesthetics[3]	Fisheries Management[4]	Fisheries Resource Value[5]	Number of Fish Species Present	Dewatering Problem Identified?[6]
Tongue River						
Downstream Section	93	Clean stream and natural setting, stream and area fair	Non-trout	High, substantial	33	Periodic
Pumpkin Creek	172	Clean stream and natural setting, stream and area fair	Non-trout and undesignated	Substantial, moderate, limited	20	No
Upstream Section	114	Clean stream and natural setting	Trout	High	26	No
Otter Creek	103	Stream and area fair	Undesignated	Substantial, moderate	20	No
Hanging Woman Creek	47	Clean stream and natural setting	Undesignated	Substantial, moderate	23	No
Powder River						
Downstream Section	156	Low	Non-trout	High	21	Chronic
Mizpah Creek	150	Low, clean stream and natural setting	Non-trout and undesignated	Moderate, limited	18	No
Little Powder River	72	Stream and area fair	Non-trout	Substantial	13	No
Upstream Section	77	Low, natural and pristine beauty	Warm/cool water	High	21	Chronic
Little Missouri River	103	Clean stream and natural setting	Non-trout	High	18	No
Park County						
Yellowstone River	104	National renown	Trout	Outstanding	12	No
Shields Creek	65	Clean stream and natural setting	Trout	High, substantial	10	Periodic
Gallatin County						
Missouri River	27	National renown	Trout	High	13	Periodic
Gallatin River	102	National renown, clean stream and natural setting	Trout	Outstanding, high	12	Chronic/Periodic

TABLE WIL-2
AQUATIC RESOURCES CHARACTERISTICS OF MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN THE BILLINGS AND POWDER RIVER RESOURCE MANAGEMENT PLAN AREAS AND IN PARK, GALLATIN, AND BLAINE COUNTIES[1]

Location and Drainage	Length (miles)[2]	Aesthetics[3]	Fisheries Management[4]	Fisheries Resource Value[5]	Number of Fish Species Present	Dewatering Problem Identified?[6]
Madison River	20	National renown	Trout	Outstanding	13	No
Jefferson River	19	Clean stream and natural setting	Trout	Substantial	12	Chronic
Blaine County						
Missouri River	38	National renown	Non-trout	Outstanding	26	No
Cow Creek	54	Clean stream and natural setting	Trout	Moderate	8	No
Milk River	110	Stream and area fair	Non-trout	High	31	No
Lodge Creek	73	Stream and area fair	Non-trout	High	18	No
Peoples Creek	113	Clean stream and natural setting	Trout and non-trout	Substantial, moderate	14	No

[1]Information derived from the Montana Natural Resource Information System on the Internet at http://nris.state.mt.us/wis/mris1.html. Multiple values for a resource characteristic indicate river reach differences within a given drainage.

[2]Estimated length of drainage within the Resource Management Area or county.

[3]Aesthetics ratings in descending order are: national renown; natural and pristine beauty with some development; clean stream and natural setting; stream and area fair; and low.

[4]Categories of fisheries management are: trout; non-trout; warm/cool water; and undesignated.

[5]Fisheries resource values ratings in descending order are: outstanding; high; substantial; moderate; and limited.

[6]Dewatering indicates a reduction in streamflow beyond the point where stream habitat is adequate for fish and usually occurs during the irrigation season (July through September). Periodic dewatering indicates a significant problem in drought or water-short years, and chronic dewatering indicates a significant problem in virtually all years.

TABLE WIL-3
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES ND REPRESENTATIVE TRIBUTARIES IN THE BILLINGS RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River West of Billings	Boulder River	Stillwater River	Clarks Fork of the Yellowstone		Yellowstone River East of Billings	Bighorn River		Little Bighorn River	Musselshell River	Careless Creek
					Downstream Section	Upstream Section		Downstream Section	Upstream Section			
Goldeye	*Hiodon alasoides*	A, C, U, R			A		A	A	C, R		A, C, R	
Lake chub	*Couesius plumbeus*				U	C	R	R			R	A
Common carp[2]	*Cyprinus carpio*	C, U, R			R		C	A, C	A, C		A, C, U	
Western silvery/plains minnow	*Hybognathus argyritis/placitus*				U	R		C, U	R		A, C, U	
Brassy minnow	*Hybognathus hankinsoni*										U, R	
Emerald shiner	*Notropis atherinoides*	C, U, R				R	C	U			C, R	
Sand shiner	*Notropis stramineus*										A, U, R	
Northern redbelley/finescale dace	*Phoxinus eos/neogaeus*										U	U
Fathead minnow	*Pimephales promelas*							U			U	U
Flathead chub	*Platygobio gracilis*						A, C	C			A, C, U, R	A
Longnose dace	*Rhinichthys cataractae*	R	C	A, C, U	C	C	A	A, C	A		A, C, U	A
River carpsucker	*Carpiodes carpio*	C, U			C		C	C	U, R		U, R	
Longnose sucker	*Catostomus catostomus*	A, C, U	A	C, U	A, C	C	C	A	C	C	A, C, U, R	C
White sucker	*Catostomus commersoni*	A, C, U		A, U	A	A	C	A, C	A, C	C	A, C, U	A, C
Mountain sucker	*Catostomus platyrhynchus*	A, U	C	C, R	C	A	A	C		P	A, C	C
Smallmouth buffalo	*Ictiobus bubalus*						R	R			R	
Bigmouth buffalo	*Ictiobus cyprinellus*						R	R				

TABLE WIL-3
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES ND REPRESENTATIVE TRIBUTARIES IN THE BILLINGS RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River West of Billings	Boulder River	Stillwater River	Clarks Fork of the Yellowstone		Yellowstone River East of Billings	Bighorn River		Little Bighorn River	Musselshell River	Careless Creek
					Downstream Section	Upstream Section		Downstream Section	Upstream Section			
Shorthead redhorse	*Moxostoma macrolepidotum*	A, C			U		A	A, C	U, R		A, C	C
Black bullhead[2]	*Ameiurus melas*	U									R	
Yellow bullhead[2]	*Ameiurus natalis*						U					
Channel catfish	*Ictalurus punctatus*	C, U, R			U, R		A	C, U	R	C	C, U	
Stonecat	*Noturus flavus*	U			C		C	U			C, U, R	
Northern pike[2]	*Esox lucius*						R	R	R		U, R	
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*	R	C, U	C, U, R	R	R						
Rainbow trout[2]	*Oncorhynchus mykiss*	C	A, C, U	A, C, U	U, R	R	U	C, U	A	C		
Mountain whitefish	*Prosopium williamsoni*	A, C	A	A, C, U	C	A	U	U	C	C	C, U	
Brown trout[2]	*Salmo trutta*	C	A	A, C, U	R	U	U	C, U	A	C	C, R	
Brook trout[2]	*Salvelinus fontinalis*	R	A, U	C, U, R								C
Arctic grayling	*Thymallus arcticus*					R						
Burbot	*Lota lota*	C, U, R			C		C	C, U	R			
Plains killifish	*Fundulus zebrinus*							R				
Mottled sculpin	*Cottus bairdi*	A, C, U	C		R						A, C	
Green sunfish[2]	*Lepomis cyanellus*							R, I			R, I	
Smallmouth bass[2]	*Micropterus dolomieu*						C	U, R	R	C	C, U, R	
Largemouth bass[2]	*Micropterus salmoides*						R				I	

TABLE WIL-3
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES ND REPRESENTATIVE TRIBUTARIES IN THE BILLINGS RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River West of Billings	Boulder River	Stillwater River	Clarks Fork of the Yellowstone		Yellowstone River East of Billings	Bighorn River		Little Bighorn River	Musselshell River	Careless Creek
					Downstream Section	Upstream Section		Downstream Section	Upstream Section			
Black crappie[2]	*Pomoxis nigromaculatus*						I	I			I	
Yellow perch[2]	*Perca flavescens*						R	R			U	
Sauger	*Stizostedion canadense*	U			R		U	U	R		C, U	
Walleye[2]	*Stizostedion vitreum*						R	U	R		R	
Freshwater drum	*Aplodinotus grunniens*						R	R			R	

[1]Information derived from the Montana Natural Resource Information System on the Internet at http://nris.state.mt.us/wis/mris1.html. Multiple values for relative abundance indicate variation among river reaches and/or study results within a given drainage. Relative abundance: A = abundant; C = common; U = uncommon; R = rare; I = incidental; P = present.

[2]Indicates species is not native.

TABLE WIL-4
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN THE POWDER RIVER RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River	Rosebud Creek	Tongue River		Pumpkin Creek	Powder River		Little Powder River	Little Missouri River
				Downstream Section	Upstream Section		Downstream Section	Upstream Section		
Pallid sturgeon	*Scaphirhynchus albus*	R								
Shovelnose sturgeon	*Scaphirhynchus platorynchus*	A		A			A	A		
Paddlefish	*Polyodon spathula*	C		R						
Goldeye	*Hiodon alasoides*	A	U	A		U, R	C	C	C	U
Lake chub	*Couesius plumbeus*	R	U			C, U				C
Common carp[2]	*Cyprinus carpio*	A	C	C	C	C, U	R	C, U, R	U	U
Western silvery/plains minnow	*Hybognathus argyritis/placitus*	C, U		U		C	A	A, C	A	C
Brassy minnow	*Hybognathus hankinsoni*	R	R			C	R	R		
Sturgeon chub	*Macrhybopsis gelida*	U, R		R			C	C		
Golden shiner[2]	*Notemigonus crysoleucas*									C
Emerald shiner	*Notropis atherinoides*	A		C	C					
Sand shiner	*Notropis stramineus*	R		R		C	U	U	U	A
Northern redbelley/finescale dace	*Phoxinus eos/neogaeus*	U								
Fathead minnow	*Pimephales promelas*	C	U	C		A, C	C		C	C
Flathead chub	*Platygobio gracilis*	A	A	A	A	C, U	A	A	R	A
Longnose dace	*Rhinichthys cataractae*	U	C	C	U	U	U	C, U	R	C
Creek chub	*Semotilus atromaculatus*	R		R	R		R	R		C
River carpsucker	*Carpiodes carpio*	A	U	C	C	C, R	U	U	C	U
Longnose sucker	*Catostomus catostomus*	C	U	C	A					

TABLE WIL-4
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN THE POWDER RIVER RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River	Rosebud Creek	Tongue River		Pumpkin Creek	Powder River		Little Powder River	Little Missouri River
				Downstream Section	Upstream Section		Downstream Section	Upstream Section		
White sucker	*Catostomus commersoni*	A	C	C	A	C, U	C		U	C
Mountain sucker	*Catostomus platyrhynchus*	U		U	C	R				
Blue sucker	*Cycleptus elongatus*			U						
Smallmouth buffalo	*Ictiobus bubalus*	C		U	C					
Bigmouth buffalo	*Ictiobus cyprinellus*	C		U						
Shorthead redhorse	*Moxostoma macrolepidotum*	A	A	A	A	C, U	U	C, U	A	A
Black bullhead[2]	*Ameiurus melas*		R	U	U	U				U
Yellow bullhead[2]	*Ameiurus natalis*			U	U					
Channel catfish	*Ictalurus punctatus*	A	C	A	C	C, U	C	C, U	C	C
Stonecat	*Noturus flavus*	A	U	C	C	U, R	U	U	U	
Northern pike[2]	*Esox lucius*	U	C	U	U					
Rainbow trout[2]	*Oncorhynchus mykiss*	R			U		R	U, R		
Mountain whitefish	*Prosopium williamsoni*		U		U					
Brown trout[2]	*Salmo trutta*	R			U			U		
Brook trout[2]	*Salvelinus fontinalis*		U					U		
Burbot	*Lota lota*	A	C	U			R	R		
Plains killifish	*Fundulus zebrinus*									U
Rock bass[2]	*Ambloplites rupestris*	R		U	C					
Green sunfish[2]	*Lepomis cyanellus*	R			U	U	R	R	U	U
Pumpkinseed[2]	*Lepomis gibbosus*	R		U	U	U				

TABLE WIL-4
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN THE POWDER RIVER RESOURCE MANAGEMENT PLAN AREA[1]

Common Name	Scientific Name	Yellowstone River	Rosebud Creek	Tongue River		Pumpkin Creek	Powder River		Little Powder River	Little Missouri River
				Downstream Section	Upstream Section		Downstream Section	Upstream Section		
Smallmouth bass[2]	*Micropterus dolomieu*	R								
Largemouth bass[2]	*Micropterus salmoides*	R								
White crappie[2]	*Pomoxis annularis*	U	R	U	U	U				
Black crappie[2]	*Pomoxis nigromaculatus*	U		R	R					
Yellow perch[2]	*Perca flavescens*	U		U						
Sauger	*Stizostedion canadense*	A	C	C	C	R	A	A, U		U
Walleye[2]	*Stizostedion vitreum*	C, U	U	U	C		R	R		
Freshwater drum	*Aplodinotus grunniens*	U								

[1]Information derived from the Montana Natural Resource Information System on the Internet at http://nris.state.mt.us/wis/mris1.html. Multiple values for relative abundance indicate variation among river reaches and/or study results within a given drainage. Relative abundance: A = abundant; C = common; U = uncommon; R = rare; I = incidental; P = present.

[2]Indicates species is not native.

TABLE WIL-5
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN PARK, GALLATIN, AND BLAINE COUNTIES[1]

		Park County		Gallatin County				Blaine County				
Common Name	**Scientific Name**	**Yellowstone River**	**Shields Creek**	**Missouri River**	**Gallatin River**	**Madison River**	**Jefferson River**	**Missouri River**	**Cow Creek**	**Milk River**	**Lodge Creek**	**Peoples Creek**
Pallid sturgeon	*Scaphirhynchus albus*							R				
Shovelnose sturgeon	*Scaphirhynchus platorynchus*							C				
Paddlefish	*Polyodon spathula*							U				
Goldeye	*Hiodon alasoides*							C		C		
Lake chub	*Couesius plumbeus*							U		C	C	
Common carp[2]	*Cyprinus carpio*	R		A		U	C	C		C	C	U
Utah chub[2]	*Gila atraria*					U						
Western silvery/plains minnow	*Hybognathus argyritis/placitus*							C	C	U	C	C, U
Brassy minnow	*Hybognathus hankinsoni*									R		
Sturgeon chub	*Macrhybopsis gelida*							U				
Pearl dace	*Margariscus margarita*										U	
Emerald shiner	*Notropis atherinoides*							C		C	U	
Spottail shiner[2]	*Notropis hudsonius*									U		
Northern redbelley/finescale dace	*Phoxinus eos/neogaeus*									C	U	C
Fathead minnow	*Pimephales promelas*							U	C	C,U	A	
Flathead chub	*Platygobio gracilis*			A			U	A, C		C		C
Longnose dace	*Rhinichthys cataractae*	C, U	C, U	C	U	A	C	C	C	C	U	C
Redside shiner	*Richardsonius balteatus*						U					
River carpsucker	*Carpiodes carpio*							C		U		
Longnose sucker	*Catostomus catostomus*	A, C	A, U	C	C	A	C	C	C	U	R	U

TABLE WIL-5
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN PARK, GALLATIN, AND BLAINE COUNTIES[1]

		Park County		Gallatin County				Blaine County				
Common Name	**Scientific Name**	**Yellowstone River**	**Shields Creek**	**Missouri River**	**Gallatin River**	**Madison River**	**Jefferson River**	**Missouri River**	**Cow Creek**	**Milk River**	**Lodge Creek**	**Peoples Creek**
White sucker	*Catostomus commersoni*	A, C	A, U	C	C	A	C		C	A	C	A, C
Mountain sucker	*Catostomus platyrhynchus*	U, R	C	R	U	U	R		R			R
Blue sucker	*Cycleptus elongatus*							U				
Smallmouth buffalo	*Ictiobus bubalus*							C		U		
Bigmouth buffalo	*Ictiobus cyprinellus*							U		U		
Shorthead redhorse	*Moxostoma macrolepidotum*	U, R						C		U		
Black bullhead[2]	*Ameiurus melas*									A, C	C	
Channel catfish	*Ictalurus punctatus*							A		U		
Stonecat	*Noturus flavus*			U		U		C		C	U	
Northern pike[2]	*Esox lucius*							U		C	C	U
Cisco[2]	*Coregonus artedi*							U				
Lake whitefish[2]	*Coregonus clupeaformis*									C	R	
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*	C, U	C, U, R		R							
Westslope cutthroat trout	*Oncorhynchus clarki lewisi*				R							
Rainbow trout[2]	*Oncorhynchus mykiss*	C	R	C	A	A, U	U			I		U
Mountain whitefish	*Prosopium williamsoni*	A	A, C	A	A	C	A					
Brown trout[2]	*Salmo trutta*	C	C, U	C	A, C, U	U	C					
Brook trout[2]	*Salvelinus fontinalis*	R	U		U	R			A			C
Arctic grayling	*Thymallus arcticus*				R							
Burbot	*Lota lota*			U			U	U		C, R		

TABLE WIL-5
COMMON AND SCIENTIFIC NAMES AND RELATIVE ABUNDANCE OF FISH SPECIES PRESENT IN MAJOR DRAINAGES AND REPRESENTATIVE TRIBUTARIES IN PARK, GALLATIN, AND BLAINE COUNTIES[1]

		Park County		Gallatin County				Blaine County				
Common Name	**Scientific Name**	**Yellowstone River**	**Shields Creek**	**Missouri River**	**Gallatin River**	**Madison River**	**Jefferson River**	**Missouri River**	**Cow Creek**	**Milk River**	**Lodge Creek**	**Peoples Creek**
Brook stickleback	*Culaea inconstans*									R	C	U
Mottled sculpin	*Cottus bairdi*	A	A, C	C	A, C	A	C		C			C
Smallmouth bass[2]	*Micropterus dolomieu*									U		
Largemouth bass[2]	*Micropterus salmoides*			R								
Black crappie[2]	*Pomoxis nigromaculatus*									U		
Iowa darter	*Etheostoma exile*									U		
Yellow perch[2]	*Perca flavescens*					R				C	C	
Sauger	*Stizostedion canadense*							C		C	U	
Walleye[2]	*Stizostedion vitreum*							U		C	U	U
Freshwater drum	*Aplodinotus grunniens*							U				

[1]Information derived from the Montana Natural Resource Information System on the Internet at http://nris.state.mt.us/wis/mris1.html. Multiple values for relative abundance indicate variation among river reaches and/or study results within a given drainage. Relative abundance: A = abundant; C = common; U = uncommon; R = rare; I = incidental; P = present.

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CBM Programmatic Wildlife Monitoring and Protection Plan
for the
Statewide Final Oil and Gas Environmental Impact Statement
and
Proposed Amendment of the Powder River and Billings Resource Management Plans

INTRODUCTION

This Wildlife Monitoring and Protection Plan (WMPP) was prepared in conjunction with the *Statewide Oil and Gas Draft Environmental Impact Statement (DEIS) (BLM 2001 Montana DEIS) and Amendment of the Powder River and Billings Resource Management Plans (RMPs).* The DEIS and Amendment addresses future exploration for and development of Bureau of Land Management (BLM) and state of Montana (state) managed coalbed methane gas (CBM) resources and conventional oil and gas resources. The planning area excludes those lands administered by the Forest Service, the Crow, Northern Cheyenne, and other Indian lands. The WMPP will be implemented on federal lands, including split estate, in cooperation with state agencies, federal agencies, tribal representatives, Operators, and landowners. If owners and managers of state and private mineral development are willing to incorporate this guidance into management of their CBM activities, they may become a partner by entering into a Cooperative Agreement.

A variety of planning issues related to wildlife were identified during preparation of the DEIS. The goal of the WMPP is to avoid or minimize impacts to wildlife and serve as a communication tool to foster cooperative relationships among the CBM and conventional Oil and Gas industry (i.e., Operators), resource management agencies, landowners and adjacent Tribal Governments. Because this plan addresses a large geographic area composed of diverse wildlife habitats and unique situations, it must be programmatic in nature. However, the need to provide management recommendations and guidance to conserve species and habitats remains. Regional or site specific monitoring and protection plans which follow the guidance provided in this programmatic document will be required as part of each CBM Project Plan. Implementation of this plan during the course of project development and operations should promote wildlife conservation and allow land managers and project personnel to maintain wildlife populations and productivity levels simultaneously with the development of natural oil and gas resources.

PLAN PURPOSE

Oil and gas leasing decisions and lease stipulations were previously analyzed in the Bureau of Land Management (BLM) 1992 *Final Oil and Gas RMP/EIS Amendment* (BLM 1992). Wildlife stipulations attached to leases offer protective measures: 1) for certain species, 2) during a particular time period, or 3) within a specific area. These stipulations may not address other concerns related to special status species or water/habitat related issues caused by direct and indirect impacts from CBM exploration and development. Because it is purely speculative to predict how all wildlife will react or how development will proceed, it is difficult to develop prescriptive mitigation standards across the entire planning area. Even though BLM has some adaptive management strategies in place (e.g., conditions of approval and compliance inspections), these mechanisms do not give us the information necessary to understand cause and effect relationships across a landscape. Therefore, the purpose of this Plan is to acquire baseline wildlife information, monitor populations, and assess stipulations for effectiveness. The WMPP will facilitate our ability to pinpoint problems (including the evaluation of other contributing factors), design Project Plans which include conservation for declining species, monitor the effectiveness of decisions, and make recommendations to adjust management to address specific situations.

AREA AND OBJECTIVES

The WMPP document is the framework for wildlife monitoring and protection across the Powder River and Billings Resource Management Plan areas (approximately 6.5 million acres) and provides a template for regional and/or project specific WMPP development. The BLM, Montana Fish Wildlife and Parks (MFWP), and United States Fish and Wildlife Service (FWS) will enter into a Cooperative Agreement to work cooperatively to implement portions of the WMPP over the planning area. Specific geographic areas will be delineated as Regional Monitoring Units

(RMU). As energy development begins, RMU specific WMPPs, following the same template as this document, will be written in cooperation with other agencies, Operators, landowners and other interests. The objectives of the program are to:

- Establish a framework for cooperation among agencies, Operators, landowners, Tribal Governments and interest groups;
- Provide a process for data collection, data management and reporting ;
- Determine needs for inventory, monitoring and protection measures;
- Provide guidance and recommendations for the conservation of wildlife species;
- Establish protocols for biological clearances of Special Status Species;
- Meet the terms and conditions of the Biological Opinion;
- Determine if management practices to conserve wildlife species and habitat in lease stipulations and conservation measures contained in the BLM Record of Decision, CBM Project Plans or Oil and Gas APDs are meeting specified objectives;
- Develop recommendations to adjust management actions based on field observations and monitoring.

Implementation of the WMPP will begin with the issuance of the *Record of Decision* and will remain in effect for the life of the project (approximately 25 years). Guidance for the conservation of special status species will be incorporated into the "Project Plan of Development Preparation Guide." Signatories on an Interagency Cooperative Agreement will serve as the "*Steering Committee."* A "*Core Team"* (i.e., agency biologists) will oversee the implementation of the programmatic elements of the WMPP. As energy development is initiated in an identified RMU, Wildlife Monitoring Review Teams (i.e., RMU Team) consisting of resource specialists from the BLM, FWS, MFWP and applicable Operator funded biologists will write area-specific monitoring and protection plans. Resource specialists may serve as members on more than one RMU project area team. Individual RMU plans may be terminated at the end of any year when there is undeniable evidence illustrating that wildlife populations and productivity have been successfully maintained. The BLM Authorized Officer (AO) would base termination on recommendations from the *RMU Team*.

The programmatic template will undergo a major review for effectiveness every 5 years, or as determined by the *Core Team* and *RMU Team* members. A cooperative agreement among cooperators will be signed on an annual basis to include specific work components of the current year's work.

IMPLEMENTATION PROTOCOL

This section provides preliminary wildlife inventory, monitoring, and protection protocol. Required actions for inventory, monitoring and protection vary by species and development intensity. In areas of development with > 4 well locations per section, additional actions in Table 3 become applicable. Standard protocol for Application for Permit to Drill (APD) and right-of-way (ROW) application field reviews are provided in Table 2. Alternative measures and protocols will be developed as determined by *Core Team* and *RMU Team* members in response to specific needs identified in annual reports. This document provides methods for a number of wildlife species/categories. Additional species/categories may be added based on needs identified in annual wildlife reports. The wildlife species/categories for which specific inventory, monitoring, and protection procedures will be applied were developed based on input provided by the public, other agencies, and the BLM during preparation of the DEIS.

Considerable efforts will be required by agency and operator personnel for plan implementation. Many of the annually proposed agency data collection activities are consistent with current agency activities. Additionally, agency cost-sharing approaches will be considered such that public demands and statutory directives are achieved.

ANNUAL REPORTS AND MEETINGS

State and federal agencies will enter into a master Cooperative Agreement to implement the programmatic elements of inventory, monitoring and protection actions associated with CBM development in the Powder River and Billings Resource Management Plan areas. A *Core Team* will oversee implementation across the planning area and summarize information from work achieved in various RMUs. Additional cooperative agreements with cooperators will be established as activity is initiated in a RMU.

During project development (i.e., 25 years), Operators will provide an updated inventory and description of all existing project features (i.e., location, size, and associated level of human activity at each feature), as well as those tentatively proposed for development during the next 12 months. Operators should submit the inventory to BLM no later than October 15 of each calendar year. These data will be coupled with annual wildlife inventory, monitoring, and protection data obtained for the previous year and included in annual reports. Annual reports will be prepared by the BLM. Annual wildlife inventory, monitoring, and protection data gathered by parties other than the BLM, (e.g., Operators, MFWP) should provide the data to the BLM by October 15 of each calendar year. Upon receipt of these data, annual reports will be completed in draft form by the BLM and submitted to the Operators, USFWS, MFWP, and other interested parties no later than November 15 of each year. A 1-day meeting of the *RMU Teams* and *Core Team* will be organized by the BLM and held in early December of each year to discuss and modify, as necessary, proposed wildlife inventory, monitoring, and protection protocol for the subsequent year. Additional meetings specific to a RMU will be scheduled as necessary.

Discussions regarding annual Operator-specific financing and personnel requirements will be made at these meetings. A formula for determining these requirements will be developed at the first year's meeting (i.e., size of development, anticipated impacts, amount of public land, etc.). A protocol regarding how to accommodate previously unidentified development sites will also be determined during the annual meeting. Final decisions will be made by the BLM based on the input of all affected parties.

A final annual report will be issued by BLM to all potentially affected individuals and groups by early February of each year. Annual reports will summarize annual wildlife inventory and monitoring results, note any trends across years, identify and assess protection measures implemented during past years, specify monitoring and protection measures proposed for the upcoming year, and recommend modifications to the existing WMPP based on the effectiveness and/or ineffectiveness of past years (i.e., identification of additional species/categories to be monitored). Where possible, data presented in reports will be used to identify potential correlations between development and wildlife productivity and/or abundance. The BLM will be the custodian of the data and stored in BLM's Geographic Information System (GIS) for retrieval, and planning. Annual GIS data updates will be conducted. Raw data collected each year will be provided to other management agencies (e.g., USFWS, MFWP) at the request of these agencies. In addition, sources of potential disturbance to wildlife will be identified, where practical (e.g., development activities, weather conditions, etc.).

Additional reports may be prepared in any year, as necessary, to comply with other relevant wildlife laws, rules, and regulations (e.g., black-footed ferret survey reports, mountain plover and bald eagle habitat loss reports).

ANNUAL INVENTORY AND MONITORING

This document outlines the inventory and monitoring protocol for a number of selected wildlife species/categories. Protocol will be unchanged except as authorized by the BLM or specified in this plan. Additional wildlife species/categories and associated surveys may be added or wildlife species/categories and surveys may be omitted in future years, depending on the results presented in the coordinated review of annual wildlife reports. The MFWP

will be contacted during the coordination of survey and other data acquisition phases. Opportunistic wildlife observations may be made throughout the year by agency and Operator personnel.

The frequency of inventory and monitoring will be dependent upon the level of development. In general, inventory and monitoring frequency will increase with increased levels of development. The level of effort should also be determined by species presence and development projection. Inventory and monitoring results may lead to further currently unidentifiable studies (i.e., cause and effect). The following sections identify the level of effort required by the WMPP. Site and species-specific surveys will continue to be conducted in association with APD and ROW application or CBM project field reviews.

Raptors (Including Bald Eagle and Burrowing Owl)

Raptor inventories will be conducted over the entire CBM project area every 5 years by BLM and MFWP. In potentially affected areas, baseline inventory should be conducted prior to the commencement of development to determine the location of raptor nests/territories and their activity status by the BLM, with Operator financial assistance. These inventories should be repeated every 5 years (in areas with < 4 well locations/section) thereafter for the Life-of-the-Project (LOP) to monitor trends in habitat use. These surveys may be implemented aerially (e.g., via helicopter) or from the ground. Operators may provide financial assistance for some work. Data collected during the surveys will be recorded on BLM approved data sheets and entered into the BLM GIS database.

Nest productivity monitoring will be conducted by the BLM or a BLM approved biologist. Active nests located within 1 mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest). These surveys generally will be conducted from the ground. However, some nests may be difficult to observe from the ground due to steep and rugged topography and may require aerial surveys. Operators may provide financial assistance for aircraft rental as necessary. Attempts will be made to determine the cause of any documented nest failure (e.g., abandonment, predation).

Additional raptor nest activity and productivity monitoring measures will be applied in areas with high levels of development (i.e., areas with ≥ 4 well locations/section) on and within 1 mile of the project area. Inventory/monitoring efforts in these areas, as well as selected undeveloped reference areas will be conducted annually during April and May, followed by nest productivity monitoring. Site and species-specific nest inventories will also continue to be conducted as necessary in association with all APD and ROW application field reviews.

All raptor nest/productivity surveys will be conducted using procedures that minimize potential adverse effects to nesting raptors. Specific survey protocol for reducing detrimental effects are listed in Grier and Fyfe (1987) and Call (1978) and include the following:

- Nest visits will be delayed for as long as possible during the nesting season.
- Nests will be approached cautiously, and their status (i.e., number of nestling/fledglings) will be determined from a distance with binoculars or a spotting scope.
- Nests will be approached tangentially and in an obvious manner to avoid startling adults.
- Nests will not be visited during adverse weather conditions (e.g., extreme cold, precipitation events, windy periods, or during the hottest part of the day).
- Visits will be kept as brief as possible.
- All inventories will be coordinated by the BLM.
- The number of nest visits in any year will be kept to a minimum.

Ferruginous Hawk: Timing of surveys is very important in documenting the territory, occupancy, success and productivity of ferruginous hawk populations. The accepted survey and monitoring guidelines for ferruginous hawk are taken from the *Survey and Monitoring Guidelines for Ferruginous Hawks in Montana, 1995.*

Bald Eagle: Inventory and monitoring protocol for the bald eagle will be as described for raptors, with the following additions. Operators will indicate the presence of eagle habitat as previously defined, on their application. Prior to CBM development or construction, surveys of the wooded riparian corridors within 1.0 mile of a project area will be conducted in the winter and/or spring by biologists and/or BLM-approved biologists to determine the occurrence of winter bald eagle roosts. Surveys will be conducted from daybreak to 2 hours after sunrise and/or from 2 hours before sunset to 1 hour after sunset by fixed-wing aircraft. Follow-up ground surveys, if necessary, will be conducted during the same time frame. Surveys will be at least 7 days apart. The location, activity, number, and age class (immature, mature) of any bald eagles observed will be recorded. If a roost or suspected roost is identified, BLM, USFWS, and MFWP will be notified and a GPS record of the roost/suspected roost will be obtained and entered into the BLM GIS database. There will be No Surface Occupancy within 0.5 miles of any identified bald eagle roost sites.

Nest productivity will be conducted by the BLM or a BLM-approved biologist in areas with high levels of development (i.e., areas with greater than or equal to 4 well locations/section) on and within 1 mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

Burrowing owl: Operators should indicate the presence of prairie dog towns on their application. The presence of sensitive habitat does not indicate that a species may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. In association with APD and ROW application field reviews, prairie dog colonies within 0.5 miles of a proposed project area will be surveyed for western burrowing owls by BLM biologists or a BLM-approved Operator-financed biologist twice yearly from June through August to determine the presence/absence of nesting owls. Efforts will be made to determine reproductive success (no. of fledglings/nest).

Threatened, Endangered, Candidate, and Other Species of Concern

Operators should indicate the presence of cottonwood riparian, herbaceous riparian or wet meadows, permanent water or wetlands, prairie dog towns, or rock outcrops, ridges or knolls on their application. The presence of sensitive habitat may not indicate that a species may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. The level of effort associated with the inventory and monitoring required for threatened, endangered, candidate, and other species of concern (TEC&SC) will be commensurate with established protocol for the potentially affected species. Methodologies and results of these surveys will be included in annual reports or provided in separate supplemental reports. As TEC&SC species are added to or withdrawn from USFWS and/or BLM lists, appropriate modifications will be incorporated to this plan and specified in annual reports.

TEC&SC data collected during the surveys will be provided only as necessary to those requiring the data for specific management and/or project development needs. Site- and species-specific TEC&SC surveys will continue to be conducted as necessary in association with all APD and ROW application field reviews. Data will be collected on BLM approved data sheets and entered into the BLM GIS database.

Black-footed Ferret

Operators should indicate the presence of prairie dog towns on their application. The presence of sensitive habitat does not indicate that suitable black footed ferret habitat may be present. It does, however, alert the company and BLM that a field review and surveys may be required to process the permit or initiate action. BLM biologists and/or BLM-approved Operator-financed biologists will determine the presence/absence of prairie dog colonies within 0.5 miles of proposed activity during APD and ROW application field reviews. Prairie dog colonies on the area will be mapped to determine overall size following the approved methodology. Colony acreage will be determined using GIS applications. Colonies that meet USFWS size criteria as potential black-footed ferret habitat (USFWS 1989) will be surveyed to determine active burrow density using the methods described by Biggins et al. (1993) or other BLM- and USFWS-approved methodology.

Project activity will be located to avoid impacts to prairie dog colonies that meet USFWS criteria as black-footed ferret habitat (USFWS 1989). If avoidance is not possible, all colonies meeting the USFWS size criteria and any colonies for which density estimates are not obtained will be surveyed for black-footed ferrets by an operator-financed, USFWS-certified surveyor prior to but not more than 1 year in advance of disturbance to these colonies. Black-footed ferret surveys will be conducted in accordance with USFWS guidelines (USFWS 1989) and will be conducted on a site-specific basis, depending on the areas proposed for disturbance in a given year as specified in the annual report. If a black-footed ferret or its sign is found during a survey, all development activity would be subject to recommendations from the *Montana Black-footed Ferret Survey Guidelines*, *Draft Managing Oil and Gas Activities in Prairie Dog Ecosystems with Potential for Black-footed ferret Reintroduction* and re-initiation of Section 7 Consultation with USFWS.

Black-tailed Prairie Dog

The BLM will determine the acreage of occupied black-tailed prairie dog habitat within suitable mountain plover habitat on federally managed surface acres and federal mineral estate lands. Further, a reasonable effort should be made to estimate actual impacts, including habitat loss, CBM development will have on occupied black-tailed prairie dog acres within suitable mountain plover habitat over the entire project area.

Active prairie dog towns on BLM lands within 0.5 miles of a specific project area will be identified, mapped, and surveyed as described in the Black-footed ferret section. In addition, reference prairie dog colonies subject to development will be identified. On an annual basis, the BLM and/or a BLM-approved Operator-financed biologist will survey, at least a portion of, the prairie dog colonies, including the reference colonies. Prairie dog populations are subject to drastic population fluctuations primarily due to disease (plague). Therefore, efforts will be made to compare the data from the reference colonies with that obtained from the project areas, in order to monitor the response of prairie dog populations to CBM development.

Mountain Plover

Surface use is prohibited within 1/4 mile of active mountain plover nest sites. Disturbance to prairie dog towns will be avoided where possible. Any active prairie dog town occupied by mountain plover will have No Surface Use between April 1 and July 31which may be reduced to No Surface Use within 1/4 mile of an active nest, once nesting has been confirmed. An exception may be granted by the authorized officer after the BLM consults with the FWS on a case-by-case basis and the operator agrees to adhere to the new operational constraints.

On federally managed surface acres, active black-tailed prairie colonies within suitable mountain plover habitat will have a No Surface Occupancy.

Prior to permit approval, habitat suitability will be determined. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (USFWS 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted prior to ground disturbance activities by the BLM or a BLM-approved Operator biologist using the Service protocol at a specific project area plus a 0.5 mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

The BLM shall monitor all loss of mountain plover habitat associated with all portions of this action (operators will indicate the presence of prairie dog towns or other mountain plover habitat indicators on their application). Suitable mountain plover habitat has been defined under 'critical habitat' for the mountain plover in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM, their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion, or immediately if the anticipated impact area is exceeded.

Gray Wolf

According to the *Biological Assessment for Coalbed Methane Production in Montana*, state lands and counties (Gallatin and Park Counties) bordering Yellowstone National Park would be surveyed in the spring for wolves, occupied dens, or scat prior to development. These surveys could be conducted from the air or from the ground. Areas in which wolves are observed would continue to be surveyed annually until reintroduction objectives are met. Efforts will be made to compare production and/or occupancy trends in wolf populations in these areas to a reference population in order to gain more reliable information regarding the response of wolves to CBM development.

Sage Grouse

BLM and MFWP will conduct sage grouse lek inventories over the entire CBM project area every 5 years to determine lek locations. Surveys of different areas may occur during different years with the intent that the entire CBM project area will be covered at least once every 5 years. Existing MFWP Region 7 trend blocks will be monitored annually. There are 4 trend blocks in FWP Region 7; one located in the Decker area and 3 others across the Region. Inventories and protocol will be consistent with the *Montana Sage Grouse Conservation Plan* coordinated by the BLM and MFWP. In areas with $\geq$ 4 well locations per section, aerial inventories will be conducted annually on affected sections, 2 mile buffers, and selected undeveloped reference areas. Surveys may be conducted aerially or on the ground, as deemed appropriate by the BLM and MFWP. Operator may provide financial assistance.

Aerial surveys will be used for determining lek locations. BLM, MFWP or BLM-approved Operator-financed biologist will monitor sage grouse lek attendance within 2 miles of areas having < 4 locations per section such that all leks on these areas are surveyed at least once every 3 years. Data collected during these surveys will be recorded on BLM and MFWP approved data sheets and entered into the BLM GIS database. An effort should also be made to compare trends of the number of males/lek to reference leks

Sage grouse winter use surveys of suitable winter habitat within 2 miles of a project area will be coordinated by the BLM and implemented by the BLM and/or MFWP during November through February as deemed appropriate by these management agencies, and results will be provided in interim and/or annual reports. These surveys will be conducted to identify sage grouse wintering concentration areas. Historical information of winter sage grouse

locations will be useful in focusing efforts in areas suspected of providing winter habitat. Sage grouse winter habitat use surveys will be conducted subsequent to snowfall events to identify crucial winter habitat.

Big Game

Elk, mule deer, white-tailed deer, and pronghorn are the common big game species that occur within parts or all of the CBM planning area. BLM and MFWP will continue to collect annual big game seasonal habitat use data and make it available to Operators and landowners. Big game use of seasonal habitats is highly dependent upon a combination of environmental factors including forage quality and snow depth. Therefore, it is very difficult to attribute changes in habitat use to a single factor. Comparisons in trends between big game seasonal habitat reference areas and seasonal habitats associated with CBM development may provide some insight into the response of big game to CBM development.

General Wildlife

Any avian mortality observed in pits will be documented, reported to the BLM and USFWS, and measures will be taken to prevent future mortality at the pit(s). Well field access roads and other roads with project-related traffic increases will be monitored for wildlife mortality so that specific mitigation can be designed and implemented as deemed necessary by BLM, in consultation with MFWP, for areas with high traffic volume and/or increased wildlife/vehicle collisions and mortality.

Aquatic Species

Baseline aquatic inventories will be conducted in potentially affected areas by BLM and MFWP with Operator financial assistance, for 1-2 years prior to development commencing, to determine occurrence, abundance, and population diversity of the aquatic community. These inventories should be repeated every year in selected intermittent/perennial streams associated with produced water discharge as well as selected intermittent/perennial streams associated with no produced water discharge (control sample site) .

Natural fluctuations in species occurrence, abundance, and population diversity will be determined by comparing changes in control sample sites to baseline inventories. Changes in occurrence, abundance, and population diversity of the aquatic community in streams associated with produced water discharge may then be possible by comparing to the natural fluctuations.

Detection of a retraction in the range of a species, a downward trend in abundance, or reduced population diversity in systems with produced water discharge shall warrant a review of Project Plans and possible recommendations for adjustment of management to address the specific problems.

Aquatic groups to be inventoried and monitored will include:

-Benthic macroinvertebrates - Determine population diversity using Hess/kick net sampling protocol to measure species abundance and establish a diversity index.
-Amphibians and aquatic reptiles - Determine population diversity and abundance utilizing sampling methodologies being developed for prairie species.
-Non-game fish - Determine population diversity using electrofishing and seining.
-Algae (periphyton) – Determine population diversity.

PROTECTION MEASURES

Wildlife protection measures have been put in place through lease stipulations or terms and conditions from a Biological Opinion from FWS. The following sections describe stipulations or mitigation that restrict activities through lease agreements or terms and conditions to reduce the likelihood of "take" of a federally listed species.

Lease stipulation

The lease stipulations were approved in the 1994 BLM Oil and Gas EIS. These are mandatory measures or actions that have been developed as a result of wildlife research and input from agencies and Operators. Avoidance of important breeding, nesting, and seasonal habitats is the primary protection measure that will reduce the possibility of CBM and Oil and Gas development having an impact on wildlife populations, productivity, or habitat use. Additional conservation measures will be incorporated through the Project Plan design or as Conditions of Approval. Data collected during monitoring efforts and properly analyzed will be used to determine the appropriateness and the effectiveness of these measures throughout the CBM project area. Based on the results of the monitoring data, these measures will be reviewed by the *Core Team* and *RMU Teams*. As monitoring data are collected over time, it is likely that some protection measures will be added, while others will be modified or removed completely with approval from the BLM in cooperation with other agencies and the *Core Team*. All changes in these protection measures will be reported, with a justification for the change, in annual reports. A RMP amendment may be required depending on the recommended change.

"Waivers" A lease stipulation may be waived by the Authorized Officer (AO) if a determination is made by the BLM, in consultation with FWS, that the proposed action will not adversely affect the species in question.

"Exceptions" to protection measure may be granted by the AO, in coordination with USFWS for T&E species and MFWP, if the Operator submits a plan that demonstrates that impacts from the proposed action will not be significant, or can be adequately mitigated.

"Modifications" may be made by the AO if it is determined that portions of the area do not include habitat protected by the stipulation.

Raptors

From March 1 – August 1, all surface disturbing activities are prohibited within ½ mile of active raptor nest sites except ferruginous hawk, bald eagle and peregrine falcon nest sites. For ferruginous hawks and bald eagles, no surface occupancy or use will be allowed within ½ mile of known active nest sites. No surface occupancy or use is allowed within 1 mile of identified peregrine falcon nests. Active raptor nests are defined as those that have been used within the last two years.

Big Game

Surface use is prohibited to avoid disturbance of white-tailed deer, mule deer, elk, pronghorn antelope, moose, and bighorn sheep during the winter use season, December 1 - March 31. This stipulation does not apply to the operation and maintenance of production facilities.

Elk Parturition Range

In order to protect elk parturition range, surface use is prohibited from April 1 to June 15 within established spring calving range. This protection measure does not apply to the operation and maintenance of production facilities.

Bighorn Sheep – Powder River Breaks

No surface occupancy or use is allowed in the designated Powder River Bighorn Sheep Range. In crucial winter range outside of the designated area, surface use is prohibited from December 1 to March 31.

Sage Grouse

Lek sites
In order to minimize impacts to sharptail and sage grouse leks, surface occupancy within ¼ mile of known leks is prohibited. The measure may be waived if the AO, in coordination with MFWP, determines that the entire leasehold can be occupied without adversely affecting grouse lek sites, or if all lek sites within ¼ mile of the leasehold have not been attended for 5 consecutive years.

Nesting area
Surface use is prohibited between March 1 – June 15 in grouse nesting habitat within 2 miles of a known lek. This measure does not apply to the operation and maintenance of production facilities. This measure will be implemented to protect sharptail and sage grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to minimize disturbance to nesting activities adjacent to nesting sites for the long-term maintenance of grouse populations in the area.

Winter range

Surface use is prohibited from December 1 through March 31 within designated crucial winter range to protect sage grouse from disturbance during winter season use.

Prairie Dog Towns and Associated Black-footed Ferret Habitat

Prior to surface-disturbing activities, prairie dog colonies and complexes 80 acres or more in size and containing 5 burrows per acre will be examined to determine the presence or absence of black-footed ferrets. The findings of this examination may result in some restrictions to the operator's plans or may even preclude use and occupancy.

The lessee or operator may, at their own option, conduct an examination on the leased lands to determine if black-footed ferrets are present, or if the proposed activity would have an adverse effect, or if the area can be cleared. This examination must be done by, or under the supervision of, a qualified resource specialist approved by the BLM. An acceptable report must be provided to documenting the presence or absence of black-footed ferrets and identifying the anticipated effects of the proposed action on the black-footed ferret and its habitat. This stipulation does not apply to the operation and maintenance of production facilities.

Interior Least Tern

The interior least tern is listed as an endangered species under the ESA. Birds occupy sandbars and beaches in eastern Montana and along the Yellowstone and Missouri Rivers. Surface occupancy and will be prohibited within 1/4 mile of wetlands identified as interior least tern habitat.

Terms and Conditions from Section 7 Consultation

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with the following terms and conditions, which implement the reasonable and prudent measures described and outlined in the Biological Opinion. **These terms and conditions are nondiscretionary.**

All Species

In the event that a bald eagle (dead or injured) or mountain plover (dead or injured) is located during construction and operation, the Service's Billings Sub-Office of the Montana Field Office (406-247-7366) and the Service's Law Enforcement Office (406-247-7355) will be notified within 24 hours. The action agency must provide for monitoring the actual number of individuals taken. Because of difficulty in identification, all small birds found dead should be stored in a freezer for the Service to identify.

- The Bureau shall monitor all loss of bald eagle (nesting, potential nesting and roost sites) and suitable mountain plover habitat associated with all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. Bald eagle nesting, potential nesting and roost sites, and suitable mountain plover habitat have been defined under 'habitat use' and 'critical habitat' respectively, for each species in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion. The tracking will include the location and acres of habitat loss, field survey reports, what stipulations were applied, and a record of any variance granted to timing and/or spatial buffers. The monitoring of habitat loss for these species will commence from the date the Record of Decision (ROD) is signed. The actual measurement of disturbed habitat can be the responsibility of the Bureau's agent (consultant, contractor, etc.) with a written summary provided to the Service's Montana Field Office semi-annually, or immediately if the Bureau determines that action (*i. e.* Application for Permit to Drill (APD), pipeline, compressor station) will adversely affect a listed species. However, it is the responsibility of the Bureau to ensure that the semi-annual reports are complete and filed with the Service in a timely manner. The semi-annual report will include field survey reports for endangered, threatened, proposed and candidate species for all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. The semi-annual reports will include all actions completed under this BO up to 30 days prior to the reporting date. The first report will be due 6 months from the signing of the ROD and on the anniversary date of the signing of the ROD. Reporting will continue for the life of the project.

- As outlined in the guidance and conservation measures in the *CBM Programmatic Wildlife Monitoring and Protection Plan for the Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* that "All new roads required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions... Appropriate speed limits will be adhered to on all project area roads, and Operators will advise employees and contractors regarding these speed limits."

Bald Eagle

- The Bureau shall require implementation of all conservation measures/mitigation measures identified in the Biological Assessment prepared for the project and dated April 10, 2002, and wildlife inventory, monitoring, and protection protocol provided by the WMPP. The Bureau shall monitor for compliance with the measures and protocol. These are as follows:

- The appropriate standard seasonal or year-long stipulations for raptors or no surface occupancy for bald eagles as identified in the Billings Resource Management Plan (U.S. Bureau of Land Management 1983), Powder River Resource Management Plan (BLM 1984), and Oil and Gas Resource Management Plan/ EIS Amendment (BLM 1992) will be applied. This includes No Surface Occupancy within ½ mile of nests active in the last 7 years and ½ mile of roost sites.

- Inventory and monitoring protocol for the bald eagle will be as described for raptors, with the following additions. Operators will indicate the presence of eagle habitat as previously defined, on their application. Prior to CBM development or construction, surveys of the wooded riparian corridors within 1.0 mile of a project area will be conducted in the winter and/or spring by biologists and/or BLM-approved biologists to determine the occurrence of winter bald eagle roosts. Surveys will be conducted from daybreak to 2 hours after sunrise and/or from 2 hours before sunset to 1 hour after sunset by fixed-wing aircraft. Follow-up ground surveys, if necessary, will be conducted during the same time frame. Surveys will be at least 7 days apart. The location, activity, number, and age class (immature, mature) of any bald eagles observed will be recorded and if a roost or suspected roost is identified, BLM, USFWS, and MFWP will be notified and a GPS record of the roost/suspected roost will be obtained and entered into the BLM GIS database. There will be No Surface Occupancy within 0.5 miles of any identified bald eagle roost sites.

- Nest productivity will be conducted by the BLM or a BLM approved biologist in areas with high levels of development (i.e., areas with greater than or equal to 4 well locations/section) on and within 1 mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

- No new above-ground power line should be constructed within the Primary Use Area or ½ mile from an active eagle nest or nest that has been occupied within the recent past. No surface occupancy or use is allowed within 0.5 miles of known bald eagle nest sites which have been active within the past 7 years. All other actions will be consistent with the *Montana Bald Eagle Management Plan - July 1994*.

- Power lines will be built to standards identified by the Avian Power Line Interaction Committee (1996) to minimize electrocution potential. The Service has more specific recommendations that reaffirm and compliment those presented in *Suggested Practices*. It should be noted that these measures vary in their effectiveness to minimize mortality, and may be modified as they are tested in the field and laboratory. Local habitat conditions should be considered in their use. The Service does not endorse any specific product that can be used to prevent and/or minimize mortality, however, we are providing a list of *Major Manufacturers of Products to Reduce Animal Interactions on Electrical Utility Facilities.*

New Distribution Lines and Facilities

The following represents areas where the raptor protection measures will be applied when designing new distribution line construction:

1.1 Bury distribution lines where feasible.

1.2 Raptor-safe structures (e.g., with increased conductor-conductor spacing) are to be used that address adequate spacing for each problematic species (i.e., minimum 60" for bald eagles would cover all species).

1.3 Equipment installations (overhead service transformers, capacitors, reclosers, etc.) are to be made raptor safe (e.g., by insulating the bushing conductor terminations and by using covered jumper conductors).

1.4 Jumper conductor installations (e.g., corner, tap structures, etc) are to be made raptor safe by using covered jumpers or providing adequate separation.

1.5 Employ covers for arrestors and cutouts.

1.6 Lines should avoid high avian use areas such as wetlands, prairie dog towns, and grouse leks. If not avoidable, use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation and decrease loss of avian predators to electrocution.

Modification of Existing Facilities

Raptor protection measures to be applied when retrofitting existing distribution lines. Problem structures may include dead ends, tap or junction poles, transformers, reclosers and capacitor banks or other structures with less than 60" between conductors or a conductor and ground. The following modifications will be made:

2.1 Cover exposed jumpers.

2.3 Gap any pole top ground wires.

2.4 Isolate grounded guy wires by installing insulating link.

2.5 On transformers, install insulated bushing covers, covered jumpers, cutout covers and arrestor covers.

2.6 When mortalities occur on existing lines and structures, raptor protection measures are to be applied (e.g., modify for raptor-safe construction, install perches, perching deterrents, nesting platforms, nest deterrent devices, etc).

2.7 Use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation, and decrease loss of avian predators to electrocution.

2.8 In areas where midspan collisions are a problem, install line-marking devices that have been proven effective. All transmission lines that span streams and rivers, should maintain proper spacing and have markers installed.

These additional standards to minimize migratory bird mortalities associated with utility transmission lines, will be incorporated into the Terms and Conditions for all APD's and stipulations for Right-Of-Way applications.

Mountain Plover

- The Bureau shall require implementation of the conservation measures for mountain plover as identified in the Biological Assessment prepared for the project and dated April 10, 2002, and wildlife inventory, monitoring, and protection protocol provided by the *WMPP*. The Bureau shall monitor for compliance with the measures and protocol. These are as follows:

- Surface use is prohibited within 1/4 mile of active mountain plover nest sites. Disturbance to prairie dog towns will be avoided where possible. Any active prairie dog town occupied by mountain plover will have No Surface Use between April 1 and July 31. This area may be reduced to No Surface Use within 1/4 mile of an active nest, once nesting has been confirmed. An exception may be granted by the authorized officer after the BLM consults with the FWS on a case by case basis and the operator agrees to adhere to the new operational constraints.

- Due to the declining status of mountain plover in the analysis area and the need to retain this most important and limited nesting habitat, all active prairie dog colonies within suitable mountain plover habitat will have No Surface Occupancy (NSO). This NSO will be applied only to federally managed surface acres. This NSO may be modified in an amendment to this biological opinion after analysis of impacts to this preferred nesting habitat is completed.

- The BLM will determine the acreage of occupied black-tailed prairie dog habitat within the suitable mountain plover habitat of federally managed surface acres and on federal mineral estate lands. Further, a reasonable effort should be made to estimate the actual impacts, including habitat loss, CBM development will have on occupied black-tailed prairie dog acres within suitable mountain plover habitat over the entire project area. The project area is large and certain areas will likely be developed for coal bed methane before others. The BLM, Service, and cooperators will develop a survey protocol that may include prioritization of subsets of the project area to be analyzed. Based on the results of such analysis, the NSO on active prairie dog within suitable mountain plover habitat may be modified in an amendment to the biological opinion.

- Prior to permit approval, habitat suitability will be determined. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (USFWS 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted prior to ground disturbance activities by the BLM or a BLM-approved Operator biologist using the Service protocol at a specific project area plus a 0.5 mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

- The BLM shall monitor all loss of mountain plover habitat associated with all portions of this action (operators will indicate the presence of prairie dog towns or other mountain plover habitat indicators on their application) . Suitable mountain plover habitat has been defined under 'critical habitat' for the mountain plover in the Biological Opinion. The actual measurement of disturbed habitat can be the responsibility of the BLM, their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion, or immediately if the anticipated impact area is exceeded.

- If suitable mountain plover habitat is present, surveys for nesting mountain plovers will be conducted prior to ground disturbance activities, if ground disturbing activities are anticipated to occur between April 10 and July 10. Disturbance occurring outside this period is permitted, but any loss of mountain plover suitable habitat must be documented. Sites must be surveyed 3 times between the April 10 and July 10 period, with each survey separated by at least 14 days. The earlier date will facilitate detection of early-breeding plovers. A disturbance-free buffer zone of 1/4 mile will be established around all mountain plover nesting locations between April 1 and July 31. If an active nest is found in the survey area, the planned activity should be delayed 37 days, or seven days post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days (USFWS 2002). Exceptions and/or waiver to stipulations can be made through consultation with FWS on a case by case basis.

- Roads will be located outside of nesting plover habitat wherever possible. Apply mitigation measures to reduce mountain plover mortality caused by increased vehicle traffic. Construct speed bumps, use signing or post speed limits as necessary to reduce vehicle speeds near mountain plover.

- Creation of hunting perches will be minimized within ½ mile of occupied nesting areas. Utilize perch inhibitors (perch guards) to deter predator use.

- Native seed mixes will be used to re-establish short grass prairie vegetation during reclamation.

- There will be No Surface Occupancy of ancillary facilities (e.g., compressor stations, processing plants) within ½ mile of known nesting areas. Variance may be granted after consultation with the Service.

- In habitat known to be occupied by mountain plover, no dogs will be permitted at work sites to reduce the potential for harassment of plovers.

- Operators and the Bureau shall be provided by the Service with educational material illustrating and describing the mountain plover, its habitat needs, life history, threats, and gas development activities that may lead to incidental take of eggs, chicks, or adults with requirements that these material be posted in common areas and circulated in a memorandum among all employees and service providers.

Programmatic Guidance for the Development of Project Plans

Guidance for developing Project Plans and/or conservation measures applied as Conditions of Approval provide a full range of practicable means to avoid or minimize harm to wildlife species or their habitats. Operators will minimize impacts to wildlife by incorporating applicable WMPP programmatic guidance into Project Plans. Not all measures may apply to each site-specific development area and means to reduce harm are not limited to those identified in the WMPP. This guidance may change over time if new Conservation Strategies become available for Special Status Species or monitoring indicates the measure is not effective or unnecessary.

BLM and MFWP will work together through a Cooperative Agreement to collect baseline information about wildlife and sensitive habitats possibly containing special status species. During the project development phase, Operators will identify potentially sensitive habitats and coordinate with BLM to determine which species or habitats are of concern within or adjacent to the project area. In areas where required site-specific wildlife inventory has not been completed, Operators and BLM will work cooperatively to achieve it. BLM's responsibilities under NEPA, ESA, and NHPA essentially are the same on split estate (i.e., federal minerals/private surface) as they are with federal surface. BLM and Operators will seek input from the private surface owner to include conservation measures in split estate situations.

The following guidance and conservation measures are considered "features" or project "design criteria" to be used during Project Plan preparation. The design of projects can incorporate conservation needs for wildlife species or measures can be added as "Conditions of Approval." These types of conservation actions offer flexibility for local situations and help minimize or eliminate impacts to the species of interest.

1. Use the best available information for siting structures (e.g., storage facilities, generators and holding tanks) outside of the applicable zone of impact in important wildlife breeding, brood-rearing and winter habitat based on the following considerations.
    a. size of the structure(s),
    b. level/type of anticipated disturbance
    c. life of the operation, and
    d. extent to which impacts would be minimized by topography.

2. Concentrate energy-related facilities when practicable.

3. Develop a comprehensive Project Plan prior to POD or full field development activities to minimize road densities.

4. To reduce additional surface disturbance, existing roads and two-tracks on and adjacent to the CBM project area will be used to the extent possible and will be upgraded as necessary.

5. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

6. Design stream-crossings for adequate passage of fish (if present), minimum impact on water quality, and at a minimum, the 25-year frequency runoff. Consider oversized pipe when debris loading may pose problems. Ensure sizing provides adequate length to allow for depth of road fill.

7. Use corridors to the maximum extent possible: roads, power, gas and water lines should use the same corridor whenever possible.

8. Avoid, where possible, locating roads in crucial sage grouse breeding, nesting and wintering areas and mountain plover habitats. Develop a route utilizing topography, vegetative cover, site distance, etc. to effectively protect identified wildlife habitats in a cost efficient manner.

9. Conduct all road and stream crossing construction and maintenance activities in accordance with Agency approved mitigation measures and BMPs.

10. Utilize remote monitoring technologies whenever possible to reduce site visits thereby reducing wildlife disturbance and mortalities.

11. All new roads required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions and facilitate wildlife movement through the project area. Appropriate speed limits will be adhered to on all project area roads, and Operators will advise employees and contractors regarding these speed limits.

12. Apply mitigation measures to reduce mountain plover, swift fox or sage grouse mortality caused by increased vehicle traffic. Construct speed bumps, use signing or post speed limits as necessary to reduce vehicle speeds near sage grouse leks, mountain plover habitat, or other important wildlife habitats

13. Road closures may be implemented during crucial periods (e.g., extreme winter conditions, and calving/fawning seasons). Personnel will be advised to minimize stopping and exiting their vehicles in big game winter range while there is snow on the ground.

14. Roads no longer required for operations or other uses will be reclaimed if required by the surface owner or surface management agency. Reclamation will be conducted as soon as practical.

15. Operator personnel and contractors will use existing state and county roads and approved access routes, unless an exception is authorized by the surface management agency.

16. Use minimal surface disturbance to install roads and pipelines and reclaim sites of abandoned wells to restore natural plant communities.

17. Reclamation of disturbed areas will be initiated as soon as practical. Native species will be used in the reclamation of important wildlife habitat. Livestock palatibility and wildlife habitat needs will be considered during seed mix formulation.

18. Site new power lines and pipelines in existing disturbed areas wherever possible.

19. Minimize the number of new power lines in sage grouse or mountain plover habitat. Bury lines near sage grouse leks and mountain plover nesting habitat when feasible.

20. Encourage monitoring of avian mortalities by entering into a Memorandum of Understanding (MOU) with FWS and the state agencies. The purpose of the MOU is to establish procedures and policies to be employed by the parties to lessen industry's liability concerns about the "take" of migratory birds.

21. Remove unneeded structures and associated infrastructure when project is completed.

22. If possible, minimize maintenance and related activities in sage grouse breeding/nesting complexes; 15 March -15 June, between the hours of 4:00-8:00 am and 7:00-10:00 pm.

23. Protect, to the extent possible, natural springs from disturbance or degradation.

24. Design and manage produced water storage impoundments so as not to degrade or inundate sage grouse leks, nesting sites and wintering sites, prairie dog towns or other Special Status Species habitats.

25. CBM produced water should not be stored in shallow, closed impoundments or playas. Impoundments designed as flow through systems will lessen the likelihood that selenium will bioaccumulate to levels that will adversely affect other wildlife.

26. Develop offsite mitigation strategies in situations where fragmentation or degradation of Special Status Species habitat is unavoidable.

27. Protected reserve, workover, and production pits potentially hazardous to wildlife by netting and/or fencing as directed by the BLM to prevent wildlife access and minimize the potential for migratory bird mortality.

28. Reduce potential increases in poaching through employee and contractor education regarding wildlife laws. Operator should report violations to BLM and MFWP.

29. Operator employees and their contractors will be discouraged from possessing firearms during working hours.

Table 1. Summary of General Wildlife Reporting, Inventory, and Monitoring, CBM Development; Powder River and Billings Resource Management Plans, CBM Amendment (2002)

Action	Dates	Responsible Entity[a]
Plans of development for outcoming years, showing general location of proposed development	Annually	Team (BLM, USFWS, MFWP, Operators)
Annual reports summarizing findings and presenting necessary protection actions	Annually	BLM with reviews MFWP, USFWS, Operators, and other interested parties
Meeting to finalize future year's inventory, monitoring, and protection measures	Annually	BLM with participation by USFWS, MFWP, Operators, and other interested parties
Inventory and Monitoring		
Big game crucial winter range use monitoring (crucial winter range on the RMU plus 1-mile buffer)	When Applicable	MFWP with BLM assistance
Determine mountain plover habitat suitability	Prior to permit approval	BLM & operator assistance
In areas of suitable mountain plover habitat, conduct nest surveys in project area plus a .5 mile buffer	Prior to ground disturbing activities	BLM & operator assistance
In areas of suitable mountain plover habitat, map active black-tailed prairie dog colonies on federal surface and federal mineral estate.	Over the next couple years to provide data for an analysis required in the biological opinion.	BLM & operator assistance
Active prairie dog colonies within .5 mile of a specific project area will be identified, mapped and surveyed	Prior to permit approval	BLM with MFWP & operator assistance
Raptor nest inventories (RMU plus 1 mile buffer; burrowing owls excluded)	Every 5 years during April and May	BLM with MFWP & operator assistance

Continuation of **Table 1.** Summary of General Wildlife Reporting, Inventory, and Monitoring, CBM Development; Powder River and Billings Resource Management Plans, CBM Amendment (2002)

In areas with potential bald eagle winter roost sites, conduct surveys within 1 mile buffer	Prior to ground disturbing activities	BLM & operator assistance
Conduct bald eagle nest inventories within .5 miles buffer of project area	Between March 1 and mid July	BLM & operator assistance
Monitor productivity at active bald eagle nests within 1 mile of project-related disturbance	Between March 1 and mid July	BLM & operator assistance
Raptor nest productivity monitoring at active nests within 1 mile of project disturbance area	Every 5 years during March to mid-July	BLM with MFWP & operator assistance
Aerial sage grouse lek inventories (RMU plus 2 mile buffer)	Every 5 years	BLM with MFWP & operator assistance
Sage grouse lek attendance monitoring on and within 2 miles of the RMU	Annually	BLM with MFWP & operator assistance will visit selected leks each year so that all leks will be visited at least once over a 3 year period
Threatened, Endangered & Sensitive species inventory/monitoring within selected CBM development areas and selected undeveloped comparison areas	When Applicable	BLM with MFWP & operator assistance
Native American culturally significant species	When Applicable	BLM, MFWP, Tribal Representatives & Operator Assistance
Other wildlife species inventory/monitoring within selected CBM development areas and selected undeveloped comparison areas	When Applicable	BLM with MFWP & operator assistance

Table 2. Summary of APD/ROW Survey and Protection Measures, CBM Development within the Powder River and Billings Resource Management Plans

Protection Measure	Dates
Bald eagle nest surveys within 0.5 mile of project area	Yearlong
Bald eagle nest avoidance within 0.5 mile of active nests	No Surface Use or Occupancy
Bald Eagle Winter Roost surveys within 1 mile of project area	December 1 to April 1
Bald Eagle Winter Roost avoidance within 0.5 miles of roost site	No surface Use or Occupancy
Black-footed ferret surveys	Prairie dog colonies > 80 acres
Mountain plover surveys within 0.5 miles of project area	May 1 to June 15
Active prairie dog colonies on federal surface in mountain plover habitat	BLM & operator assistance
Mountain plover nest/brood avoidance within .25 miles of project area	April 1 to July 31
Peregrine falcon nest avoidance within 1 mile of active nest	BLM & operator assistance
Ferruginous nest avoidance within .5 miles of an active nest	No surface use or occupancy
Threatened, Endangered &Sensitive species surveys	As necessary
Threatened, Endangered &Sensitive species avoidance	As necessary
Big game crucial winter range avoidance	December 1 - March 31
Elk Parturition Range avoidance	April 1 - June 15
Big Horn Sheep – Powder River Breaks	No surface use or occupancy

Continuation of **Table 2.** Summary of APD/ROW Survey and Protection Measures, CBM Development within the Powder River and Billings Resource Management Plans

Protection Measure	**Dates**
Prairie dog colony mapping and burrow density determinations	Yearlong
Raptor nest survey/inventory within 0.5 miles of project area	Yearlong
Raptor nest avoidance within 0.5 miles of active nests	March 1 – August 1
Sage grouse nesting habitat avoidance on areas within 2.0 miles of a lek	March 1 - June 15
Sage grouse and sharptail lek avoidance within 0.25 miles of a lek	No Surface Use or Occupancy
Sharp-tailed grouse nesting habitat avoidance on areas within 0.5 mi. of a lek	March 1 – June 15
Western burrowing owl surveys (prairie dog colonies within 0.5 miles of disturbance)	June – August
General wildlife avoidance/protection	As necessary

Table 3. Additional Wildlife Inventory and Monitoring Measures On and Adjacent to Areas with High Levels of Development (4 Locations/Section), Powder River and Billings Resource Management Plans, CBM Amendment (2001)

Action	Dates	Responsible Entity[b]
Raptor nest inventory/monitoring on areas with >.4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during April and May	BLM surveyor with Operator-provided financial assistance
Raptor productivity monitoring on areas with >.4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during March-July	BLM surveyor with Operator-provided financial assistance for BLM volunteer support

Continuation of **Table 3.** Additional Wildlife Inventory and Monitoring Measures On and Adjacent to Areas with High Levels of Development (4 Locations/Section), Powder River and Billings Resource Management Plans, CBM Amendment (2001)

Action	Dates	Responsible Entity[b]
Selected TEC&SC inventory/monitoring on suitable habitats in areas with > 4 locations/section plus a 1-mile buffer and selected undeveloped comparison areas	Annually during spring and summer	BLM or Operator-financed BLM-approved biologist
Collect baseline information for benthic macroinvertebrates, amphibians and aquatic reptiles, algae and non-game fish. Monitor changes on selected streams	Baseline 1 – 2 years prior and annually over the life of the project	BLM surveyor with Operator-provided financial assistance
Aerial sage grouse lek inventory on areas with 4 locations/section plus a 2-mile buffer and selected undeveloped comparison areas	Annually during March to mid-May	BLM surveyor with Operator-provided financial assistance

Continuation of **Table 3.** Additional Wildlife Inventory and Monitoring Measures On and Adjacent to Areas with High Levels of Development (4 Locations/Section), Powder River and Billings Resource Management Plans, CBM Amendment (2001)

Action	Dates	Responsible Entity[b]
Sage grouse lek attendance monitoring on areas with 4 locations/section plus a 2-mile buffer and selected undeveloped comparison areas	Year-long and in any year as deemed necessary by BLM and/or USFWS	Each known lek will be visited at least once annually by the BLM and/or an Operator-financed BLM-approved biologist; subsequent visits will occur at BLM-selected leks by the BLM, and/or Operator-financed BLM-approved biologist
Others studies on areas with 4 locations/section and selected undeveloped comparison areas		USFWS and/or BLM with Operator- and other party-provided financial assistance

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BIOLOGICAL ASSESSMENT FOR COAL BED METHANE PRODUCTION IN MONTANA

Prepared for

U. S. FISH AND WILDLIFE SERVICE

APRIL 10, 2002

BY

BUREAU OF LAND MANAGEMENT (BLM),
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BIOLOGICAL ASSESSMENT FOR COAL BED METHANE PRODUCTION IN MONTANA

1.0 INTRODUCTION

The Bureau of Land Management (BLM), Miles City and Billings District Offices, Montana, are proposing changes in the coal bed methane (CBM) development program. The Powder River and Billings RMPs, as amended by BLM's 1994 *Oil and Gas Amendment of the Billings, Powder River, and South Dakota Resource Management Plans* (RMPs), support conventional oil and gas development and limited CBM exploration and development. The BLM proposes to amend the Billings and Powder River RMPs to address increased interest in CBM in these districts. An Environmental Impact Statement (EIS) is being prepared to evaluate impacts arising from implementation of the amended RMPs. The State of Montana (state) has joined with the BLM as a co-lead agency in preparation of the EIS to address similar increased interest in CBM on state lands, emphasizing Park, Blaine, and Gallatin Counties. The state has placed a moratorium on state-permitted coal bed methane wells in Montana until an EIS is completed that addresses increased CBM activity.

The oil and gas industry predicts growing interest in the exploration and development of CBM because of efforts to find alternative energy sources. Increased CBM development would result in a major federal action with potential to significantly affect the environment. This Biological Assessment (BA) was compiled to consider the potential impacts on federally listed and proposed threatened and endangered (T&E) species from proposed changes to levels of CBM exploration and development in Montana. The BLM and the State are co-lead agencies for this BA. Designated cooperators-those who have signed a memorandum of understanding with the state-are the Environmental Protection Agency (EPA), Department of Energy (DOE), Bureau of Indian Affairs (BIA), and Crow Tribe of Montana.

This BA is being prepared pursuant to Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. The U.S. Fish and Wildlife Service (FWS), as required under the ESA, provided a list of federal endangered, threatened, and proposed threatened and endangered species that may be present in the project area (Table 1 and Appendix A). Nine federally listed threatened, endangered, and proposed for listing species potentially occur in the project area. Under the ESA, the BLM must ensure that activities instigated under this action do not jeopardize the continued existence of any threatened, endangered, or proposed for listing species. The FWS must concur that BLMs' actions will not jeopardize a listed species. Three candidate species may also potentially be found in the project area. Although not subject to the extensive procedural provisions of the ESA, the FWS encourages that no action be taken that could impact candidate species and contribute to the need to list the species. Three additional species for which the FWS has significant concern are sicklefin chub (*Hybopsis meeki*), sturgeon chub (*Hybopsis gelida*), and sage grouse (*Centrocercus europhasia*). These three species are listed because the FWS mentioned them specifically, but they have no federal status under Section 7 of the ESA. Avoidance of impacts to these species is recommended to avoid the need for future listing, but is not mandated by federal statute at this time. Impacts on these species will not be considered in this BA because they are considered in detail in the associated EIS.

Project Plans will be developed and approved using the programmatic guidance outlined in the Wildlife Monitoring Protection Plan (Biological Appendix of Draft EIS). They will include baseline inventory in areas where wildlife inventory has not been completed. Operators will be required to submit plans, which demonstrate how their project design minimizes or mitigates impacts to surface resources and meets objectives for wildlife. The Wildlife Monitoring Protection Plan is a cooperative approach, which incorporates adaptive environmental management principles and establishes a framework, which encourages industry, landowners and agencies to work together constructively to incorporate conservation measures into CBM development. All CBM development will follow the programmatic guidance to address wildlife concerns, and each individual Project Plan will include a site specific Monitoring and Protection Plan which includes mitigation specific to species or local habitats. Over the life of the CBM project, Wildlife Monitoring Protections Plans offer some assurances that management will be adapted to address specific situations.

TABLE 1
FEDERALLY-LISTED THREATENED, ENDANGERED, AND PROPOSED FOR LISTING SPECIES

Common Name	Scientific Name	Habitat in Montana	Federal Status
Listed Species			
Mountain plover	*Charadrius montanus*	Arid, shortgrass prairieland in eastern Montana.	PT
Bald eagle	*Haliaeetus leucocephalus*	Forested riparian areas throughout the state	T
Interior least tern	*Sterna antillarum athalassos*	Sandbars and beaches in eastern Montana and along the Yellowstone and Missouri Rivers.	E
Gray wolf	*Canis lupus*	Adapted to many habitats, need large ungulate prey base and freedom from human influence.	E/10(j)
Canada lynx	*Felis lynx canadensis*	Montane spruce/fir forest in western Montana.	T
Black-footed ferret	*Mustela nigripes*	Prairie dog complexes in Eastern Montana	E
Grizzly bear	*Ursus arctos horribilis*	Alpine/subalpine coniferous forest in Western Montana.	T
Pallid sturgeon	*Scaphirhynchus albus*	Bottom dwelling fish of the Missouri and Yellowstone Rivers	E
Ute ladies'-tresses	*Spiranthes diluvialis*	River meander wetlands in Jefferson, Madison, Beaverhead, and Gallatin Counties	T
Candidate Species			
Black-tailed prairie dog	*Cynomys ludovicianus*	Short-grass and mixed-grass prairie in the east of the 110th meridian, concentrated in Philips County, Custer County, Blaine County, Fort Belknap Reservation, and Crow Reservation.	C
Montana Arctic grayling	*Thymallus arcticus*	Fluvial populations in the cold-water, mountain reaches of the Upper Missouri River.	C
Warm spring zaitzevian riffle beetle	*Zaitzevia thermae*	Warm springs in Gallatin County.	C
USFWS Species of Significant Concern			
Sicklefin chub	*Hybopsis meeki*	Large free-flowing segments of the Missouri and Yellowstone Rivers.	NS
Sturgeon chub	*Hybopsis gelida*	The Powder and Lower Yellowstone rivers.	NS
Sage grouse	*Centrocercus europhasia*	Dependent upon sagebrush habitat.	NS

PT=proposed threatened; T=threatened; E=endangered; E/10(j)=experimental/endangered; C=candidate; NS=no status.

2.0 PROJECT DESCRIPTION

Three action alternatives plus a No Action Alternative were originally proposed for this project. The Preferred Alternative discussed in this BA was selected based on an analysis of impacts for all alternatives.

Exploration and development of CBM resources on BLM, state, or fee minerals are allowed subject to agency decisions, lease stipulations, permit requirements, and surface owner agreements. Under the Preferred Alternative, operators would be required to submit a Project Plan outlining the proposed development of an area when requesting CBM well densities greater than 1 well per 640 acres. The Project Plan would be developed in consultation with the affected surface owner(s) and other involved permitting agencies. All shallow coal seams would have vertical wells installed; for deeper coal seams, the operator would drill directionally or demonstrate in the project plan for agency consideration why directional drilling is not needed or feasible. Operators would develop single or multiple coal seams per their plans, however, there would be only one well bore per coal seam per designated spacing restriction. Operators would also be required to demonstrate in their project plan how impacts to surface resources, such as wildlife, would be minimized or mitigated.

Protection of hydrological resources was one of the most critical concerns addressed during the development of the EIS, receiving significant analysis with regards to various options for the management of water produced with CBM. In light of those analyses, the Preferred Alternative combines management options so that no degradation of water quality would be allowed in any watershed. The hierarchy for water management options requires beneficial use as the first priority, followed by the operator's choice as outlined in a Water Management Plan, which must be submitted as part of the federal Project Plan of Development. A Water Management Plan would be required for exploratory wells, and for each Project Plan. Management options available include injection, treatment, impoundment, discharge, or other operator-proposed methods, provided they are addressed in the Water Management Plan and approved by the appropriate agency. Impoundments proposed as part of the Water Management Plan would be designed and located to minimize or mitigate impacts to soil, water, vegetation, and channel stability. No discharge of produced water (treated or untreated) would be allowed into the watershed unless the operator has an approved NPDES permit and can demonstrate in the Water Management Plan how discharge could occur in accordance with water quality laws without damaging the watershed.

The air quality objectives for the proposed action include maximizing the number of wells connected to each compressor and requiring natural gas-fired engines for compressors and generators, except in areas with sensitive resources, including people, where noise is an issue. In those areas, the decibel level would be required to be no greater than 50 decibels measured at a distance of one-quarter mile from the compressor. This may require installation of an electrical booster at these locations.

Transportation corridors would not be required for utilities, roads, and pipelines. However, existing disturbances would be used where possible. The operator will also address in the Project Plan how the surface owner was consulted for input into the location of roads, pipeline and utility line routes. For powerlines, the operator will demonstrate in the Project Plan how the proposal for power distribution would mitigate or minimize impacts to affected wildlife. For example, the operator may propose that all or a portion of the powerlines be buried and any aboveground lines be designed following raptor-safe specifications. When wells are abandoned, the associated oil and gas roads would remain open or be closed at the surface owner's discretion. If the roads where requested to be closed they would be rehabilitated. This includes leaving BLM and state roads open, if access is desirable.

As with current management, there would be no buffer zone for CBM production around active coal mines (MSO IM No. 2000-053, June 1, 2000, *No Surface Occupancy Stipulations*).

To determine potential impacts to the Crow and Northern Cheyenne reservations, monitoring wells would be required to be installed during the exploration phase on all BLM-administered oil and gas estates that adjoin reservation boundaries in Montana. If monitoring indicates drawdown would occur on the reservation, mitigation such as the operator providing a hydrologic barrier, communitization agreement, or spacing that would protect the Indian minerals from drainage would be required. This BA addresses environmental impacts from implementation of the Preferred Alternative.

2.1 Project Location

The project is located across south-central and southwestern Montana with additional project areas in Gallatin and Park County in southwestern Montana and in Blaine County in north-central Montana. This area includes parts of sixteen counties: Blaine, Gallatin, Park, Carter, Powder River, Custer, Rosebud, Treasure, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Musselshell, Yellowstone, and Big Horn.

Because of the extensive area covered, Map 1-1 is provided instead of legal descriptions.

The planning area shown in Map 1-1 is defined as the area where oil and gas decisions will be made by BLM or the State of Montana. The BLM's planning area is the oil and gas estate administered by the BLM in the Powder River and Billings RMP areas. The State of Montana's planning area is statewide, with emphasis on the state-administered oil and gas within the BLM planning area and in Blaine, Park and Gallatin counties. The planning area excludes those lands administered by the Forest Service, the Crow Tribe, Northern Cheyenne Tribe, and other Indian lands.

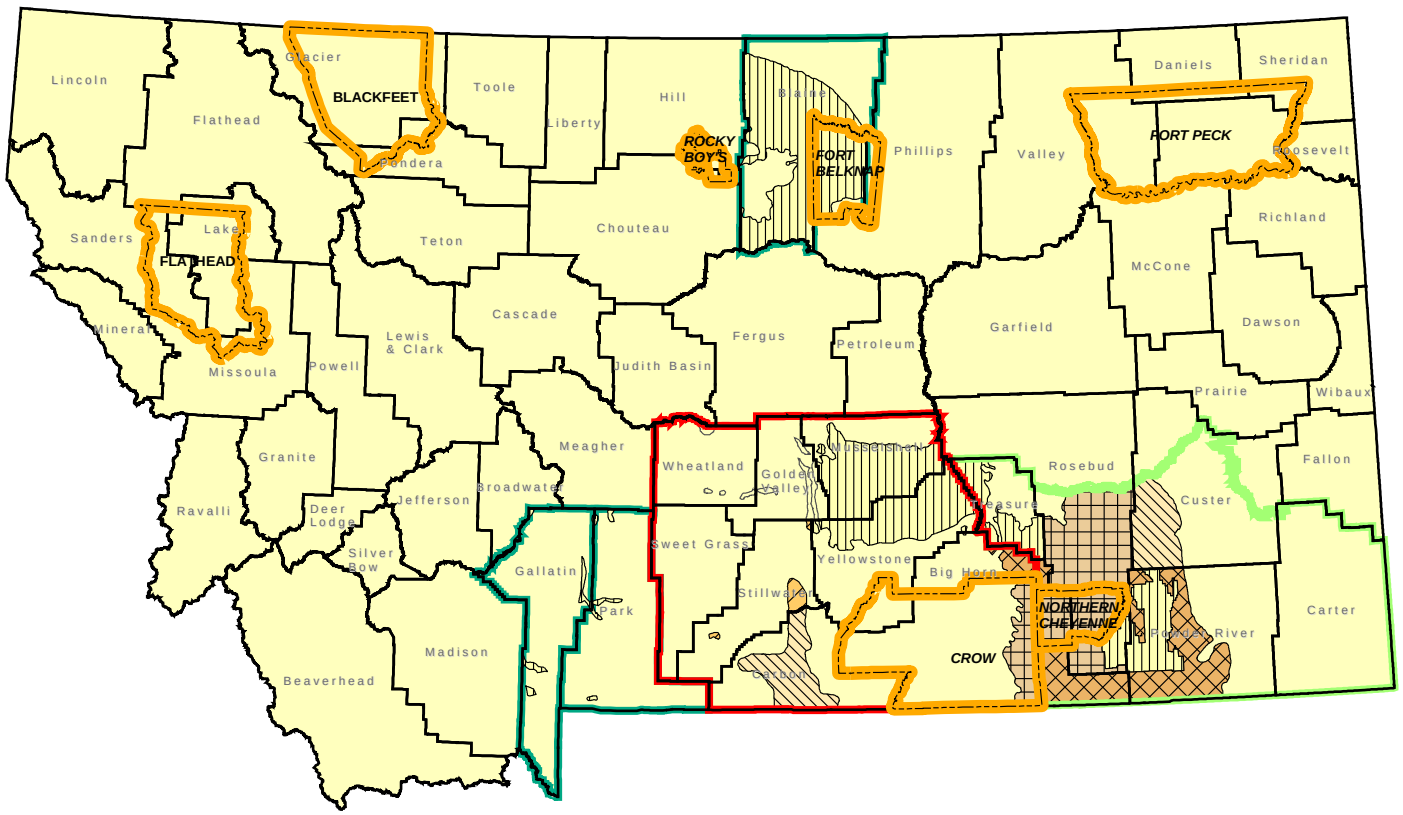
For ease of reference, the Billings and Powder River RMP areas, and Blaine, Park, and Gallatin counties, are referred to in the document as the BLM and State CBM emphasis area. This is the 16-county area within the BLM and state planning area where there is CBM development interest.

The Powder River RMP area encompasses the southeastern corner of Montana, including Powder River, Carter, and Treasure counties, and portions of Big Horn, Custer, and Rosebud counties. The Powder River RMP area comprises approximately 1,080,675 acres of federally managed surface and 4,103,700 acres of federal mineral estate.

The Billings RMP area comprises the south-central portion of Montana consisting of Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Wheatland, and Yellowstone counties and the remaining portion of Big Horn County. The Billings RMP area comprises approximately 425,336 acres of federally managed surface and 906,084 acres of federal mineral estate.

Adjacent to the planning areas, other major land holdings include the Crow, Northern Cheyenne, and Fort Belknap Indian Reservations, the Custer National Forest, portions of Yellowstone National Park, the Big Horn Canyon National Recreational Area, the Burlington Northern and Santa Fe Railroad, and the Fort Keogh Agricultural Experiment Station. The total surface area of the CBM emphasis area (all owners) exceeds 25 million acres.

Map 1-1: CBM Development Based on Reasonable Foreseeable Development Scenario



Legend

POTENTIAL CBM WELLS

- Minimal
- 1 - 150
- 151 - 400
- 401 - 700
- 701 - 4000
- 4001 - 7000

- Powder River RMP Area
- Billings RMP Area
- Special Consideration Counties
- Native American Reservations

1:5,000,000

64,000 0 64,000 128,000 192,000 Meters

30 15 0 30 60 90 Miles

N W E S

This map shows the maximum number of CBM wells as described in the Reasonable Foreseeable Development Scenario. NOTE: Development on this map has been confined to the regions with known sub-bituminous coal occurences.

DATA SOURCES:

Counties: 1:100,000 scale, counties, Montana State Library/NRIS, Helena, Montana.
Reservations: 1:100,000 scale, counties, Montana State Library/NRIS, Helena, Montana.
Development Data: BLM Reasonable Foreseeable Development Scenario.

2.2 Purpose and Need

The purpose of the project is to provide direction and analysis for CBM exploration and development on the Powder River RMA, the Billings RMA, and state lands.

The oil and gas analysis in current BLM planning documents did not predict as many wells. A BA to establish the impacts to federally listed species is needed to analyze the effects from full-field oil and gas development.

2.3 Construction Techniques

Each well project has four phases: exploration, development, operation, and shutdown. Once a well is in place, it is expected to operate for 20 years before abandonment. The BA focuses on the first two phases, exploration and development. These lead to the operation phase, once the well is in place.

During exploration, 4.14 acres are likely to be disturbed for each well for exploration, construction, and drilling operations. Table 2 shows the land area that would be directly disturbed by CBM development and the expected length of road and utility corridors. When exploratory construction begins on a site, the exploratory well will take about 3 to 5 days to drill, with 2 to 3 extra days to complete for CBM if the site is developed. During the exploratory phase, wildlife species will be disturbed by the presence of bulldozers, drilling equipment, and other machinery. The short-term disturbance effect of the exploratory phase will end with either abandonment or continuation to the development stage, if the well site is suitable for production. If the site is abandoned after exploration, the site will take approximately 5 years to attain preconstruction vegetative canopy cover values. Reclamation of the site with vegetation will be undertaken, but restoration to pre-project conditions is not planned.

TABLE 2
ESTIMATES OF LAND AREA THAT WILL BE DIRECTLY DISTURBED BY THE PREFERRED ALTERNATIVE

Area Disturbed per Well (acres)	Length of Road per Well (miles)	Length of Utility Corridor per Well (miles)	Total Number of Wells	Total Area Disturbed (acres)	Total Length CBM Roads (miles)	Total Length Utility Corridors
4.14	0.365	1.13	18,300	75,762	9018	27,917

Development disturbance will begin if exploration results in estimates of suitable levels of production. This and operational disturbance should be considered long-term because of the permanent placement of the pad. The materials source for roads would be located as close as possible to each project site, but no specific sources have been identified at this time.

3.0 DATA COLLECTION AND ASSESSMENT

Appropriate federal and state agencies were contacted in order to obtain information on specific habitats and areas within the project area where listed species may potentially occur. Research literature was reviewed for listed species. Biologists with knowledge of the area were interviewed before assessing impacts that could result from project implementation. Impacts would be considered significant if implementation of the Preferred Alternative would adversely affect any listed or proposed species, including destruction of occupied habitat or "taking" (harm, harassment, pursuit, injury, or kill) of federally listed wildlife or plant species.

3.1 Literature Studies

A literature search was conducted to determine habitat requirements for each listed species. Habitat requirements for listed species were then compared to terrestrial vegetation communities in the project area to determine the potential for occurrence of listed species. If suitable habitat was present, a literature search was completed to determine if

existing site-specific or regional data on the species were available. The broad geographic area covered by this BA means that every species listed has some potential habitat within the proposed project's boundary.

3.2 Survey Methodologies

No specific surveys were conducted for this BA. Therefore, it is essential that clearance surveys be conducted on a site-by-site basis before CBM exploration begins. Site clearances and field survey methodologies differ according to the species of interest.

3.2.2 MAMMALS

Five mammalian species of concern potentially occur in the project area (Table 1). One of the endangered species is listed as nonessential/experimental for specific regions within the state of Montana. Specific surveys need not be conducted for the gray wolf or the Canada lynx because of the unlikely possibility of actually observing these species even if they are present. Instead, reconnaissance-level surveys for signs of these species (scat and tracks) will be included with other biological surveys at individual project sites. In addition, in habitats with higher potential for these animals, specific transects will be put in place and checked for scat. If found, hair and track traps for lynx and grizzly bears will be used to determine positive presence. If wolves are suspected, taped howling reconnaissance surveys will be employed to ascertain whether these species are using the area for denning.

3.2.3 BIRDS

One threatened, one endangered, and one proposed bird species are known or could occur in the project area. Specific surveys would include nesting surveys and winter foraging surveys. A detailed protocol for surveys for mountain plovers was provided by the FWS and is included in Appendix A. In general, mountain plover site clearance surveys will be conducted between local sunrise and 1000 hours and from 1730 hours to sunset. These time periods are important because of horizontal light factors that facilitate spotting the white breast of the adult plovers (Deibert 1999). The breeding season is considered to last from May 1 to June 15. Visual observation of the area will be made within 200 meters of the proposed well site to detect the presence of plovers. All plovers located will be observed long enough to determine if a nest is present. These observations will be made from within a stationary vehicle, as plovers do not appear to be wary of vehicles.

Consultation with local wildlife biologists will precede all exploratory CBM activities within 1.6 miles of any waterway. This consultation will result in obtaining nesting and winter foraging information for bald eagles that may be impacted by CBM activities. If nesting sites are known to occur within this radius of the proposed CBM site or sites, a biologist will be retained to survey specifically for this species for the duration of both the exploration and development phases in that locale. If the proposed CBM site is found to be within a nesting or winter foraging area, CBM work will be halted until the nest is no longer active or until winter has passed and the foraging eagles have migrated. BLM leasing stipulations pertaining to bald eagles apply and will be implemented.

Interior least terns are colonial nesting waterbirds that seldom swim, spending much of their time on the wing (Hubbard 1985). Therefore, clearance surveys that search for flying birds or nesting colonies will be done in appropriate habitats, sand bar river areas, or nearby sand pits, in the spring by a qualified biologist prior to exploration and well development.

3.2.4 PLANTS

Specific survey requirements for Ute ladies'-tresses orchids are given in Appendix C. Surveys will be conducted prior to any exploration or production activity that would affect wetlands, water bodies, or water courses.

4.0 PROJECT CONDITIONS

This section discusses habitat requirements and distributions of species listed or proposed for listing by the FWS as endangered or threatened, the status of the species or habitat within the project area, potential impacts from project implementation, conservation actions, and an impact determination. Habitat requirements and distribution data were obtained from Federal Register listing notices, conversations with federal and state biologists, and other published and unpublished research data.

4.1 Plants

4.1.1 UTE LADIES'-TRESSES (*SPIRANTHES DILUVIALIS*)

4.1.1.1 Habitat

This plant was listed as threatened January 17, 1992 (57 FR 2053). It is found in moist soils in mesic or wet meadows near springs, lakes, or perennial streams (FWS 1995). It occurs primarily on sites subject to intermittent and unpredictable inundation, and the plants often emerge from shallow water (Sheviak 1984). The species occurs primarily in areas where the vegetation is relatively open and not overly dense, overgrown, or overgrazed (Coyner 1989, 1990; Jennings 1989, 1990). It has been found in Montana in wet meadows fed by stable groundwater, along meandered wetlands, and in seeps in alkaline valley bottoms (Heidel 1997). One of the Montana sites is a localized seep along a valley margin. The plant is commonly found along gravelly streamside reaches with a sand-silt texture, and is generally absent from areas with clayey soil, forested overstory, or stagnant water. Recent survey data indicate that the orchid tolerates naturally disturbed sites, such as point bars, because certain types of disturbance help maintain suitable habitat conditions, especially conditions related to plant community composition, structure, and seral stage.

Habitat for this orchid is dominated by wetland grass-forb communities below 7000 feet in elevation. Known sites in Montana are located between 4350 to 4800 feet in elevation. This species is often found in association with other wetland species. In Montana, these species are: few-flowered spikerush (*Eleocharis pauciflora*), Richardson's muhly (*Muhlenbergia richardsonii*), meadow sedge (*Carex simulata*), clustered field sedge (*Carex praegraclis*), saltwort (*Glaux maritima*), Baltic rush (*Juncus balticus*), inland rush (*Juncus longistylis*), and knotted rush (*Juncus nodosus*).

This orchid may exhibit prolonged dormancy. It can persist underground for several years before leaves emerge above ground, and it may not consistently flower in consecutive years. These dormancy periods are possible because of a symbiotic relationship with mycorrhizal fungi (FWS 1995). Plants with prolonged dormancy require special survey considerations because it may take 7 years of study to obtain 5 years of accurate information, and orchids occurring in drought- or flood-prone habitats may have both a higher proportions of dormant plants and longer periods of dormancy (Lesica and Steele 1994).

4.1.1.2 Distribution

This species occurs in a few sites in Colorado, Utah, Idaho, Wyoming, and Montana.

It is known to occur only in southwestern Montana in the following counties: Beaverhead (1 individual counted), Gallatin (4 individuals), Jefferson (2 individuals), and Madison (4 individuals).

4.1.1.3 Status in the Project Area

This species was first discovered in Montana in 1994. It is known to occur in only 10 populations in southwestern Montana, occupying habitat on less than 9 acres (Heidel 1997).

Unknown populations for this species may exist, because is able to remain dormant for several years at a time by relying on its symbiotic relationship with mycorrhizal fungi.

4.1.1.4 Project Impact

This project may impact this species by affecting groundwater levels that maintain wetlands, wet meadows, and small seeps or through direct production water discharge to wetlands and intermittent and perennial streams. Water quality assimilative capacity limits will be set for water bodies in the project area by Montana Department of Environmental Quality (MDEQ). Because surface discharge would not be allowed to pass these levels, surface water discharge impacts are not expected to occur. If quantities of water are discharged, they are likely to inundate specific potential habitat for this species.

4.1.1.5 Conservation Measures

No surveys were conducted for preparation of this BA, because of a lack of project-specific locations for implementation. To avoid impacts to this species, surveys will be conducted for 2 years prior to disturbance activities in suitable Ute ladies'-tresses habitat. Surveys shall be conducted according to FWS protocols. Search

protocol guidelines are given in Appendix B for this species. If Ute ladies'-tresses are found to inhabit specific project locations where ground disturbance would occur, the FWS will be consulted prior to any disturbance to identify specific conservation measures to avoid impacts.

4.1.1.6 Determination

The Preferred Alternative "may affect, but is not likely to adversely impact" Ute Ladies-tresses orchid if groundwater supplies supporting surface wetlands are protected and water is not introduced into wetlands with the effect of raising the water surface in the wetland.

4.2 Mammals

4.2.1 BLACK-FOOTED FERRET (*MUSTELA NIGRIPES*)

4.2.1.1 Habitat

This species was listed as endangered March 11, 1967. Historically, black-footed ferrets inhabited grassland plains (shortgrass and midgrass prairies) surrounded by mountain basins up to 3250 meters (10500 feet) in elevation (FWS 1998).

This species is always found in association with another grassland species, the prairie dog (Cynomys spp.; Burt and Grossenheider 1980; Cahalane 1954). Prairie dogs are the principle food of the black-footed ferret, and prairie dog burrows provide the ferret's principle shelter. Research has found that the black-footed ferret is more than just associated with the prairie dog, but is truly obligate and dependent upon this rodent for its survival as a species (Anderson et al. 1986; Biggins et al. 1986, Clark 1989, Forrest et al. 1988, Henderson et al. 1974, Hillman 1968, Miller et al. 1996). Data suggest that a ferret needs a prairie dog colony of at least 12.5 hectares (31.3 acres) to survive for a year and a minimum of 50 hectares (125 acres) to raise a litter (Caughley and Gunn 1996). Ferret range is coincident with that of prairie dogs (Anderson et al. 1986). There is no documentation of black-footed ferrets breeding outside of prairie dog colonies. Specimen records of black-footed ferrets are available from ranges of three species of prairie dogs: The black-tailed prairie dog (*Cynomys ludovicianus*), white-tailed prairie dog (*Cynomys leucurus*), and Gunnison's prairie dog (*Cynomys gunnisoni*; Anderson et al. 1986).

Major causes for the decline in this species are long-term prairie dog control efforts, the loss of habitat as a result of destruction of original grasslands, and canine distemper (Frey and Yates 1996). Recovery plans were approved in June 1978 and August 1988. These included captive breeding and release to protected habitats in the wild.

4.2.1.1 Distribution

Historically, this species' range included New Mexico, Arizona, Colorado, Utah, Kansas, Oklahoma, Texas, Wyoming, Nebraska, Montana, North Dakota, South Dakota, Alberta, and Saskatchewan. It was decimated from all of its former range, and distribution is now limited to introduced populations in Arizona, Wyoming, Montana, and South Dakota (FWS 1998). Reintroduction efforts have been concentrated in these four states because they still have protected areas with large prairie dog colonies. Although the Wyoming effort has been hampered by disease problems, the other three states have shown some success (FWS 1996). Reintroduction efforts were conducted in Wyoming from 1991 to 1994, Montana from 1994 to 2001, South Dakota from 1994 to 1996, and Arizona in 1996.

4.2.1.3 Status in the Project Area

In 1994, ferrets were released into black-tailed prairie dog towns in northeastern Montana's C.M. Russell National Wildlife Refuge. In the spring of 1995, two or possibly three pairs produced at least five kits. In the fall of 1995, an additional 36 ferrets were released in another prairie dog town several miles from the first site. In December of 1995, a survey of both release sites documented 24 ferrets (eight at the first site and 16 at the second). In November 2001 20 ferrets were released in Phillips County. In Montana, the goal is to re-establish two viable populations with a minimum of 50 breeding adults in each population by the year 2010 (MFWP 2001).

The Montana Black-Footed Ferret Coordinating Committee has studied prairie dog towns capable of supporting black-footed ferrets. They are assessing the possibility of black-footed ferret reintroduction, and released a paper suggesting eight possible reintroduction sites in Montana. One of these sites is located in Custer County. If a proposal is made by the FWS and the MFWP to reintroduce the black-footed ferret, further coordination to avoid impacts will be required.

4.2.1.4 Project Impact

Black-footed ferrets are exclusively found associated with their main prey species: prairie dogs. Prairie dogs are found throughout the project area. Any activity affecting prairie dog colonies has the potential to impact the ferret. Prairie dog colonies are frequently located on level to slightly sloping ground, which are also prime locations for CBM exploration and development.

Two BLM leasing stipulations address black-footed ferret concerns. The first states that exploration in prairie dog colonies within potential black-footed ferret reintroduction areas comply with the *Draft Guidelines for Oil and Gas Activities in Prairie Dog Ecosystems Managed for Black-footed Ferret Recovery* (FWS and BLM). These guidelines are required and they specify that conditions of approval depend on the type and duration of the proposed activity, proximity to occupied ferret habitat, and other site-specific conditions. Exceptions or waivers of this stipulation may be granted if the Montana Black-Footed Ferret Coordination Committee determines that the proposed activity would have no adverse impacts on ferret reintroduction or recovery. The status of the Fort Belknap population allows them to be treated as a proposed species, which may require a conference with FWS if impacts are expected in the vicinity of the Reservation.

The second stipulation requires that all prairie dog colonies delete (or complexes) greater than 80 acres in size be surveyed for black-footed ferret absence or presence prior to ground disturbance. The results of the survey determine if restrictions or denial of use are appropriate for the site.

Permits issued for state lands do not have the same stated requirements for protection of dog towns of certain sizes; however, the ESA's protection of listed wildlife does apply to state and private land. Operators are prohibited from causing harm to the ferret.

4.2.1.5 Conservation Measures

Stipulation as discussed above will be implemented under the Preferred Alternative.

4.2.1.6 Determination

Strict adherence to BLM leasing stipulations will result in "may affect, but is not likely to adversely impact" to black-footed ferrets.

4.2.2 BLACK-TAILED PRAIRIE DOG (*CYNOMYS LUDOVICIANUS*)

4.2.2.1 Habitat

This species was proposed for listing as threatened on March 25, 1999. On February 3, 2000, the FWS determined that the black-tailed prairie dog warranted listing under the ESA. However, because there are other species also a waiting listing that are in greater need of protection, the FWS is not proposing to list the species at this time.

Black-tailed prairie dogs inhabit dry, upland prairies and grasslands (Burt and Grossenheider 1980). They are considered to be typical of Plains-Mesa Grasslands (Frey and Yates, 1996). This species is herbivorous and prefers various species of grasses, but they also eat the stem, leaves, and seeds of forbs and shrubs. Although they have also been reported to dig up bulbs for food, they apparently do not cache food underground (Hoffmeister 1986). Historically, colonies were often found even in marginal habitat, such as open woodlands and semidesert areas (Findley et al. 1975). This species is capable of colonizing a variety of shrub-grassland and grassland habitats. Generally, the most frequently used habitats in Montana are dominated by western wheatgrass (*Agropyron smithii*), blue grama (*Bouteloua gracilis*), and big sagebrush (*Artemisia tridentata*), and located in relatively level areas in wide valley bottoms, rolling prairies, and the tops of broad ridges (Knowles 1982).

The black-tailed prairie dog is considered to be a critical link (keystone) species because it provides critical habitat or habitat elements to a host of other species (Agnew et al. 1986; Finch 1992; Kotliar et al. 1999; Miller et al. 1994: Reading et al. 1989). These species include several species of special concern listed for this project: black-footed ferret, ferruginous hawk (*Buteo regalis*), swift fox (*Vulpes velox*), and mountain plover (*Charadrius montanus*; Finch 1992). The black-footed ferret is an obligate predator of prairie dogs.

Several factors have contributed to the decline of this once wide-spread species. Decades of extensive poisoning campaigns, sylvanic plague, and continual use of the species for target shooting are believed to be the major factors in their decline and continued suppression (Finch 1992). The fact that this species is considered to have low

dispersal rates (King 1955) intensifies the effects of detrimental factors because they cannot migrate long distances to repopulate former habitat once extirpated from it.

4.2.2.2 Distribution

This species once ranged from Canada to northern Mexico (Hall and Kelson 1959). In the nineteenth century the distribution of prairie dogs was more or less continuous and their numbers were estimated at five billion (Seton 1953). Although the original abundance of prairie dogs in Montana is unknown, early accounts indicate they were widely distributed east of the Continental Divide (Cooper 1869a, 1869b; Coues 1878). Formerly, this species was particularly abundant east of the Continental Divide in grasslands and sagebrush-grasslands habitats (Hoffman and Pattie 1968).

Prairie dogs can still be found in scattered, wide spread populations throughout much of the range that it once occupied. However, there is evidence that there is as much as a 94 to 99 percent reduction in the amount of actual "occupied" habitat since 1900 (Barko 1997; Fagerstone and Ramey 1996; Knowles 1998; Mulhern and Knowles 1995; Wuerthner 1997). The U.S. Geological Survey estimates that the prairie dog occupies less than half a percent of its original range with an estimated 98 percent decline in population throughout North America (Mac et al. 1998).

4.2.2.3 Status in the Project Area

Although specific “colony” information is not available or incomplete, the species is known to be common in preferred habitats throughout the project area. Within Montana, an estimated 1,353 colonies cover 66,139 acres (FaunaWest 1999). These colonies average 49 acres in size.

4.2.2.4 Project Impact

As discussed in the black-footed ferret section, BLM has stipulations controlling surface use or activities that could impact black-tailed prairie dog towns larger than 80 acres and if ferrets are found to be present. However, these protections do not apply if the ferret is not present or to smaller towns. The state is developing a Prairie Dog Conservation Plan to address how to avoid continuing impacts, which are resulting in population declines. No special protective measures are being implemented by the state or BLM at this time, although an evaluation including associated impacts to other listed species to identify measures for avoiding impacts is required. Construction of CBM exploration and production wells on all land ownerships is expected to impact black-tailed prairie dog towns, possibly affecting individuals within colonies but not necessarily impacting the colony as a whole.

4.2.2.5 Conservation Measures

Surveys for black-tailed prairie dogs will be conducted in suitable habitat prior to project-specific development. Identified colonies will be evaluated for their use in the black-footed ferret reintroduction program. Project-specific conservation measures will be identified through consultation with FWS and MFWP.

4.2.2.6 Determination

Lack of specific protection measures or stipulations for this species may result loss of individuals. Implementation of the Preferred Alternative "is likely to affect but not adversely impact" black-tailed prairie dogs.

4.2.3 CANADA LYNX (*LYNX CANADENSIS*)

4.2.3.1 Habitat

This species was listed as threatened on March 24, 2000. In the contiguous United States, the distribution of the lynx is associated with the southern boreal forest, comprised of subalpine coniferous forest in the West, and primarily mixed coniferous/deciduous forest in the East (Aubry et al. 1999); whereas in Canada and Alaska, lynx inhabit the classic boreal forest ecosystem known as the taiga (McCord and Cardoza 1982; Quinn and Parker 1987; McKelvey et al. 1999). Within these general forest types, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Ruggiero et al. 1999).

According to the US Forest Service (USFS) (1993a), lynx require three primary habitat components:

1. Foraging habitat (15- to 35-year-old lodgepole pine (*Pinus contorta*) to support snowshoe hare, the primary food source, and provide hunting cover.

2. Denning sites with patches of spruce and fir greater than 200 years old and generally smaller than 5 acres.

3. Dispersal and travel cover that is variable in vegetative composition and structure.

Abundance of snowshoe hare is the limiting factor for lynx. The hare is limited by the availability of winter habitat that includes early successional lodgepole pine with trees at least 6 feet tall.

Proposals for conservation networks connecting the Greater Yellowstone Ecosystem, the Northern Continental Divide, and the Salmon-Selway Region of Idaho are being developed around the needs of large mammals, particularly large carnivores (Noss et al. 1996). One of the main impacts to the success of this project will be the effect of roads. Roads are a major threat to carnivores because of their barrier effects, direct mortality from vehicle collisions, and increased access to poachers. Analysis of potential corridors for the proposed conservation network for the Northern Rockies indicates that only the western edge of the project area, including Gallatin and Park Counties, would be potentially impacted by CBM development (Walker and Craighead 1997).

4.2.3.2 Distribution

In the western United States, lynx historically occurred in the Cascades Range of Washington and Oregon; and the Rocky Mountain Range in Montana, Wyoming, Idaho, eastern Washington, eastern Oregon, northern Utah, and Colorado (McCord and Cardoza 1982; Quinn and Parker 1987).

4.2.3.3 Status in the Project Area

Distribution and primary potential habitats for Montana are in the western portion of the state in mature coniferous forests with a well-developed understory (Fisher et al. 1998).

4.2.3.4 Project Impact

Canada lynx would be expected mainly in higher elevation areas of western and south-central Montana, where dense, old-growth forests are most likely to be found. Although possible, exploration and development of CBM are not expected to occur in these habitats.

4.2.3.5 Conservation Measures

Any construction areas or drilling pads located in high elevation, old growth forested areas, especially areas with populations of hares or rabbits, would be surveyed prior to ground disturbance for scat and individuals following established protocols. If found, the site would be avoided and surrounded by a buffer zone recommended by FWS biologists.

4.2.3.6 Determination

Implementation of conservation measures will result in "no effect" to Canadian lynx.

4.2.4 GRAY WOLF (*CANIS LUPUS*)

4.2.4.1 Habitat

This species was listed as endangered on March 11, 1967. The gray wolf can be found in any area, within their current range, that supports populations of hoofed mammals (ungulates), its major food source. On November 18, 1994, a final rule initiated the establishment of a nonessential experimental population of gray wolves in central Idaho and southwest Montana (59 FR 60266).

4.2.4.2 Distribution

The wolf was considered extirpated from the western portion of the conterminous United States by about 1930. The gray wolf is native to most of North America north of Mexico City, except for the southeastern United States, where a similar species, the red wolf (*Canis rufus*), was found. The gray wolf occupied nearly every area in North America that supported populations of hoofed mammals (ungulates). The gray wolf occurred historically in the northern

Rocky Mountains, including mountainous portions of Wyoming, Montana, and Idaho. For 50 years prior to 1986, no detection of wolf reproduction was found in the Rocky Mountain portion of the United States.

A revised recovery plan was approved by FWS in 1987 (FWS 1987). It identified a recovered wolf population as being at least 10 breeding pairs of wolves, for 3 consecutive years, in each of three recovery areas (northwestern Montana, central Idaho, and Yellowstone). A population of this size would be comprised of about 300 wolves. The plan recommended natural recovery in Montana and Idaho. The plan recommended use of ESA section 10(j) authority to reintroduce experimental wolves. By establishing a nonessential experimental population, more liberal management practices could be implemented to address potential negative impacts or concerns regarding the reintroduction. The final EIS was filed with the Environmental Protection Agency on May 4, 1994, and the notice of availability was published on May 9, 1994. The EIS considered five alternatives: 1) Reintroduction of Wolves Designated as Experimental; 2) Natural Recovery (No Action); 3) No Wolves; 4) Wolf Management Committee Recommendations; and 5) Reintroduction of Wolves Designated as Non-experimental. After careful review, the FWS proposed to reintroduce nonessential experimental gray wolves in Yellowstone Park and central Idaho. Wolves in the third recovery area, the Northwest Montana Recovery Area encompassing northwest Montana and the Idaho Panhandle, are covered fully by the ESA as endangered species. Under the Experimental Population Final Rule guidelines from 1994, 35 wolves were introduced into central Idaho and 66 wolves were introduced into Yellowstone National Park in 1995 and 1996.

4.2.4.3 Status in the Project Area

The Yellowstone Park population is the only one likely to be impacted by this project. By the end of 2000, at least 177 wolves in 18 packs (including 13 breeding pairs) were present in the Greater Yellowstone Area (FWS et al. 2001). Wolves are now beginning to migrate from the Yellowstone Park area into other areas of south-central Montana.

4.2.4.4 Potential Impact

Roads and the presence of humans would increase the threat from shooting, either intentionally or accidentally (if mistaken for a coyote). The density of roads in occupied wolf areas could force wolves from occupied areas and could increase stress on wolves and result in the loss of some individuals.

4.2.4.5 Conservation Measures

Prior to construction on state lands and counties bordering Yellowstone National Park (Gallatin and Park Counties), surveys would include specific searches for this animal, occupied dens, or scat. The corridor would be surveyed in the spring, before construction by a wildlife biologist for scat. If scat is found, the site would be surrounded by a buffer zone recommended through consultation with an FWS biologist. If wolves or other wolf indicators are found, FWS would be consulted and proper protocols followed.

4.2.4.6 Determination

Implementation of conservation measures would result in "no effect" on gray wolf.

4.2.5 GRIZZLY BEAR (*URSUS ARCTOS HORRIBILIS*)

4.2.5.1 Habitat

This species was listed as endangered on March 11, 1967. This status was changed to threatened on July 28, 1975. On November 11, 2000, the FWS listed some populations in Montana and Idaho as experimental to facilitate restoration to designated recovery areas. On June 20, 2001, Interior Secretary Gale Norton rescinded the plans for restoration and withdrew a plan to reintroduce grizzly bears into the Bitterroot ecosystem of Idaho and Montana. Current status for is this species is threatened.

The grizzly (or brown) bear was once found in a wide variety of habitats including open prairie, brushlands, riparian woodlands, and semidesert scrub. Most populations require vast areas of suitable habitat to prosper. They forage for wild fruits, nuts, bulbs, roots, insect larvae in logs, and carcasses of elk, deer and cattle (Graham 1978; Mealey 1975; Schleyer1983). This species is common only in habitats where food is abundant and concentrated, including white-bark pine, berries, and salmon or cutthroat runs, and where conflicts with humans are minimal (Reinhart 1990;

Podruzny1999). Research indicates it is important to maintain areas where grizzly bears can forage for a 24 to 48 hour period secure from human disturbance (Gibeau *et al.* 1996).

Winter dens are dug in north-facing slopes or more often at the base of large trees in areas away from humans in late fall or winter after snow has begun to fall (Crowed and Crowed 1972; Jonkel 1980; Judd et al. 1986;Vroom et al. 1980).

4.2.5.2 Distribution

This species once lived in a variety of habitats across most of North America. Grizzly bears now occupy only 2 percent of their original range in the lower 48 states in remote wilderness areas in Idaho, Montana, Wyoming, Alaska and Washington. At least 350 grizzlies live in the northwestern Montana Rocky Mountains, about 250 in or around Yellowstone National Park, about 25 in the Selkirk Mountains in northern Idaho and northeast Washington, another 20 or so in the Cabinet-Yaak ecosystem in northern Idaho and western Montana, and 5 to 20 in the North Cascades. In Alaska, where they are called brown bears, they are estimated to number more than 30,000. There are about 22,000 grizzly bears in Canada.

4.2.5.3 Status in the Project Area

This species no longer exists in the wild in eastern Montana. Its distribution in Montana is now limited to the Northern Continental Divide Ecosystem and the Yellowstone Ecosystem with a few in the Cabinet-Yaak Ecosystem. The Primary Conservation Area for this species extends beyond the boundary of Yellowstone National Park into the Gallatin and Custer National Forests in Montana. By 1996, a record 33 females with cubs were observed in the Yellowstone ecosystem, and the bear population there is now increasing at 4 to 6 percent per year. This increasing population has been expanding into adjacent suitable habitat areas throughout the 1990s (FWS 1993b). The two primary areas within the CBM project area are in Gallatin County and the Southern Absarokas (Haroldson and Ternent 1999).

4.2.5.4 Potential Impact

Threats to grizzly bears mainly result from human-bear interactions, which occasionally ends in the death of the grizzly bear. If exploration moves into sparsely settled areas or previously unroaded areas within grizzly bear range, the possibility of bear-man interaction increases.

4.2.5.5 Conservation Measures

Garbage and other human refuse would be removed from drilling and construction sites in potential bear habitat to avoid attracting bears. Surveys for scat and other sign of grizzly bears in remote, sparsely roaded areas would be conducted prior to construction. If found, protocol would be established after consultation with FWS biologists.

4.2.5.6 Determination

Implementation of conservation measures would result in "no effect" to grizzly bear.

4.3 Birds

4.3.1 MOUNTAIN PLOVER (*CHARADRIUS MONTANUS*)

4.3.1.1 Habitat

The mountain plover has been proposed for listing as threatened. This bird's habitat is grasslands and it has historically associated with bison, pronghorn, and burrowing rodents. Breeding sites typically have vegetation that is less than 10 cm high with at least 30 percent bare ground and less than 5 percent slope. Chosen nest sites generally are heavily grazed areas with a manure pile, rock, or clump of forbs nearby (Leachman and Osmundson 1990; Parrish 1988; Parrish et al. 1993; Tolle 1976). Vegetation commonly associated with nest sites in Colorado are blue grama), buffalo grass (*Buchloe dactyloides*), and prickly pear cactus (Opuntia). Although this plover is rarely found near natural water sources, they are found near stock tanks (Knowles 1996). They are attracted to sites that are disturbed by grazing or burning (Wallis and Wershler 1981). They will use tilled land, but the farming techniques need to accommodate their life history, which rarely happens (Shackford et al. 1999).

Conversion of native prairies to agriculture has significantly reduced suitable breeding habitats for this species. It prefers level sites with very short grass and scattered cactus (Graul 1975). Intensive grazing is beneficial for mountain plovers, and they also regularly occupy prairie dog towns (Knowles et al. 1982). In Montana, high, arid plains and shortgrass prairie with blue grama and buffalo grass are primary habitat (Fisher et al. 1998). It does not overwinter in Montana, but potentially may breed within the project area, particularly if black-tailed prairie dog towns are present.

4.3.1.2 Distribution

The breeding range for this plover ranges from Colorado, Montana, Wyoming, Kansas, and Nebraska down through Oklahoma, Kansas, Utah, Nevada, Texas, and New Mexico. Almost 90 percent of mountain plovers winter in California in the Central and Imperial Valleys. The remainder apparently winter in Arizona, Texas, and Mexico.

This species currently has a population of less than 10,000 birds, a decline of 50 percent since 1966. This is the highest rate of decline of any grassland bird. The decline in this species is primarily caused by plowing, sodbusting, range management practices, oil and gas activity, prairie dog control, and pesticide use.

4.3.1.3 Status in the Project Area

The status of the mountain plover is not well understood within the project area, but may breed within the planning area, particularly in black-tailed prairie dog towns. It currently breeds in central, north-central, and southwest Montana and is transitory in other parts of Montana, such as the Greater Yellowstone Ecosystem. Blaine and Phillips counties currently support the bulk of mountain plovers that nest in Montana.

4.3.1.4 Project Impact

Mountain plover are most susceptible to disturbance during the nesting season, which extends from mid-April through early July. Construction activity and operations and maintenance could disturb the nesting/courting birds during this period. Noise and the presence of humans and equipment would be the main causes of disturbance. The absence of stipulations to protect mountain plover nesting areas (prairie dog towns smaller than 80 acres and even larger ones if no black-footed ferrets are present) would result in impacts to this species if exploration or development occurs in or near occupied nesting habitat. Prairie dog towns, often located on flat topography in low areas, are also preferred by CBM developers. Recent hatchlings are particularly susceptible to vehicle-related fatalities.

4.3.1.5 Conservation Measures

Surveys will be made for all prairie dog towns within the roadway corridor and pad sites. If prairie dog colonies or several of the other indicators are found, FWS survey protocol for this species will be followed. This includes surveying during breeding season for presence or absence on potential sites. Construction will be avoided in these areas during this time period to assure that potential nesting mountain plovers are not prevented from setting up territories resulting from the presence of equipment and humans.

4.3.1.6 Determination

Implementation of conservation measures to avoid impacts to nesting birds will help minimize impacts to this species. However, because these measures likely fall short of total protection the proposed action is “likely to adversely affect” mountain plovers.

4.3.2 BALD EAGLE (HALIAEETUS LEUCOCEPHALUS)

4.3.2.1 Habitat

This species was reclassified from endangered to threatened, because of recovery status, on July 12, 1995. Bald eagles concentrate in and around areas of open water where waterfowl and fish are available. They prefer solitude, late-successional forests, shorelines adjacent to open water, a large prey base for successful brood rearing, and large, mature tree for nesting and resting (Fisher et al. 1998).

4.3.2.2 Distribution

The bald eagle ranges throughout much of North America, nesting on both coasts from Florida to Baja California, Mexico in the south, and from Labrador to the western Aleutian Islands, Alaska in the north. An estimated quarter to a half million bald eagles lived on the North American continent before the first Europeans arrived. Nationwide bald eagle surveys, conducted in 1973 and 1974 by the FWS, other cooperating agencies, and conservation organizations, revealed that the eagle population throughout the lower 48 states was declining. A partial survey conducted by the National Audubon Society in 1963 reported on 417 active nests in the lower 48 States, with an average of 0.59 young produced per nest. Surveys coordinated by FWS in 1974 resulted in a population estimate of 791 occupied breeding areas for the lower 48 States. The FWS estimated that the breeding population exceeded 5,748 occupied breeding areas in 1998. The bald eagle population has essentially doubled every 7 to 8 years during the past 30 years.

4.3.2.3 Status in the Project Area

Bald eagles nest along all the major rivers within planning area. These watersheds provide important habitat during spring and fall migrations. As well as during the winter months. Bald eagles have been expanding their nesting territories throughout south central and southeastern Montana (Flath 1991).

4.3.2.4 Project Impact

Bald eagles are sensitive to human presence. Disturbance to foraging, resting, roosting, or migrating eagles is possible through surface use in other areas not addressed by stipulations. Assumptions listed in the introduction of the Wildlife section (Chapter 4 Wildlife), in the Powder River and Billings Amendment to the RMPs and EIS, including no surface use or occupancy within 1/2 mile of nests active in the last 7 years and within riparian area nesting habitat, should prevent eagles from abandoning traditional nesting sites in the project area, but periodic or complete abandonment of non-nesting habitat may occur depending on the level of human use and noise. Above-ground transmission facilities, even with proper design and construction requirements (APLIC,1996), pose an electrocution threat to bald eagles. Power lines also pose strike hazards for bald eagles, especially near perennial rivers and water bodies that support fish and waterfowl. Removal of large trees in wintering areas, particularly at established roost sites, would also displace bald eagles by removing perch and roost sites. Increased traffic, road kills and carrion, resulting from CBM activities, potentially increases vehicle collision hazard to bald eagles.

4.3.2.5 Conservation Measures

Before construction begins, a wildlife biologist will survey the construction zone within a 0.5-mile width for bald eagles and bald eagle nests and identify any locations that are found. No surface occupancy or use within 0.5 miles of known nests or riparian nesting habitat should prevent impacts to nesting bald eagles. APLIC (1996) guidelines will be applied to all above-ground transmission facilities.

4.3.2.6 Determination

The Proposed Action is " likely to adversely affect" bald eagles.

4.3.3 INTERIOR LEAST TERN (*STERNA ANTILLARUM ATHALASSOS*)

4.3.3.1 Habitat

This species was listed as Endangered on 28 May 1985 (50 FR 21784-21792).

The occurrence of breeding least terns is localized and depends upon the presence of dry, exposed sand bars and favorable river flows that support desired forage fish and that also isolate the sand bars from the river banks. Characteristic riverine nesting sites are dry, flat, sparsely vegetated sand and gravel bars within a wide, unobstructed, water-filled river channel (Ziewitz et al. 1992). The sand at a nesting site must be mostly clear of vegetation, and water levels low enough for nests to remain dry. Nests are initiated only after spring and early summer flows recede and dry areas on sand bars are exposed, usually on higher elevations away from the water's edge. Artificially created nesting sites, such as sand and gravel pits, dredge islands, reservoir shorelines and power plant ash disposal areas, also are used occasionally as well (Kirsch 1996).

4.3.3.2 Distribution

The interior least tern breeds locally along the major tributaries of the Mississippi River from eastern Montana south to Texas and Louisiana and east to western Illinois, Missouri, and Arkansas.

4.3.3.3 Status in the Project Area

The least tern is known to nest in the planning area. Its habitat includes graveled islands in the lower Yellowstone River and the Missouri River below Fort Peck dam (Fisher et al. 1998).

4.3.3.4 Project Impact

As with mountain plover, this species is susceptible to disturbance during the nesting period. It is highly vulnerable to changes in water levels during the nesting period. Implementation of conservation measures would avoid impacts to this species.

4.3.3.5 Conservation Measures

Potential habitat near drilling and construction sites will be identified and appropriate surveys will be conducted for this species. Surface occupancy and use is prohibited within 1/4 mile of wetlands used by nesting interior least tern during exploration. This stipulation will prevent impacts to interior least tern. Occupied wetlands and water levels would be protected in all phases of drilling and construction and no discharge into occupied wetlands would be permitted.

4.3.3.6 Determination

With strict adherence to survey protocols, stipulations and conservation measures, this project will likely have "no effect" interior least terns.

4.4 Fish

4.4.1 PALLID STURGEON (*SCAPHIRHYNCHUS ALBUS*)

4.4.1.1 Habitat

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 has a diversity of depths and velocities formed by braided channels, sandbars, islands, sand flats and gravel bars (Erickson 1992, Gilbraith et al. 1988). Pallid sturgeon are usually found now in deeper holes below sandbars and in riverine reaches of reservoirs (Kallemeyn 1983, Erickson 1992, Clancey 1991).

4.4.1.2 Distribution

Historically, pallid sturgeon were found in the Missouri River from Fort Benton, Montana, to St. Louis, Missouri; in the Mississippi River from above St. Louis to the Gulf of Mexico; in the lower reaches of other large tributaries, such as the Yellowstone, Platte, Kansas, Ohio, Arkansas, Red, and Sunflower; and in the first 60 miles of the Atchafalaya River (Bailey and Cross 1954, Kallemeyn 1983).

4.4.1.3 Status in the Project Area

Historically in Montana, pallid sturgeon occupied reaches of the Missouri River from Fort Benton downstream and in the Yellowstone River from Miles City to the Missouri River (FWS 1993a). Natural water flow and natural flooding events have been changed by channel developments and hydroelectric projects. These changes coupled with pollution and fishing, are believed to be the main reason for the decline in this species. There are three priority recovery management areas in Montana, two on reaches of the Missouri and one on the Yellowstone River.

4.4.1.4 Project Impact

There could be a minimal, temporary affect through construction of stream crossings and erosion generated by construction activities. The Preferred Alternative contains requirements designed to protect hydrologic resources by combining management options of CBM-produced water so that no degradation of water quality would be allowed in any watershed. CBM operators would be required to develop a Water Management Plan as part of their overall Project Plan that describes how impacts on surface resources would be minimized or mitigated, and how a discharge (if proposed by the operator) could occur without damaging the watershed—in accordance with a required and approved NPDES Permit and water quality laws. Stipulations prohibiting surface occupancy or use of water bodies, floodplains of major rivers, riparian areas, and steep slopes would further avoid impacts. These measures would avoid water quality impacts to the pallid sturgeon. In addition, release of adequate quality water from production may improve habitat that has been degraded through water withdrawals.

Long-term effects on pallid sturgeon associated with discontinued activities, such as sediment delivery from roads, would subside as disturbed areas are reclaimed. Agency mitigation measures implemented during abandonment would reduce erosion potential, prevent water pollution, facilitate reclamation of disturbed lands, and further reduce the potential for long-term impacts on pallid sturgeon.

4.4.1.5 Conservation Measures

There are no specific conservation measures identified, however, BLM would develop, include, and enforce appropriate mitigation measures for aquatic resources, including pallid sturgeon, during the site-specific, plan-approval stage. Measures to further avoid or reduce impacts in addition to those included at the plan-approval stage may be recommended. The state would apply additional mitigation measures on a case-by-case basis through the use of field rules.

4.4.1.6 Determination

If Conservation Measures are implemented, this project "may affect but is not likely to adversely impact" pallid sturgeon.

4.4.2 MONTANA ARCTIC GRAYLING (*THYMALLUS ARCTICUS*)

4.4.2.1 Habitat

This species is a candidate for listing under the Endangered Species Act. On October 2, 1991, a petition requested that the "fluvial Arctic grayling" be listed as an endangered species throughout its historic range in the lower 48 states. The petitioners stated that the decline of the fluvial Arctic grayling was a result of many factors, including habitat degradation because of the effects of domestic livestock grazing and stream diversions for irrigation, competition with nonnative trout species, and past over-harvesting by anglers. Additionally, the petition stated that much of the annual recruitment is lost in irrigation ditches.

4.4.2.2 Distribution

Historically, this species was widely, but irregularly, distributed and locally abundant above Great Falls in the upper Missouri River drainage in Montana. (FWS 1994).

4.4.2.3 Status in the Project Area

In Montana, Arctic grayling are generally found at relatively high, cold headwater locations. Within the project area these locations include headwaters in the Gallatin River and the Clarks Fork of the Yellowstone. Studies by the Montana Department of Fish, Wildlife and Parks show that grayling relative abundance at both of these locations is "rare" (Montana Natural Resource Information System 2001).

4.4.2.4 Project Impact

There could be a minimal, temporary affect through construction of stream crossings and erosion generated by construction activities. The Proposed Action contains requirements designed to protect hydrologic resources by combining management options of CBM-produced water so that no degradation of water quality would be allowed in any watershed. CBM operators would be required to develop a Water Management Plan as part of their overall

Project Plan that describes how impacts on surface resources would be minimized or mitigated, and how a discharge (if proposed by the operator) could occur without damaging the watershed—in accordance with a required and approved NPDES Permit and water quality laws. Stipulations prohibiting surface occupancy or use of water bodies, floodplains, riparian areas, and steep slopes would further avoid impacts. These measures would avoid water quality impacts to the Arctic grayling. In addition, release of adequate quality water from production may improve habitat that has been degraded through water withdrawals.

Long-term effects on the Montana arctic grayling associated with discontinued activities, such as sediment delivery from roads, would subside as disturbed areas are reclaimed. Agency mitigation measures implemented during abandonment would reduce erosion potential, prevent water pollution, facilitate reclamation of disturbed lands, and further reduce the potential for long-term impacts on Arctic grayling.

4.4.2.5 Conservation Measures

There are no specific conservation measures identified, however, BLM would develop, include, and enforce appropriate mitigation measures for aquatic resources, including Arctic grayling, during the site-specific, plan-approval stage. Measures to further avoid or reduce impacts in addition to those included at the plan-approval stage may be recommended. The state would apply additional mitigation measures on a case-by-case basis through the use of field rules.

4.4.2.6 Determination

With implementation of Conservation Measures the planned action "may affect but is not likely to adversely impact" this species.

4.5 Invertebrates

4.5.1 WARM SPRING ZAITZEVIAN RIFFLE BEETLE (*ZAITZEVIA THERMAE*)

4.5.1.1 Habitat

This riffle beetle is a Candidate for listing under the Endangered Species Act. It is endemic to a single warm springs near Bozeman, Montana and is not known to inhabit any other sites (Nordstrom, L. 2001. Personal Comm. FWS Helena, MT).

4.5.1.2 Distribution

There is only one known population of this species. It is found in an unnamed hot springs on Bridger Creek on the outskirts of Bozeman in Bridger County. It is globally endemic to this one place (Nordstrom, L. 2001. Personal Comm. FWS Helena, MT).

4.5.1.3 Status in the Project Area

The single known population of this species is currently stable.

4.5.1.4 Project Impact

Anything, including drawdown of the water table that impacts the hot springs where this species is found may cause the extinction of the species (Nordstrom, L. 2001. Personal Comm. FWS Helena, MT).

4.5.1.5 Conservation Measures

There will be no CBM well development allowed near Bozeman, and no water will be removed or added to the Bridger Creek drainage above the hot spring. All other warm springs within the project area that may be potentially impacted by this project will be surveyed for this species before exploration and development of CBM wells begins.

4.5.1.6 Determination

Implementation of survey protocols and conservation measures to known and potential populations would result in "no effect" to this species.

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Appendix A

Letter from USFWS with Species of Concern

Ecological Services
100 North Park, Suite 320
Helena Montana 59601

ES-61130-Billings
Informal

April 17, 2001

Mr. Larry Rau
Bureau of Land Management
Miles City Field Office
111Garyowen Road
Miles City, Montana 59301

Dear Mr. Rau:

We have received your April 6, 2001 FAX of your 28 February 2001 letter regarding the development of a joint Draft Environmental Impact Statement with the Montana Department of Natural Resources and Conservation (DNRC) addressing oil and gas development. The analysis specifically addresses coalbed methane development in southeast and east central portions of Montana. Under a "full development" scenario, the following counties may be affected by this action: Treasure, Rosebud, Powder River, Wheatland, Golden Valley, Musselshell, Sweet Grass, Stillwater, Yellowstone, Big Horn, Carbon, Blaine, Park, Gallatin, Carter and Custer Counties. The Bureau of Land Management (BLM) is requesting comments and concerns on the impacts of the proposed action on the following threatened, endangered and proposed species.

The threatened, endangered or proposed species which may occur in the identified counties include the bald eagle *Haliaeetus leucocephalus*, pallid sturgeon *Scaphirhynchus albus,* grizzly bear *Ursus arctros horribilis*, Canada lynx *Lynx canadensis*, Utre Ladies' Tresses *Spiranthes diluvialis*, gray wolf *Canis lupus*, interior least tern *Sterna antillarum athalassos*, black footed ferret *Mustela nigripes* and mountain plover *Charadrius montanus.*

The Peregrine falcon (*Falco peregrinus*) was delisted on August 25, 1999. Protection from take and commerce for the peregrine falcon under the Endangered Species Act is removed upon delisting. However, peregrine falcons are still protected by the Migratory Bird Treaty Act (MBTA). The MBTA and its implementing regulations (50 CFR Parts 20 and 21) prohibit take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). With limited exceptions, take will not be permitted under MBTA until a management plan developed in cooperation with State wildlife agencies, undergoes public review, is approved, finalized, and published in the Federal Register.

Your action in Blaine County may occur within a "nonessential experimental population" for the black-footed ferret (50 CFR Part 17, Vol. 59, No. 159, 42696-715, August 18, 1994). Section 10(j) of the Act authorizes listed species to be released as experimental populations outside their currently occupied range, but within probable historic habitat, to further species conservation. Before making a release, the Services determine by rulemaking whether that population is "essential" or "nonessential." An "essential experimental population" is a reintroduced population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild. A "nonessential experimental population" is a reintroduced population whose loss would not be likely to appreciably reduce the likelihood of survival of the species in the wild. For section 7 consultation purposes, section 10(j) requires that any nonessential experimental population outside a National Park or National Wildlife Refuge System unit is treated as a proposed species and a conference with the Service may be conducted. It should be noted, that the effects of your proposed action may occur outside this area where the status of the black-footed ferret remains as endangered.

The black-footed ferret is obligate to the black-tailed prairie dog and is found exclusively within prairie dog colonies except when traveling from one colony to another. The Assiniboine and Gros Ventre Tribes at Fort Belknap are a part of the black-footed ferret reintroduction effort in Montana. A total of 167 ferrets have been released on the Fort Belknap Indian Reservation between 1997 and 2000. Therefore, black-footed ferrets may reside in any active prairie dog town within the scope of effects in the action area. A copy of the Service's *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act" (April 1989)*, is available upon request.

In Montana, the mountain plover almost exclusively nests in active prairie dog towns. Blaine and Phillips counties both support the bulk of mountain plover that nest in Montana. This population demonstrates the highest reproductive success of the few remaining within its historic range. The contribution of this local population's recruitment to the species is significant to the point that its loss would be a severe blow to recovery of the species. The Service has established *Mountain Plover Survey Guidelines (1999)* that have been provided for your convenience as APPENDIX I to this letter.

Candidate species are those taxa for which the U.S. Fish and Wildlife Service has sufficient information on biological status and threats to propose to list them as threatened or endangered, but issuance of a proposed rule is currently precluded by higher priority listing actions (61 FR 7596-7613, February 28, 1996). The Service encourages their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species. Federal agencies have policies for the conservation of federal candidate species to manage those species in such a manner as to ensure actions that they authorize, fund, or carry out do not contribute to the need to list any species, and they may have special agency guidelines for their management, i.e. The Bureau of Land Management Instruction Memorandum No. 2000-140. The candidate species found in the counties listed above, includes the black-tailed prairie dog *Cynomys ludovicianus,* Montana arctic grayling *Thymallus arcticus*, and warm spring Zaitzevian riffle beetle *Zaitzevia thermae.* On April 10, 2001, the Service made a 12-month finding for a petition to list the sicklefin chub *Hybopsis meeki* and the sturgeon chub *Hybopsis gelida* as endangered under the Endangered Species Act of 1973, as amended. We found, after review of all available scientific and commercial information, that listing either of these two species is not warranted at this time. However, significant concern for these species remains.

The Service was petitioned to list the sage grouse (*Centrocercus europhasia*) in the state of Washington on May 14, 1999. Depending upon the Service's finding, a new petition may be submitted requesting to list the sage grouse throughout its range. Sage grouse populations have been declining throughout their range. Habitat loss and fragmentation has been identified as one of the primary causes of this decline. This species is dependent on sagebrush, and any removal of this habitat component can have a potentially negative effect on this species. Re-establishment of this shrub by existing coalmines to 30% of pre-disturbance levels has been largely unsuccessful in the Powder River Basin. Additionally, sage grouse are negatively impacted by increased road densities. Indirect impacts to sage grouse are likely, and that surface and timing stipulations are unsuccessful in protection of sage grouse habitat due to split estate mineral ownership. Cumulative surface disturbance of habitat from mining, coal-bed methane production, and oil and gas development may directly affect sage grouse populations. If sage grouse are listed during development of your proposed activity, the need to consult under section 7 of the Act may be avoided by addressing project impacts to this species now.

Pursuant to Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.), the Bureau of Land Management, as the responsible Federal agency, must determine if the proposed actions may affect these listed species and if so, initiate formal consultation with the Fish and Wildlife Service (Service). In order to determine if formal consultation is required, the Service recommends the responsible agency prepare a biological assessment for construction projects requiring an environmental impact statement (refer to Section 402.12, 50 CFR, Part 402, June 3, 1986), or an equivalent analysis for other projects, in accordance with Section 402.14, 50 CFR, part 402. We recommend that biological assessments include the following:

1. A description of the project,

2. A description of the specific area that may be affected by the action,

3. The current status, habitat use, and behavior of threatened and endangered species in the project area,

4. Discussion of the methods used to determine the information in Item 3,

5. An analysis of the affects of the action on listed species and proposed species and their habitats, including an analysis of any cumulative effects (see Section 402.02 50 CFR, Part 402),

6. Coordination/mitigation measures that will reduce/eliminate adverse impacts to threatened and endangered species,

7. The expected status of threatened and endangered species in the future (short and long term during and after project completion),

8. A determination of the project affects for listed species,

9. A determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species, and

10. Documentation of the basis of all conclusions, such as the data considered, citation of literature and personal contacts used in developing the assessment.

If it is determined that the proposed project is likely to adversely affect any listed species, formal consultation should be initiated with this office.

Section 9 of ESA prohibits knowingly taking listed species, which includes harm, harassment, capture, or collection activities, except when specifically permitted by the U.S. Fish and Wildlife Service. Please also be apprized of the potential application of the Migratory Bird Treaty Act of 1918 (MBTA), as amended, 16 U.S.C. 703 et seq; and the Bald Eagle Protection Act of 1940 (BEPA), as amended, 16 U.S.C. 668 et seq; to your project. The MBTA does not require intent to "take" to be proven and does not allow for "take," except as permitted by regulations. Section 703 of the MBTA provides: "Unless and except as permitted by regulations...it shall be unlawful at any time, by any means or in any manner, to...take, capture, kill, or attempt to take, capture, or kill, possess... any migratory bird, or any part, nest, or eggs of any such bird...." The BEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of such an activity, any bald or golden eagles or their body parts, nest, or eggs, which includes collection, molestation, disturbance, or killing activities.

Executive Order 13186 for Migratory Bird Conservation was signed by President Clinton on January 10, 2001 and published in the Federal Register on January 17, 2001. Executive Order 13186 reaffirms that Federal Agencies are in fact subject to the Migratory Bird Treaty Act and the executive order provides an effective mechanism for implementing the United States' obligations under its treaties with Canada, Mexico, Russia, and Japan. The requirements of the Executive Order are in addition to, not in lieu of, the prohibitions of the MBTA. Federal Agencies are required to possess permits before taking migratory birds.

The Service does foresee many substantive issues with the proposed project with regard to listed or other protected species, and the proliferation of new power lines to water wells and new infrastructure is a concern. Any power lines in the vicinity, if not properly constructed, could pose electrocution and line strike hazards to listed species and other migratory birds. To conserve any listed species and other migratory birds protected by Federal law, we urge that any power lines that may need to be modified or reconstructed as a result of the project be raptor-proofed following the criteria and techniques outlined in the *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp.*

Copies can be obtained via the Internet at http://www.eei.org/resources/pubcat/enviro/, or by calling 1-800/334-5453).

In Montana, recent studies have identified increasing eagle and raptor mortalities when birds encounter electric power lines associated with oil and gas development. All new distribution lines should incorporate contemporary raptor protection measures. These include conventional conductor-conductor and conductor to ground spacing, insulating the bushing conductor terminations and by using insulated jumper conductors. Perches, perching deterrents, nesting platforms and nest deterrent devices should also be used.

Your letter does not mention whether wetlands might be impacted by any of the proposed projects. If so, Corps of Engineers Section 404 permits may eventually be required. In that event, depending on permit type and other factors, the U.S. Fish and Wildlife Service may be required to review permit applications and will recommend any protection or mitigation measures to the Corps of Engineers as may appear reasonable and prudent based on the information available at that time.

Coal bed methane (CBM) development will include extensive networks of pipelines, power lines and roads, which together with collection points and compressors will result in severe disturbance to terrestrial wildlife and the habitats that support them. Saline runoff from CBM wells will also affect terrestrial wildlife through loss of habitat and direct physiological impacts.

Within the affected area, six species of amphibians, 12 species of reptiles, 184 species of birds and 43 species of mammals occur. Some are secure, and could likely weather the effects of CBM development, but the status of most is unknown, as is their potential response to the proposed development. Of the 245 vertebrate species (excluding fish), 13 species and 4 communities are of concern. Attached as an addendum to this letter is a paper by Steve Regele and Judd Stark from the Montana Department of Environmental Quality on *Coal Bed Methane Gas Development in Montana, Some Biological Issues.*

CBM development will draw down existing local and regional aquifers and reduce important ground and surface water supplies. Stock ponds, springs and wells will provide less water for livestock in upland areas, resulting in hardships for local livestock producers, and forcing cattle to use riparian areas for water. Increased livestock use of riparian habitats would violate the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management* adopted by the BLM in the May, 1997 final EIS.

Wastewater discharge will likely cause increased flows in normally dry watercourses such as ephemeral drainages, coulees and gullies resulting in erosion and downstream siltation in streams that are already silt laden. These waters may contain toxic elements hazardous to wildlife. The MT DEQ has identified 22 parameters of concern that could impact water quality. The sturgeon chub has only a few remaining stable populations throughout its range. The Powder River and Lower Yellowstone is probably the most important drainage left for the sturgeon chub. The Powder River is currently one of the few remaining large alkaline prairie rivers that exhibit an intact native fish and invertebrate fauna. A small change in salinity, temperature, turbidity, radioactive or toxic constituents could render extant the current population of sturgeon chub and negatively impact pallid sturgeon. American Rivers, a national river watchdog group, on 11 April 2001, ranked the Powder River as one of the Nation's top five most threatened rivers in an annual tally of endangered rivers.

If you have any questions regarding this letter, please contact Lou Hanebury of my staff at (406) 247-7367. We appreciate your efforts to consider endangered species in your project planning.

Sincerely,

R. Mark Wilson
Field Supervisor
Montana Field Office

Attachment: *Coal Bed Methane Gas Development in Montana, Some Biological Issues.*

LRH/lrh

cc: Suboffice Coordinator, Ecological Services, Billings, MT.
Field Supervisor, Ecological Services, Wyoming Field Office, Cheyenne, Wyo.

APPENDIX I

MOUNTAIN PLOVER SURVEY GUIDELINES
U.S. Fish and Wildlife Service
1999

The mountain plover (*Charadrius montanus*) is a small bird (17.5 cm, 7 in.) about the size of a killdeer (*C. vociferus*). It is light brown above with a lighter colored breast, but lacks the contrasting dark breast-belt common to many other plovers. During the breeding season it has a white forehead and a dark line between the beak and eye, which contrasts with the dark crown.

Mountain plover breeding habitat is known to include short-grass prairie and shrub-steppe landscapes; dryland, cultivated farms; and prairie dog towns. Plovers usually nest on sites where vegetation is sparse or absent, due to disturbance by herbivores, including domestic livestock and prairie dogs. Vegetation at shortgrass prairie sites is less than 4 inches tall, while shrubs visually predominate nest sites within the shrub-steppe landscape. Usually, nest sites within the shrub-steppe are on active prairie dog towns. Nests are commonly located near a manure pile or rock. In addition to disturbance by prairie dogs or livestock, they have also been found on oil drill pads. Mountain plovers are rarely found near water. They may be found on heavily grazed pastures throughout their breeding range and may selectively nest in or near prairie dog towns. Positive indicators for mountain plovers therefore include level terrain, prairie dogs, bare ground, *Opuntia* pads, cattle, widely spaced plants, and horned larks. It would be unusual to find mountain plovers on sites characterized by irregular or rolling terrain; dense, matted vegetation; grass taller than 4 inches, wet soils, or the presence of killdeer.

These guidelines were developed by Service biologists Pat Deibert, Lou Hanebury, and Bob Leachman, and Dr. Fritz Knopf, USGS-BRD. Keep in mind these are guidelines - please call Bob Leachman at 970-243-2778 if you have any suggestions.

GENERAL GUIDELINES FOR SURVEYS

On February 16, 1999, the Service proposed the mountain plover for federal listing as threatened. Because listing of this species is proposed, the Service may recommend surveys for mountain plovers to better define nesting areas, and minimize potential negative impacts. The Service recommends surveys for mountain plovers in all suitable habitat, as well as avoidance of nesting areas, to minimize impact to plovers in a site planned for development. While the Service believes that plover surveys, avoidance of nesting and brood rearing areas, and timing

restrictions (avoidance of important areas during nesting) will lessen the chance of direct impacts to and mortality of individual mountain plovers in the area, these restrictions do nothing to mitigate indirect effects, including changes in habitat suitability and habitat loss. Surveys are, however, a necessary starting point. The Service has developed the following 2 survey guidelines, depending on whether the intent is to determine the presence or absence of plovers at a site during the nesting season, or to determine the density of nesting plovers.

Survey Protocol

Two types of surveys may be conducted: 1) surveys to determine the presence/absence of breeding plovers (i.e., displaying males and foraging adults), or 2) surveys to determine nest density. The survey type chosen for a project and the extent of the survey area (i.e., beyond the edge of the construction or operational ROW) will depend on the type of project activity being analyzed (e.g., construction, operation) and the users intent. One methodology outlines a breeding survey that was used in northeastern Colorado to establish the density of occupied territories, based on displaying male plovers or foraging adults. The other was developed to only determine whether plovers occupy an area.

Techniques Common to Each Survey Method

- Conduct surveys during early courtship and territorial establishment. Throughout the breeding range, this period extends from approximately mid-April through early July. However, the specific breeding period depends on latitude, elevation, and weather.
- Conduct surveys between local sunrise and 1000 and from 1730 to sunset (periods of horizontal light to facilitate spotting the white breast of the adult plovers).
- Drive transects within the project area to minimize early flushing. Flushing distances for mountain plovers may be within 3 meters for vehicles, but plovers often flush at 50 to 100 meters when approached by humans on foot.
- Use of a 4-wheel drive vehicle is preferable; however, fallow agricultural fields present an access problem. Use of ATVs has proven highly successful in observing and recording displaying males.
- Stay in or close to the vehicle when scanning. Use binoculars to scan and spotting scopes to confirm sightings. Do not use scopes to scan.
- Do not conduct surveys in poor weather (i.e., high wind, precipitation, etc.).
- Surveys conducted during the courtship period should focus on identifying displaying or calling males, which would signify breeding territories.
- For all breeding birds observed, conduct additional surveys immediately prior to construction activities to search for active nest sites.
- If an active nest is located, an appropriate buffer area should be established to prevent direct loss of the nest or indirect impacts from human-related disturbance. The appropriate buffer distance will vary, depending on topography, type of activity proposed, and duration of disturbance. For disturbances including pedestrian foot traffic and continual equipment operations, a 200-meter buffer is recommended.

SURVEY TO DETERMINE PRESENCE/ABSENCE

Conduct the survey between May 1 and June 15, throughout the breeding range.

Visual observation of the area should be made within 200 m of the proposed action to detect the presence of plovers. All plovers located should be observed long enough to determine if a nest is present. These observations should be made from within a stationary vehicle, as plovers do not appear to be wary of vehicles.

If no visual observations are made from vehicles, the area should be surveyed on ATV's. Extreme care should be exercised in locating plovers due to their highly secretive and quiet nature. Surveys by foot are not recommended because plovers tend to flush at greater distances when approached using this method. Finding nests during foot surveys is more difficult because of the greater flushing distance.

A site must be surveyed 3 times during the survey window, with each survey separated by at least 14 days.

Initiation of the project should occur as near to completion of the survey as possible. For example, seismic exploration should begin with 2 days of survey completion. A 14 day period may be appropriate for other projects.

If an active nest is found in the survey area, the planned activity should be delayed 37 days, or one week post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days.

SURVEY TO DETERMINE DENSITY OF NESTING MOUNTAIN PLOVERS

We are assuming people will have received training on point counts in general before using this specialized point count technique adapted to mountain plovers.

Establishing Transects

Identify appropriate habitat and habitat of interest within geographic areas of interest.

Upon arriving in appropriate habitat, drive to a previously determined random starting point.

For subsequent points, drive a previously determined random distance of 0.3, 0.4 or 0.5 miles.

Each transect of point counts should contain a minimum of 20 points.

Conducting The Point Counts

1. Conduct counts between last week in June to July 4th at eastern plains elevation in Colorado.

2. Only 1 counter is used. Do not use a counter and recorder or other combinations of field help. Drivers are okay as long as they don't help spot plovers.

3. If an adult mountain plover is observed, plot occupied territories on a minimum of 1:24,000 scale map and on a ROW diagram or site grid (see attached). The ROW diagram will be at a greater level of detail, depicting the location of breeding birds (and possible nest sites) relative to ROW centerline, construction boundary, and applicable access roads.

4. Estimate or measure distances (in meters) to all mountain plovers. Method used should be noted, e.g., estimates w/distance training, estimates w/o distance training, rangefinder or measured with tape measure, etc.

5. Record "fly-overs" as "FO" in the distance column of the data sheet.

6. If you disturb a mountain plover while approaching the point, estimate the distance from point-center to the spot from which the bird was flushed.

7. Conduct counts for 5 minutes with a 3-minute sub sample to standardize with BBS.

8. Stay close to your vehicle while scanning.

Recording Data

Record the following information AT EVERY POINT, EVERY DAY.

- start time
- unique point code (don't duplicate within a field crew or across dates)
- number of mountain plovers and distance to each
- land use and/or habitat type (e.g., fallow wheat, plowed, shortgrass)
- temperature, Beaufort wind, and sky conditions (clear, partly cloudy, overcast)
- Information on the data sheet somewhere.
- your name and address
- date
- Record for each point at some point during the census.
- detailed location description of each point count including road number, distance to important intersections.
- record transect and point locations on USGS county maps.
- Universal Transverse Mercator from maps or GPS are useful.

GENERAL HABITAT INDICATORS

Positive habitat images

Stock tank (non-leaking, leaking tanks often attract killdeer)

Flat (level or "tilted) terrain

Burned field/prairie/pasture

Bare ground (minimum of 30 percent)

"Spaced" grass plants

Prairie dog colonies

Horned larks

Cattle

Heavily grazed pastures

Opuntia pads visible

Negative habitat images

Killdeer present (indicating less than optimal habitat)

Hillsides or steep slope

Prominent, obvious low ridge

Leaky stock tanks

Vegetation greater than 4 inches in height

Increasing presence of tall shrubs

Matted grass (i.e., minimal bare ground)

Lark buntings

**** SURNAME SLIP ****

FOR CORRESPONDENCE REQUIRING
FIELD SUPERVISOR SIGNATURE

AUTHOR: Lou Hanebury
FILE #: blmcbmdeis.wpd (Informal)

REVIEWER(S):

_____

ASST. FIELD SUPERVISOR: _____

SPECIAL INSTRUCTIONS: Rob/Mark/Anne

_____

Anne: please review as to wolf and Grizzly special considerations?

Please print and add as addendum regelestark.doc as an attachment to this letter (**print out as a Work document**)_____

_____

COPIES: _____

_____

_____

[Attach this slip to Field Office file copy]

Appendix B

USFWS Survey Guidelines for Ute Ladies' Tresses

NOTE: These guidelines are current as of 2/4/98. They will be updated annually or as needed by the Snake River Basin Office.

SECTION 7 GUIDELINES - Snake River Basin Office
Spiranthes diluvialis
Ute Ladies'-tresses (threatened)

I. BACKGROUND

Legal Status

Spiranthes diluvialis (SPDI) was listed as threatened on January 17, 1992 (57 FR 2048) due to a variety of factors, including habitat loss and modification, and hydrological modifications of existing and potential habitat areas (see "Summary of Threats" section below).

Species Description

Spiranthes diluvialis is a perennial, terrestrial orchid with stems 20 to 50 centimeters (cm) (8 to 20 inches) tall, arising from tuberously thickened roots. Its narrow leaves are about 11 inches long at the base of the stem, and become reduced in size going up the stem. The inflorescence generally consists of 7 to 32 (mean = 16) small white or ivory flowers clustered into a spike arrangement at the top of the stem (Sipes and Tepedino 1995). The species is characterized by whitish, stout, ringent (gaping at the mouth) flowers. The sepals and petals, except for the lip, are rather straight, although the lateral sepals are variably oriented with these often spreading abruptly from the base of the flower. Sepals are sometimes free to the base.

SPDI is an allopolyploid, formed by at least two hybridization events between the widespread species, *Spiranthes romanzoffiana* (hooded ladies' tresses) and *S. magnicamporum*, a midwestern species (Arft 1995). SPDI is very similar morphologically to *S. romanzoffiana*; thus, it is normally possible to positively identify Ute ladies'-tresses only when it is flowering (see attached line drawings and descriptions). Both species may occur in similar habitats, and the distribution of SPDI can overlap with *S. romanzoffiana*, especially above 5,000 feet elevation. For example, a mixed population containing both SPDI and *S. romanzoffiana* occurs at approximately 6,800 feet in northern Utah (Ben Franklin, Utah Natural Heritage Program, pers. comm., 1997). Due to its similarity to *S. romanzoffiana*, only a qualified, experienced botanist will be able to positively identify SPDI.

Because SPDI was first described in 1984 (Sheviak 1984), it is not found in many commonly used botanical keys.

The following information is from Heidel 1997:

> Monthly data collected in a Colorado population indicated that SPDI usually produced an overwintering rosette during late summer or fall (Arft 1995). Leaf growth occurred during

the growing season following rosette formation. Inflorescense buds were produced as early as June, followed by flowers from mid-July to mid-August (at least two weeks earlier than in Montana). Fruits matured and dehisced from mid-August into September... Mature plants may remain dormant for at least one growing season without producing any above-ground shoot, but the vegetative shoot condition was much more common than the dormant condition for populations monitored in Utah and Colorado (Arft 1995). Studies of *Spiranthes magnicamporum* in western Kansas and Nebraska report that the incidence of orchid flowering may be as infrequent as once in 20 years (Magrath 1973 in USFWS 1995a).

It is not uncommon for orchids to exhibit prolonged dormancy. Orchid seeds generally require specific symbiotic associations with mycorrhizal fungi for germination. Many *Spiranthes* species persist underground for several years before leaves emerge above ground. In addition, some species of *Spiranthes* do not consistently flower in consecutive years, and may persist underground due to their relationship with mycorrhizal fungi (USFWS 1995a).

The tendency for prolonged dormancy in orchids should be considered in survey and monitoring efforts. According to Lesica and Steele (1994), "when dealing with plants that have prolonged dormancy, it will be necessary to conduct a study for seven years to obtain five years of accurate data. Populations of orchids and species occurring in drought- or flood-prone habitats may have larger proportions of dormant plants or longer dormant periods."

In Idaho, SPDI generally blooms from early August through mid-September, depending on microsite and climatic conditions. At various sites throughout its range, this species may begin blooming in early July or flower as late as early October.

SPDI populations can have a staggered flowering pattern, i.e., some plants may be in fruit while others are still in bud stage. This staggered phenology may be adaptive, or reflect unique microsite conditions for individual plants (Heidel 1997).

Population Size/Location

SPDI is currently known from Colorado, Idaho, Montana, Nebraska, Utah, Washington, and Wyoming. The total population for this species is approximately 25,000 to 30,000 individuals. Historically, the species was known from Colorado, Utah, and Nevada, although it is thought to be extirpated from Nevada.

In Idaho, approximately 1,170 SPDI plants are known from a total of 20 occurrences in eastern Idaho, along the South Fork of the Snake River between Swan Valley and the confluence with the Henry's Fork (Moseley 1997; Figure 1). These occurrences range in size from one plant to a few hundred individuals. Most of the Idaho sites are very small (less than one acre in size, based on the amount of occupied habitat), although additional potentially suitable habitat exists along the South Fork of the Snake River and elsewhere in the state.

In addition to eastern Idaho, SPDI is found near the base of the eastern slope of the Rocky Mountains in southeastern and central Wyoming and north-central Colorado, and in southwestern Montana; in western Nebraska (adjacent to Wyoming); in the upper Colorado River basin, particularly the Uinta basin; and along the Wasatch Front and westward in the eastern Great Basin, in north-central and western Utah. One SPDI population has recently been located in north-central Washington, in Okanogan County. Habitat characteristics for the known occurrences of SPDI are briefly summarized below.

Habitat

SPDI is endemic to mesic or wet meadows and riparian/wetland habitats near springs, seeps, lakes, or perennial streams. Soils may be inundated early in the growing season, normally becoming drier but retaining subsurface moisture through the season. (However, particularly in drought years, subsurface moisture may not be present within 12 inches below the soil surface.) Elevations of known orchid occurrences range from approximately 1,500 to 7,000 feet (ft).

Generally, this species occurs in areas where the vegetation is relatively open (e.g., grass and forb-dominated sites), but some populations are found in riparian woodlands (such as cottonwoods) in Colorado, Utah, and Idaho and in riparian shrub (e.g., willow thickets) communities. Soils range from fine silt/sand to gravel and cobbles, sometimes highly organic or peaty soils. In some areas, the wetland habitats and soils that support this species are moderately to strongly alkaline.

SPDI may survive in areas where streams remain in a somewhat natural condition, or where conditions mimic naturally created and maintained habitat. For example, it may be found along old gravel pits that have been restored as wetlands, in irrigated pastures, or below leaky diversion dams and irrigation canals.

Habitat characteristics for SPDI sites in the various states are briefly summarized below. (This information is incomplete, and is subject to change; if you need additional information, please contact the respective state heritage programs).

Colorado:

In Colorado, SPDI occurs in mesic riparian meadows, irrigated pastures, and riparian woodland understory habitats, located primarily on private, state, and city (i.e., Boulder open space) property. At some of the wet meadow sites in Colorado, SPDI has been found in fairly dense vegetation with meadow grasses 2 to 3 feet tall and a litter layer from 1 to 4 inches in depth. The effects of grazing and mowing on SPDI in an irrigated pasture site were described by Arft (1995); this information is summarized in the "Summary of Threats" section in these guidelines.

Associated species include: *Agalinis tenuifolia*, *Agrostis stolonifera*, *Asclepias incarnata*, *Calamagrostis* spp., *Carex nebraskensis*, *Cirsium arvense*, *Equisetum* spp., *Juncus balticus*, *J. dudleyi*, *J. longistylis*, *J. nodosus*, *Lobelia sphilitica*, *Sisyrinchium* spp., *Solidago* spp., *Triglochin* spp., and *Verbena hastata* (USFWS 1995).

Montana:

SPDI was first discovered in Montana in 1994. It is restricted to wet meadows fed by stable groundwater, along meandered wetlands, and in seeps in alkaline valley bottoms (Heidel 1997). One of the five Montana sites is present in a localized seep along a valley margin. The known sites range from 4,350 to 4,800 feet in elevation. Total occupied habitat is less than 9 acres; land ownership is primarily private, although one site is located on state land (Heidel 1997). Associated species include: *Eleocharis pauciflora, Muhlenbergia richardsonii, Carex simulata, C. praegracilis, Glaux maritima, Juncus balticus, J. longistylis,* and *J. nodosus.*

Nebraska:

SPDI was discovered in Nebraska in 1996. It is located just east of the Wyoming border, adjacent to one of the SPDI sites in Wyoming. The local dominant species is *Juncus balticus*; other common species include *Eleocharis pauciflora, Agrostis stolonifera, Hordeum jubatum, Triglochin maritima,* and *Melilotus alba* (Hazlett 1996, as cited in Heidel 1997).

Idaho:

SPDI was first discovered in Idaho in 1996 along the South Fork of the Snake River in eastern Idaho. All known occurrences of SPDI in Idaho to date are found along the South Fork of the Snake River, generally from Palisades Dam downstream to the confluence with the Henry's Fork (Figure 1). Along the South Fork, SPDI occurs in a variety of areas including swales, mesic meadows, cottonwood stands, and islands. These areas contain at least some component of grass and/or forb-dominated habitat. However, SPDI plants can be surrounded by, or located in close proximity to, shrubs or trees such as willows, silverberry, or cottonwoods. Associated species may include: *Agrostis stolonifera* (bentgrass); *Carex lanuginosa* (woolly sedge), *Eleocharis rostellata* (beaked spikerush), *Eleagnus commutata* (silverberry), *Habenaria dilatata* (bog orchid), *Juncus balticus* (Baltic rush), *Equisetum* spp. (horsetails), *Salix exigua* (sandbar willow), *S. lutea* (yellow willow), and narrowleaf cottonwood (*Populus angustifolia*) (Moseley 1997a, 1997b).

Utah:

In Utah, SPDI populations are found in a variety of habitats, including: riparian, spring, and lakeside wet or mesic meadows, in addition to understory wetland meadows of riparian woodlands and small openings in riparian shrub communities. Some sites occur along small tributaries; one site was found in wetlands that developed within an abandoned gravel pit administered by the Bureau of Reclamation. Ownership includes private, tribal, BLM, Forest Service, and National Park Service lands.

Associated species include: *Agrostis stolonifera, Alnus incana, Aster hesperius, Calamagrostis* spp., *Carex* spp., *Castilleja exilis, Cirsium arvense, Dactylis glomerata, Epipactis gigantea, Equisetum laevigatum, Juncus* spp., *Melilotus* spp., *Oenothera elata, Populus angustifolia, Prunella vulgaris, Salix* spp., *Solidago occidentalis,* and *Trifolium pratense* (USFWS 1995).

Washington:

SPDI was first discovered in Washington in 1997. The site consists of a single population in Okanogan County, located on private land along the shore of Wannacut Lake. At approximately 1,800 feet, it is the lowest elevation recorded for SPDI. This discovery extended the known range of this species considerably to the north and west of other occupied habitat areas. The site is located in periodically flooded alkaline flats along Wannacut Lake, adjacent to Ponderosa pine/Douglas fir woodlands and sagebrush steppe habitat (with *Artemisia tridentata, Purshia tridentata,* and *Chrysothamnus* sp.). Associated species include: *Eleocharis rostellata, Carex viridula* var. *viridula, C. lanuginosa, C. parryana* var. *parryana, Panicum occidentale, P. capillare,* and *Juncus torreyi* (Bjork 1997).

Wyoming:

SPDI was first discovered in Wyoming in 1993. Sites range from 4,700 to 5,500 feet in elevation, and occur in moist to wet meadows, and within or adjacent to riparian habitats such as banks and stream bottoms (Hartman and Nelson, undated). Associated species include: *Agrostis stolonifera, Aster ericoides/falcatus, Carex nebrascensis, Elymus canadensis, Equisetum laevigatum, Hellanthus nuttallii, Juncus balticus, J. nodosus, J. longistylis, Medicago lupulina, Melilotus alba, Muhlenbergia asperifolia, Plantanthera dilatata, Stsyrinchium* sp., and *Spartina gracilis.*

At one site, SPDI plants were found on a 45 degree slope between cattails and a dry, sandy bench. In Goshen County, SPDI occurs in two main habitats: 1) alkaline meadows fed by springs, and 2) on an alluvial terrace adjacent to a creek. In Converse County, the SPDI population occurs in habitat characterized as: "open creek bank in zone between dry grassland community at top of bank and cattail marsh lining stream channel on moist, coarse, non-alkaline sands. Absent from steep banks between channel and prairie" (Wyoming Natural Diversity Database 1997).

Summary of Threats

The riparian and wetland habitats that support this species have been heavily impacted by urban development, stream channelization, water diversions and other watershed and stream alterations that degrade natural stream stability and diversity. Conversion of riparian/ floodplain land to agricultural uses has destroyed habitat for SPDI in many areas. Many SPDI populations are located on private land, and have no long-term protection. In addition, because SPDI occurs in small, scattered groups, it is vulnerable to natural and human-caused disturbances. The effects of grazing, recreation, and other factors are discussed below.

Grazing

Sexual reproduction is critical to the life cycle of SPDI. To reproduce, SPDI must be able to produce flowers, fruits, and seeds. Plants that are damaged or destroyed before seed set by factors such as grazing, trampling, etc. are not able to reproduce successfully. Livestock grazing can

impact SPDI directly by trampling and/or consumption of SPDI plants. In addition, grazing can impact SPDI indirectly by soil compaction, channel incision that leads to lowered water tables, and increased rodent herbivory (e.g., in exclosures).

From 1992 to 1994, Dr. Anna Arft conducted a 3-year demographic study of SPDI in Utah and Colorado (Arft 1995). Four SPDI sites were studied, including 1 agricultural haymeadow (= Ag site) and 3 nonagricultural riparian sites. Fruit set (i.e., the successful production of fruits and seeds) was found to be the single most important biological factor influencing the persistence of SPDI. Failure to produce fruit was due to external environmental factors such as mowing, herbivory, off-road vehicle use, and trampling (Arft 1995).

Dr. Arft compared the effects of management techniques on SPDI at the Ag site, including winter grazing, summer mowing, and burning. Compared to the SPDI riparian sites, all of the management techniques at the Ag site (including grazing) resulted in lower fruit set. The SPDI population at the Ag site was found to be stable or declining, whereas the riparian SPDI populations were "healthy and growing" (Arft 1995).

The SPDI population at the Ag site, which occurs in a "completely unnatural habitat" influenced by irrigation, grazing, and mowing, "may not be viable without continued human intervention." The Ag site was found to be over 30 times more susceptible to extinction than the riparian sites (Arft 1995). The much higher intrinsic growth rates found at all 3 riparian sites relative to the Ag site reflect the agricultural impacts (i.e., grazing, mowing, and exotic plant invasion) to the Ag site.

Dr. Arft is concerned that her results regarding grazing and SPDI may be misinterpreted (e.g., by assuming that grazing is OK for this species); she also believes that trampling (associated with livestock grazing) in riparian areas could have an adverse impact on SPDI (Arft, University of Colorado, Boulder, pers. comm., 1998).

Changes in Hydrology

Stream processes have been altered by a variety of activities, including the development of reservoirs, dams, and diversions for urban and/or agricultural uses. It may be difficult to maintain or reinstitute instream flows, especially flows that mimic a natural hydrograph. Compaction, resulting from grazing, construction, and/or recreational activities, can also lead to changes in hydrology. It is possible that in some areas, groundwater withdrawals may negatively affect habitat for this species.

Recreation

The construction and maintenance of roads, trails, boat ramps, and campgrounds could adversely affect SPDI habitat. Off-road vehicle use can also damage individuals and habitat for SPDI. However, dispersed "minimum impact" recreation activities such as rafting and hiking are not likely to severely degrade habitat for this species.

Exotic Species

Exotic plant species can adversely affect habitat for SPDI. For example, species such as purple loosestrife (*Lythrum salicaria*), whitetop (*Cardaria* sp.), Russian olive (*Eleagnus angustifolia*), and reed canarygrass (*Phalaris arundinaceae*) can threaten the reproduction of SPDI. In the Boulder, Colorado area, uncontrolled Canada thistle growth has prevented SPDI from flowering and reproducing.

Pollinator Impacts

Pollination by bumblebees (considered to be the primary pollinators of SPDI) is essential to this species' sexual reproduction. Management of SPDI should be based on an ecosystem or community approach, and must consider the requirements of pollinators of SPDI. In some areas, a scarcity of pollinators may limit the reproduction of SPDI (Sipes and Tepedino 1995). Pollinators of SPDI (i.e., bumblebees and other native bees) may depend on associated plant species for pollen and/or nectar sources, and may utilize various physical and/or biological habitat features for nesting. For example, bees may nest in the ground, or in downed or standing trees and logs. Trampling impacts from grazing could impact ground-nesting bees (Sugden 1985).

Maintaining floral diversity in SPDI habitat is critical. Pollinators of SPDI must collect pollen from other flowering species; if no pollen source is located nearby, it is unlikely that bumblebees would visit SPDI (Sipes and Tepedino 1995). Since bumblebees forage from early spring until late autumn, species flowering before SPDI are important for attracting and maintaining bumblebee colonies in the area (Sipes and Tepedino 1995).

Herbicide and Pesticide Use

Herbicides and pesticides may negatively impact this species, either directly or indirectly (e.g., via drift). Herbicides and pesticides may be used by Federal agency staff (and other parties) in areas including campgrounds, agricultural sites, and roads. SPDI habitat could be present in or adjacent to such areas.

Pesticide spraying can negatively affect pollinators of SPDI. The activity period of bumblebees (the primary pollinators of SPDI) makes them vulnerable to insecticide spraying from spring to early autumn (Sipes and Tepedino 1995).

Habitat Conversion

Many wetland areas throughout the range of SPDI have been converted to agriculture or urban/suburban development. In addition, the use of heavy equipment associated with agricultural or other activities (including construction and road or facility maintenance) can impact this species directly by destruction of individuals, or indirectly by soil compaction and possible subsequent changes in hydrology.

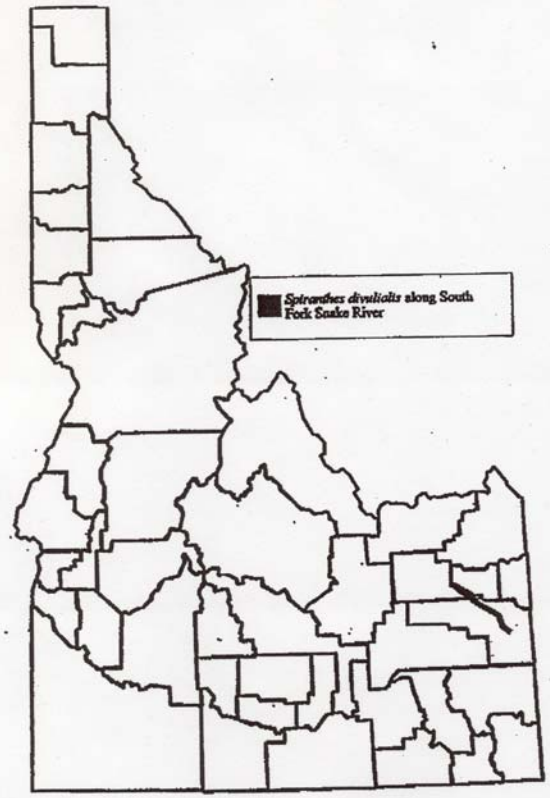


Figure 1 - SPDI. Known distribution of *Spiranthes diluvialis* in Idaho (as of 2/98).

II. GUIDELINES - Protocol for Evaluating Project Effects

Ensure that any proposed or ongoing actions are consistent with these guidelines and recovery objectives. No ground disturbing activities should be allowed within habitat occupied by this species. Actions that may alter hydrology (including but not limited to stream channelization, mining, or reservoir operation/development) should be reviewed for potential impacts to SPDI. Any activities that involve trampling or soil compaction (such as recreational activities, grazing, and maintenance or construction projects) should also be reviewed. (Refer to the "Summary of Threats" section for more information on activities that may affect this species.)

In general, *Spiranthes diluvialis* should be considered when reviewing projects and activities that may affect riparian or wetland habitats ranging from 1,500 to 7,000 feet. The potential for *S. diluvialis* should be considered when visiting wetlands or streams for any purpose, and when reviewing projects including fishery, wetland, or stream enhancement or alteration projects; hydroelectric projects and Clean Water Act Section 404 permit applications; and when conducting surveys for other species of interest that may be in or near potential orchid habitat. Although *S. diluvialis* is currently known only from the South Fork of the Snake River in Idaho, it is likely that this species will be found in other areas containing suitable habitat.

Grazing: Monitoring and surveys for SPDI should be conducted in occupied and potentially suitable SPDI habitat areas on Federal lands where such habitat may be affected by grazing.

Surveys should be conducted during the flowering season for SPDI (i.e., when it is identifiable) in areas of known and/or potential habitat before grazing by domestic livestock occurs. Surveys conducted during or after grazing occurs are not likely to yield valid results regarding the presence or absence of SPDI. Overgrazing in riparian habitat will adversely affect not only *Spiranthes diluvialis* but the entire community (see "Summary of Threats" section for additional information regarding grazing and SPDI).

Potential Habitat

Given its distribution and the variety of habitats in which SPDI is found, it is not possible to narrowly define potential habitat for this species. Our definition of potential habitat is likely to be further modified as new information on the distribution of SPDI is available. Experience indicates that, although potential habitat may be fairly widespread, actual occurrences of SPDI are rare. However, certain physical and/or biological characteristics can help evaluate whether habitat is not present, or is not suitable for SPDI (see "Disqualified Habitat" section below).

In general, potential habitat may be found from 1,500 to 7,000 feet in areas where suitable hydrology exists, e.g., at isolated springs/seeps, wet meadows, or riparian areas. Soils will likely be moist to the surface or have subsurface moisture throughout the growing season. Some sites may be periodically flooded or inundated. The presence of associated species (see "Habitat" section) is another indicator of potential habitat. Areas that support other orchid species such as *Spiranthes romanzoffiana*, *Habenaria* spp., or *Epipactis gigantea*, should also be evaluated for

the presence of SPDI.

Disqualified Habitat (adapted from USFWS 1995b)

- appropriate hydrology not present, typically indicated by: a) area composed of mostly upland vegetation, and/or b) area dries up by mid-July, with water table lower than 12 inches below the surface
- site heavily disturbed, e.g.:
- stream banks channelized and stabilized by heavy riprap
- highway rights-of-way built on filled or compacted soil or rock material
- construction sites where construction has either stripped the topsoil or where construction has been completed within the last 5 years but the area has not been revegetated
- Note: SPDI has been found in some heavily disturbed sites where hydrology is appropriate, such as revegetated gravel pits, grazed riparian edges and pastures, and along well-traveled trails developed on old berms
- stream banks steep; transition from stream margin to upland areas abrupt
- site characterized by standing water with cattails, bulrushes, and other aquatic vegetation (note that the margins of such areas may be suitable habitat, and SPDI has been found in areas that are temporarily inundated)
- riparian areas or stream banks vegetated by dense rhizomatous species such as reedgrass (*Phalaris arundinacea*), tamarisk (*Tamarix ramosissima*), teasel (*Dipsacus sylvestris*), common reed (*Phragmites australis*), or saltgrass (*Distichlis spicata*)
- riparian areas overgrazed or managed such that the vegetation is composed of upland native or weedy species or is unvegetated; in some cases, SPDI may tolerate overgrazing as long as it has not resulted in a drop of the water table or conversion of the community to upland or weedy species (refer to Threats section for more information on grazing)
- potential habitat has been converted to agricultural uses and is now plowed and cropped, or has been converted to lawns or golf courses
- wetland is a brackish playa or pothole not fed by springs, or not in the floodplain of or hydrologically connected with a riparian system or other source of fresh water

Survey Guidelines:

Surveys should be required as part of section 7 consultation in areas identified as high priority for surveys, e.g., within watersheds containing known and/or potential habitat for this species. Surveys should be conducted for projects that could affect large areas of potential habitat. Examples of such projects include: stream channelization and stabilization, stream habitat improvement, projects that impact downstream hydrology such as dams, diversions, hydropower, road/highway construction, gravel mining, and streamside recreation trails.

Surveys should be conducted in watersheds that are adjacent to or essentially similar in character to those where the orchid is currently known to occur. Surveys are recommended when large areas of potential habitat will be impacted and/or when planning schedules permit surveys prior to project commencement. Project proponents should be alerted and encouraged to schedule project planning to allow time for orchid surveys.

Brief Summary of Survey Protocol:

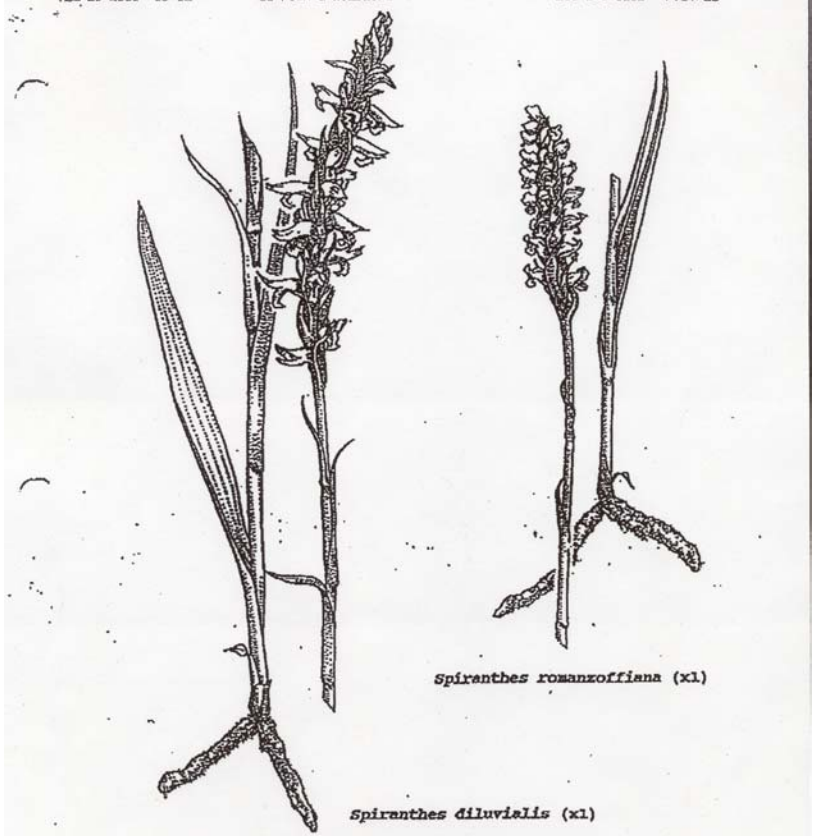
- Surveys should be conducted according to the Rare Plant Inventory Guidelines (attached).
- Surveys should be conducted during the peak flowering period, generally from mid-August through mid-September. Surveys conducted at other times of year are not reliable and should not be accepted.
- Surveys should be conducted by walking or otherwise closely scrutinizing potential habitat looking for flowering stalks, and should be performed by trained botanists familiar with conducting rare plant inventories. Known populations range in size from 1 to ca. 7,000 plants. In addition, because plants may not bloom every year, *S. diluvialis* may not be visible during a "quick" one-time only survey. Several visits during the growing season, and in consecutive years, may be advisable.
- any new sites should be mapped and immediately reported to the Conservation Data Center and FWS (Snake River Basin Office).

Collection: Only designated FWS staff members and "agents of the Service"[1] can collect *S. diluvialis*. Collecting should NOT be encouraged for biologists in other agencies or private individuals. Following is an excerpt from the draft subpermit amendment request:

> No more than three individuals or less than 5 percent of the population, whichever is less, at each site shall be collected. Specimens shall be preserved in accordance with currently accepted protocol and deposited with The Idaho Museum of Natural History, Idaho State University, Pocatello, Idaho.

[1] "Agents of the Service" may include CDC staff that are under a Section 6 contract with FWS

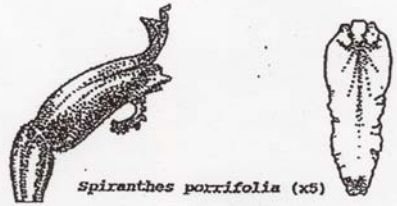
Species Lists: *S. diluvialis* is currently being included on species lists for Federal agencies throughout Idaho and eastern Oregon. This reflects the expansion of the species' range following the discovery of SPDI in Washington state (Okanagan County) in 1997.



Spiranthes diluvialis (x5)

Spiranthes romanzoffiana (x5)

Spiranthes magnicamporum (x5; lip x2)



Spiranthes porrifolia (x5)

Table 1. Comparison of diagnostic features of *Spiranthes diluvialis* with *S. porrifolia*, *S. romanzoffiana*, and *S. magnicamporum*. (Data are from Luer 1975; Shaviak 1984, 1990; U.S. Fish and Wildlife Service 1992a.)

Character	*Spiranthes diluvialis*	*Spiranthes porrifolia*	*Spiranthes romanzoffiana*	*Spiranthes magnicamporum*
Leaves	Several, mostly at base of stem, persistent	As in *S. romanzoffiana*	Often numerous, sometimes extending up the lower stem, persistent	Few, strictly basal, typically withering before anthesis
Rachis	As in *S. magnicamporum*	As in *S. romanzoffiana*	Glabrous or sparsely pubescent, the longest hairs < 0.18 mm long (usually much less), the glands often sessile or subsessile	Sparsely to densely pubescent, the longest hairs ≥ 0.19 mm (often much longer), the glands obviously stalked
Flowers	Ascending, rather long and slender, white to ivory-colored, fragrant (spring at month); lip exposed in lateral view	Ventrally curved, slender, yellowish, open only at the apex (not fragrant); lip hidden in lateral view except for the reflexed tip.	Strongly ascending, short, broad at base, white to cream, with a well-developed hood open only at the apex (not fragrant); lip hidden in lateral view except for the reflexed tip	Abruptly ascending, long and slender; lip exposed in lateral view for its entire length
Sepals	Often connate at base for a short distance, sometimes free, variably appressed, spreading, or ascending; hood rarely evident	Fused for some length and joined with the petals, appressed for most of their length but widely spreading toward the apices	Fused for some length and united with the petals to form a prominent hood above the lip	Free at base, the lateral sepals spreading, often ascending above the rest of the flower

Table 1 (cont'd). Comparison of diagnostic features of *Spiranthes diluvialis* with *S. porrifolia*, *S. romanzoffiana*, and *S. magnicamporum*.

Character	*Spiranthes diluvialis*	*Spiranthes porrifolia*	*Spiranthes romanzoffiana*	*Spiranthes magnicamporum*
Lip	Ovate to lanceolate or oblong in outline, with a marked median constriction, the base usually dilated; lacking a dense cushion of short hairs on upper surface near apex; membranous when moist; venation mostly parallel, typically with some branching, diverging veins in lower half; calli often elongated	Ovate to lanceolate in outline, ± acute, the apex only slightly or not at all dilated; with a dense cushion of peg-shaped hairs on upper surface near apex; membranous when moist	Strongly pandurate (violin-shaped with a marked median constriction), the apex dilated; glabrous on upper surface; membranous when moist; prominently veined below the constriction with laterally diverging, branched veins	Ovate to lanceolate in outline, without a marked subapical constriction; thick and fleshy when moist; venation largely parallel, diverging branched veins if present restricted to the very base; calli short, conical
Chromosome Number	$2n = 74$	$2n = 44$, 66, 88	Commonly $2n = 44$	$2n = 30$
Flowering Period	Late July through August, in some cases through September	May through early July, rarely into early August at high elevations	May to October	Mid-September into November
Geographic Range	Low elevations (mostly below 6,500 feet) in the Colorado River drainage and eastern Great Basin of Utah and (historically) eastern Nevada; disjunct locally along the eastern front of the Rocky Mtns. in Colorado	Widespread in Pacific Northwest, not known from east of the eastern base of the Sierra Nevada in California	Boreal region of North America; high elevations (rarely below 8,500 feet) in Utah and Colorado	Midwestern plains, from Indiana to the Dakotas and south to Texas; disjunct in Ohio, Alabama and Mississippi, and New Mexico

United States Department of the Interior

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M.02 - BLM Formal (6-MT-2-F010) September 4, 2002

Memorandum

To: Field Manager, Bureau of Land Management, Miles City Field Office, Miles City, Montana,

From: Field Supervisor, U.S. Fish and Wildlife Service, Montana Field Office, Helena, Montana

Subject: Final Biological and Conference Opinions for Coal Bed Methane Production in Blaine, Gallatin, Park, Carter, Powder River, Custer, Rosebud, Treasure, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Musselshell, Yellowstone, and Big Horn Counties, Montana.

This document transmits the U. S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed changes in the coal bed methane (CBM) development program by the Montana State Office on the Bureau of Land Management (BLM). Proposed changes affect management in parts of 16 counties in Montana including: Blaine, Gallatin, Park, Carter, Powder River, Custer, Rosebud, Treasure, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Musselshell, Yellowstone, and Big Horn Counties, and its effects on the bald eagle (*Haliaeetus leucocephalus*), and mountain plover (*Charadrius montanus*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your April 10, 2002, request for formal consultation was received in the Billings Suboffice on June 10, 2002.

These biological and conference opinions are based on information provided in the January 17, 2002 *Montana Statewide Draft Oil and Gas Environmental Impact Statement (EIS) and Amendment of the Powder River and Billings Resource Management Plans (RMPs)*, the January 24, 2002 Biological Assessment; the April 10, 2002 Revised Biological Assessment; and numerous telephone conversations and meetings regarding coal bed methane development in the general project vicinity. A complete administrative record of this consultation is on file at the Service's Montana Field Office, Billings Suboffice, Billings, Montana.

We concur with your determinations that the proposed action is likely to adversely affect the threatened bald eagle, and the proposed mountain plover. Although the BLM has determined that implementation of proposed changes in coal bed methane is likely to affect the black-tailed prairie dog *(Cynomys ludovicianus)*, we concur with your determination that the action is not likely to adversely affect the black-footed ferret (*Mustela nigripes*). This concurrence is based upon the BLM's commitments to 1) locate project activity to avoid impacts to prairie dog colonies that meet FWS criteria as black-footed ferret habitat (U.S. Fish and Wildlife Service 1989), 2) conduct ferret surveys in suitable habitat, following current lease stipulations for oil and gas development, and 3) if a black-footed ferret or its sign is found during a survey, all development activity would be subject to recommendations from the *Montana Black-footed Ferret Survey Guidelines, Draft Managing Oil and Gas Activities in Prairie Dog Ecosystems with Potential for Black-footed ferret Reintroduction* and re-initiation of Section 7 Consultation with the Service.

The Service also concurs with your determination that the action is not likely to adversely affect the threatened Ute ladies'-tresses orchid (*Spiranthes diluvialis*), the pallid sturgeon *(Scaphirhynchus albus)*, and the Montana arctic grayling *(Thymallus arcticus)*. The Service gives its concurrence to BLM's determination of "no effect" for the Canada lynx *(Lynx canadensis)*, gray wolf *(Canis lupus)*, interior least tern *(Sterna antillarum athalassos)*, and the warm spring zaitzevian riffle beetle *(Zaitzevia thermae)*.

Consultation History

The Billings Suboffice received a *Interested Party letter, News Release, a Notice of Intent to Plan,* and *Draft Planning Criteria* from the BLM and Montana Department of Environmental Quality (MTDEQ) on December 19, 2000. Informal consultation on this project began with the Service's receipt of the BLM's 28 February 2001 letter describing the development of a joint Draft Environmental Impact Statement with the Montana Department of Natural Resources and Conservation addressing oil, conventional and coal bed methane development. On April 20, 2001, the Service provided an updated species list for the 16 counties in Montana that may experience coal bed methane development, as well as, our initial concerns on impacts to trust resources. The Draft Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans was received in the Billings Suboffice on February 21, 2002. The Montana Field Office responded with comments on the DEIS on May 15, 2002. Informal discussions on the BLM's effects determination on listed species in a separate *Biological Assessment For Coal Bed Methane Production in Montana* dated January 24, 2002 and concerns for adverse impacts to the bald eagle and mountain plover, resulted in the issuance of a revised biological assessment. The revised *Biological Assessment For Coal Bed Methane Production in Montana* and a letter requesting initiation of formal consultation for the bald eagle and formal conferencing for the mountain plover was received by the Montana Field Office on April 11, 2002.

Over the last two years, the Service has attended meetings and forums to discuss issues on CBM with federal and state agencies, oil and gas industry, private conservation groups, land owners and private individuals. We are a member of the Montana Interagency Coal-Bed Methane (ICBM) Technical Group. We have also worked closely with the BLM and industry in a smaller BLM working group, to minimize impacts of CBM on trust resources by developing stipulations, guidelines and monitoring protocols.

BIOLOGICAL AND CONFERENCE OPINIONS

DESCRIPTION OF PROPOSED ACTION

The Bureau of Land Management (BLM), Miles City and Billings District Offices, Montana, are proposing changes in the coal bed methane development program. The Powder River and Billings RMPs, as amended by BLM's 1994 *Oil and Gas Amendment of the Billings, Powder River, and South Dakota Resource Management Plans* (RMPs), support conventional oil and gas development and limited CBM exploration and development. The BLM proposes to amend the Billings and Powder River RMPs to address increased interest in CBM in these districts. An Environmental Impact Statement (EIS) is being prepared to evaluate impacts arising from implementation of the amended RMPs. The State of Montana (state) has joined with the BLM as a co-lead agency in preparation of the EIS to address similar increased interest in CBM on state lands, emphasizing Park, Blaine, and Gallatin counties.

The project is located across south-central and southwestern Montana with additional project areas in Gallatin and Park County in southwestern Montana and in Blaine County in north-central Montana. This area includes parts of sixteen counties: Blaine, Gallatin, Park, Carter, Powder River, Custer, Rosebud, Treasure, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Musselshell, Yellowstone, and Big Horn.

The planning area shown is defined as the area where oil and gas decisions will be made by BLM or the State of Montana. The BLM's planning area is the oil and gas estate administered by the BLM in the Powder River and Billings RMP areas. The State of Montana's planning area is statewide, with emphasis on the state-administered oil and gas within the BLM planning area and in Blaine, Park and Gallatin counties. The planning area excludes those lands administered by the Forest Service, the Crow Tribe, Northern Cheyenne Tribe, and other Indian lands. The Billings and Powder River RMP areas, and Blaine, Park, and Gallatin counties, are referred to in the document as the BLM and State CBM emphasis area. This is the 16-county area within the BLM and state planning area where there is CBM development interest. The Powder River RMP area encompasses the southeastern corner of Montana, including Powder River, Carter, and Treasure counties, and portions of Big Horn, Custer, and Rosebud counties. The Powder River RMP area comprises approximately 1,080,675 acres of federally managed surface and 4,103,700 acres of federal mineral estate.

The Billings RMP area comprises the south-central portion of Montana consisting of Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Wheatland, and Yellowstone counties and the remaining portion of Big Horn County. The Billings RMP area comprises approximately 425,336 acres of federally managed surface and 906,084 acres of federal mineral estate. Adjacent to the planning areas, other major land holdings include the Crow, Northern Cheyenne, and Fort Belknap Indian Reservations, the Custer National Forest, portions of Yellowstone National Park, the Big Horn Canyon National Recreational Area, the Burlington Northern and Santa Fe Railroad, and the Fort Keogh Agricultural Experiment Station. The total surface area of

the CBM emphasis area (all owners) exceeds 25 million acres. The total planning area to which the conservation measures and non-discretionary Terms and Conditions of this biological opinion will be implemented by the BLM equals 5,009,784 acres.

The oil and gas industry predicts growing interest in the exploration and development of CBM because of efforts to find alternative energy sources. Increased CBM development would result in a major federal action with potential to significantly affect the environment.

Exploration and development of CBM resources on BLM, state, or fee minerals are allowed subject to agency decisions, lease stipulations, permit requirements, and surface owner agreements. Under the Preferred Alternative, operators would be required to submit a Project Plan outlining the proposed development of an area when requesting CBM well densities greater than 1 well per 640 acres. The Project Plan would be developed in consultation with the affected surface owner(s) and other involved permitting agencies. All shallow coal seams would have vertical wells installed; for deeper coal seams, the operator would drill directionally or demonstrate in the project plan for agency consideration why directional drilling is not needed or feasible. Operators would develop single or multiple coal seams per their plans, however, there would be only one well bore per coal seam per location per designated spacing restriction. Operators would also be required to demonstrate in their project plan how impacts to surface resources, such as wildlife, would be minimized or mitigated. General Assumptions given in the Statewide DEIS state that the spacing for CBM wells would be similar to CBM well spacing in Wyoming with one location per 80 acres per coal seam. Up to three coal seams have been identified for possible methane extraction in the Powder River Basin. As stated in the DEIS, this would result in three wells drilled at each location per 80 acre spacing unit.

This Biological Opinion is based on the effects presented in the Revised Biological Assessment based on 80-acre location (pad) spacing, with up to 3 wells per location. Therefore, 8 locations per section could result in 24 wells (well bores) drilled in each section (per square mile). Should a denser spacing of wells be planned or occur due to additional wells per seam, location, or per designated spacing restriction, reinitiation of consultation will be required.

Each well project has four phases: exploration, development, operation, and shutdown. Once a well is in place, it is expected to operate for 20 years before abandonment. The BA focused on the first two phases, exploration and development. These lead to the operation phase, once the well is in place.

During exploration, 4.14 acres are likely to be disturbed for each well for exploration, construction, and drilling operations. Based on 18,300 wells (well bores), BLM estimates that 75, 762 acres will be directly disturbed, 9,018 miles of new CBM roads constructed with 27, 917 miles of new utility line corridors (power lines). When exploratory construction begins on a site, the exploratory well will take about 3 to 5 days to drill, with 2 to 3 extra days to complete for CBM if the site is developed. During the exploratory phase, wildlife species will be disturbed by

the presence of bulldozers, drilling equipment, and other machinery. The short-term disturbance effect of the exploratory phase will end with either abandonment or continuation to the development stage, if the well site is suitable for production. If the site is abandoned after exploration, the site will take approximately 5 years to attain preconstruction vegetative canopy cover values. Reclamation of the site with vegetation will be undertaken, but restoration to pre-project conditions is not planned. Development disturbance will begin if exploration results in estimates of suitable levels of production. This and operational disturbance should be considered long-term because of the permanent placement of the pad. The materials source for roads would be located as close as possible to each project site, but no specific sources have been identified at this time.

Conservation Measures

The BLM has addressed some of the direct and indirect 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 as presented in the Revised Biological Assessment. The BLM significantly addresses other direct and indirect impacts through the implementation of a *Coal Bed Methane Programmatic Wildlife Monitoring and Protection Plan for the Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* (Wildlife Monitoring Protection Plan).

Project Plans will be developed and approved using the programmatic guidance outlined in the Wildlife Monitoring Protection Plan. They will include baseline inventory in areas where wildlife inventory has not been completed. Operators will be required to submit plans that demonstrate how their project design minimizes or mitigates impacts to surface resources and meets objectives for wildlife. The Wildlife Monitoring and Protection Plan is a cooperative approach that incorporates adaptive environmental management principles and establishes a framework which encourages industry, landowners and agencies to work together constructively to incorporate conservation measures into CBM development. All CBM development will follow the programmatic guidance to address wildlife concerns, and each individual Project Plan will include a site specific Monitoring and Protection Plan which includes mitigation specific to species or local habitats. Over the life of the CBM project, Wildlife Monitoring Protections Plans offer some assurances that management will be adapted to address specific situations.

Those conservation measures specifically addressing concerns for the bald eagle and mountain plover are, in part, as follows:

Bald Eagle

1. If a dead or injured bald eagle is located during construction or operation, the Service's Montana Field Office (406- 449-5225), or the Billings Suboffice (406-247-7367) and the Service's Law Enforcement Office (406-247-7355) will be notified within 24 hours of the next working day.

2. Implementation of the *Coal Bed Methane Programmatic Wildlife Monitoring and Protection Plan for the Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* (Wildlife Monitoring Protection Plan).

3. Power lines will be built to standards identified by the Avian Power Line Interaction Committee (1996), and additional standards as outlined in the Wildlife Monitoring and Protection Plan, to minimize electrocution potential.

1. Surveys for active raptor nests and winter roost sites will be conducted prior to construction within a 0.5-mile width for bald eagles and bald eagle nests and within 1.0 mile width for roosts. If the proposed CBM site is found to be within a nesting or winter foraging area, CBM work will be halted until the nest is no longer active or until winter has passed and the foraging eagles have migrated. BLM leasing stipulations pertaining to bald eagles apply and will be implemented. This includes No Surface Occupancy (NSO) within ½ mile of nests active in the last 7 years and ½ mile of roost sites. Raptor inventories will be conducted over the entire CBM project area every 5 years by BLM and MFWP. These inventories should be repeated every 5 years (in areas with < 4 well locations/section) thereafter for the Life-of-the-Project (LOP) to monitor trends in habitat use.

2. Nest productivity will be conducted by the BLM or a BLM approved biologist in areas with high levels of development (i.e., areas with greater than or equal to 4 well locations/section) on and within 1 mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

3. A seasonal minimum disturbance-free buffer zone of ½-mile would be established for all bald eagle nest sites (February 15 - August 15). These spatial and timing restrictions may be adjusted based on site-specific criteria after written approval from the Service.

4. Use signing, post speed limits or construct speed bumps on all project access roads to reduce mortality caused by vehicle traffic.

Mountain Plover

5. Operators and the BLM shall be provided by the Service with educational material illustrating and describing the mountain plover, its habitat needs, life history, threats, and gas development activities that may lead to incidental take of eggs, chicks, or adults with requirements that these materials be posted in common areas and circulated in a memorandum among all employees and service providers.

6. If a dead or injured mountain plover is located during construction or operation, the Service's Montana Field Office (406- 449-5225), or the Billings Suboffice (406-247-7367) and the Service's Law Enforcement Office (406-247-7355) will be notified within 24 hours of the next working day.

7. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (U.S. Fish and Wildlife Service 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted by the BLM or a BLM-approved Operator biologist using the Service protocol at a specific project area plus a 0.5-mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

8. Surveys for nesting mountain plovers will be conducted by appropriately trained personnel if ground disturbing activities are anticipated to occur between April 10 and July 10. A disturbance-free buffer zone of 1/4 mile will be established around all mountain plover nesting locations between April 1 and July 31.

9. No ground-disturbing activities shall occur in suitable nesting habitat prior to surveys conducted in compliance with the Service's Mountain Plover Survey Guidelines (U.S. Fish and Wildlife Service 2002c or more recent version), regardless of the timing of the disturbance. If occupied mountain plover nesting habitat is located, the BLM shall reinitiate consultation with the Service on any project-related activities for such habitat. The amount and nature of ground-disturbing activity shall be limited within identified nesting areas in a manner to avoid the abandonment of these areas.

STATUS OF SPECIES

Bald eagle

On February 14, 1978, the bald eagle was listed as endangered in all of the conterminous United States except Minnesota, Wisconsin, Michigan, Oregon, and Washington, where it was classified as threatened (43 F.R. 6233). The Service reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states in a notice published in the Federal Register on July, 12, 1995 (60 F.R. 36000). A proposal to de-list the bald eagle was published in the Federal Register on July 6, 1999 (64 F.R. 36454). Currently, the proposal has not been finalized or withdrawn.

Description

The bald eagle is a large, long-lived bird of prey. Adults have dark-brown bodies, white heads and white tails. This adult plumage is not acquired until age four at the earliest. Juveniles go through a series of plumages prior to achieving the adult coloration and in some plumages the young bear a superficial resemblance to golden eagles (*Aquila chrysaetos*).

Life History/Habitat Use

The eagle may live up to 45 years, achieve sexual maturity at 4 to 5 years, and produce one to three young per year. Publications by the U.S. Army Corps of Engineers (1979), Lincer et al. (1979), Brown and Amadon (1968), and U.S. Bureau of Land Management (1973) provide references on the biology of the species.

Bald eagles usually nest in trees near water, but are known to nest on cliffs and the ground. Nest sites are usually in large trees along shorelines in relatively remote areas that are free of disturbance (U.S. Fish and Wildlife Service 1999). The bald eagle typically lays a clutch ranging from 1 to 3 eggs which are incubated by both the male and female birds for approximately 35 days resulting in usually 1 or 2 eaglets produced by the pair (Stalmaster 1987). Typically, the recommended spatial buffers around nests for threatened and endangered raptors, including the bald eagle, are 1.0 miles (Romin and Muck 1999). The Montana Bald Eagle Management Plan (Montana Bald Eagle Working Group (MBEWG) 1994), identifies three concentric nest management zones, that surround most recently active and alternate nest sites, and vary by degree of allowable disturbance. Zone I includes the primary nest site area in which human activity or development may stimulate abandonment of the breeding area, affect successful completion of the nesting cycle or reduce productivity (MBEWG 1994). It includes the area within a 1/4 mile radius of all nest sites in the breeding area that have been active within 5 years or is presently active. Zone II is the Primary Use Area that includes the area 1/4 mile to ½ mile from all nest sites that have been active within 5 years. Zone III represents most of the home range used by eagles during the nesting season and usually includes all suitable foraging habitat within 2.5 miles of all nest sites in the breeding area that have been active within 5 years (MBEWG 1994).

For the purposes of this biological opinion, bald eagle habitat is defined as all suitable foraging habitat within 2.5 miles of all historic, abandoned and currently active bald eagle nests. Bald eagle nesting habitat is also defined as any mature stand of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes or any significant body of water. Bald eagle roosting habitat is defined as any mature stands of conifer and cottonwood trees

Research shows that bald eagles are sensitive to a variety of human activities. Responses to human disturbance vary from short term, temporal, and spatial avoidance of disturbance, to total reproductive failure and abandonment of breeding areas (Greater Yellowstone Bald Eagle Working Group (GYBEWG) 1996; Anthony et al. 1995; Stalmaster and Newman 1978). Responses of bald eagles to human disturbance vary depending on the eagle individual/pair, and

the type, intensity, duration, time of year, predictability, and location of human activity (Knight and Cole 1995). Survival of individual eagles, particularly those in their first year of life, probably depends heavily on conditions they encounter during the wintering period. The physiological condition of adults at the beginning of each breeding season, an important factor influencing reproductive success, also is affected by how well their energy demands are met in wintering areas. Thus, the survival and recovery of nesting populations depends on the eagles having suitable locations to use throughout the wintering period each year (U.S. Fish and Wildlife Service 1983). Nesting chronology, although variable, is well documented for bald eagles in Montana (U.S. Fish and Wildlife Service 1986). Bald eagles are extremely sensitive to disturbance during nest building, egg laying, and incubation periods (February 1 through May 30). Bald eagles are most likely to desert nest sites during this period if disturbed (MBEWG 1994), especially if the activity occurs within Nest Management Zones I and II.

During migration and at wintering sites, eagles that concentrate on locally abundant food tend to roost communally. Communal roosts usually are located in stands of mature old growth conifers or cottonwoods, and roosts may be several miles from feeding sites. Wintering bald eagles occur throughout the Nation but are most numerous in the West and Midwest (U.S. Fish and Wildlife Service 1983). An abundant, readily available food supply in conjunction with one or more suitable night roost sites is the primary feature of winter habitat. Also, eagles prefer to forage in areas with the least human disturbance (U.S. Fish and Wildlife Service 1978, McGarigal et al. 1991).

The majority of wintering eagles are found near open water where they feed on fish and waterfowl, usually taking those which are dead, crippled, or otherwise vulnerable (U.S. Fish and Wildlife Service 1983, Lingle and Krapu 1986, Stalmaster and Associates 1990). In addition, eagles are known to feed on carrion, small mammals, and game birds (Lish 1975, U.S. Bureau of Reclamation 1981, Lingle and Krapu 1986). Lingle and Krapu (1986) found eagles consumed at least 50 species of fish, birds, and mammals along the North Platte and Platte Rivers during the winters of 1978-1979 and 1979-1980.

Large, live trees in sheltered areas provide a more 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. The proximity of adequate night roosts to the other habitats required by wintering eagles, such as hunting perches and feeding sites, is important (Steenhof et al. 1980). In some locations, the absence of a suitable night roost may limit the use of otherwise suitable habitat. Freedom from human disturbance also is important in communal roost site selection (Steenhof et al. 1980, U.S. Bureau of Reclamation 1981, U.S. Fish and Wildlife Service 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). Typically, buffers around roost sites are one-half the size of buffers around nest sites, so a seasonal buffer zone for wintering bald eagles would be ½ mile (Romin and Muck 1999).

In Montana, roost sites are usually located in stands of mature or old growth conifers or cottonwoods. A communal roost is defined as an area usually less than 10 acres in size that contains greater or equal than 6 bald eagles on any given night. Critical roost sites are defined as exhibiting traditional use for equal or greater than 5 years, and contain equal or greater than 15 eagles per night for equal or greater than 14 nights per season (U.S. Fish and Wildlife Service 1983). A vital roost site is any communal roost that does not meet criteria for critical status but has local or regional significance in terms of unique features or importance to the local population of bald eagles (MBEWG 1994). For instance, a communal roost located in an area with no other roosting opportunities and geographically isolated from other wintering aggregations may be vitally important to eagles using the site (mature timber stand on the eastern prairie)(MBEWG 1994). No critical winter roost sites had been identified in Montana before the 1990's, although over 600 bald eagles winter in Montana (Flath et al. 1991). A vital winter roost site is located in the planning area along the Yellowstone River near Pompey's Pillar in Yellowstone County. Between February and March each year, 2 to100 bald eagles roost within cottonwood trees up and downstream from Pompey's Pillar (Parks, U.S. Bureau of Land Management, pers. comm. 2002). Critical roost sites may exist within the planning area but, have not yet been located (Flath, Montana Dept. of Fish, Wildlife and Parks, pers. comm. 2002). For the purposes of this biological opinion, an occupied roost site or roost, is defined as a stand of mature or old growth conifer or cottonwood trees that contains greater or equal to 6 bald eagles on any given night.

Although eagle population studies have revealed that both reproduction and survival are important, changes in survival rates seem to have more effect on the population than similar changes in reproductive rates (Grier 1980). Hypothetical population modeling indicates it is possible for eagle populations with lower reproduction but adequate survival to do better than other populations with higher reproduction but poor survival. Adult eagles must prepare themselves for the next breeding season, and subadults and immature eagles must survive stressful environmental conditions. Therefore, maintaining and/or improving winter survival is crucial to eagle recovery (U.S. Fish and Wildlife Service 1978 and 1983).

Distribution

Historically, the bald eagle nested in at least 45 of the contiguous 48 states, with an estimated 250,000 - 500,000 bald eagles living on the North American continent before the first Europeans arrived. The breeding range of the bald eagle was greatly diminished during the 19th and 20th centuries. Present-day breeding occurs primarily in northern California, Alaska, Oregon, Washington, Minnesota, Wisconsin, Michigan, Maine, the Chesapeake Bay area, Florida, the tri-state corner of Idaho, Montana, and Wyoming, and in parts of Canada. The Service estimated the breeding population exceeded 5,748 occupied breeding areas in 1998 (U.S. Fish and Wildlife Service 1999). Bald eagles winter throughout the country, but are most abundant in the West and Midwest.

Bald eagles occur year-round in Montana and occur in all 49 latilongs (Bergeron et al. 1992, Montana Bird Distribution Committee (MBDC) 1996) . Currently, about 75% of nesting pairs in Montana can be found in the western third of the state west of the Rocky Mountain Front (Montana Bald Eagle Working Group (MBEWG) 1994). Most breeding areas are associated with large montane rivers, lakes, impoundments and coniferous and cottonwood (*Populus spp.*) forests. The remaining 25% of pairs are scattered throughout the eastern two thirds of the state along major prairie rivers. Most prairie breeding areas are associated with the Yellowstone River, but a number of bald eagles nest along the Bighorn, Tongue and lower Missouri Rivers (MBEWG 1994). Wintering and Migration habitat is distributed throughout Montana.

In 1978 there were only 12 breeding areas for bald eagles known in Montana (Servheen 1978). In the of autumn 1995, 222 current or historical breeding areas were known in Montana (MBEWG 1995). By the end of 2001, of the 297 know bald eagle nesting territories in the state, 220 of the 261 territories surveyed were active (MBEWG 2001). Out of the 220 active nests, 188 were successful, producing 347 young.

The Pacific Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1986) uses the zone approach to differentiate subpopulations and habitat important to bald eagle recovery in the Pacific recovery area. The management zone approach is central to the recovery process because establishment of well-distributed bald eagle populations and habitats is essential for recovery of the species in the recovery area.

There are seven bald eagle management zones in Montana. The proposed action is located in six of the seven management zones (Zone 18, 39, 40, 41, and 47). The majority of CBM development will occur in Management Zone 40 and 41. Management Zone 40 includes the Yellowstone and Bighorn River watersheds from the town of Emigrant to the mouth of the Bighorn River. Management Zone 41 includes lands drained by the Yellowstone River and its tributaries from the mount of the Bighorn River to the North Dakota border. Floodplains of the Yellowstone, Powder, and Tongue Rivers support mature cottonwood forests. In 2001, there were 72 known bald eagle nesting territories in Zones 40 and 41 combined.

Bald eagle seasonal habitat quality depends on the presence and abundance of food usually associated with open water, availability of secure night roost sites and freedom from human harassment and dictates the amount and extent of use of specific wintering grounds and areas used during migration (MBEWG 1994). Bald eagles wintering in Montana tend to congregate near bodies of water and roost communally. Major rivers and large lakes constitute the majority of winter habitats used although temporary presence of high quality foods may entice eagles to areas far removed from aquatic zones. Wintering eagles are often observed in uplands, foraging on carcasses associated with late ungulate harvests and big game wintering grounds. Eagles may travel several miles to roost sites (MBEWG 1994).

Records for wintering bald eagles in Montana exist for most of the latilongs included in the project area (Bergeron 1992, MBDC 1996). Counts of wintering eagles are very variable from year to year, and are not useful for trend analysis. The BLM has been conducting bald eagle midwinter surveys along the Powder River in both Custer and Powder River Counties for several

years. Observations of bald eagles since 1993 ranged from 8 to 57 bald eagles (Baker 2002). Incidental observations of wintering bald eagles in Powder River and Rosebud Counties by the Forest Service, are of a few each winter, mostly associated with small ponds and roadkills (Sasse, U.S. Forest Service, pers.comm. 2002).

During migration, bald eagles could be observed in any area or habitat with BLM's planning area. Migration paths of adult bald eagles from the wintering grounds in the southern Rocky Mountain Region passed through eastern Montana in early April (Harmata 1984). A minimum of 8 times as many bald eagles migrate through the lower Yellowstone River area of eastern Montana as winter there (Swenson et al. 1981, Sevenson 1983).

Status and Threats

Montana is included in the seven-state Pacific Bald Eagle Recovery Area. (U.S. Fish and Wildlife Service 1986). The primary objective of this area is to provide secure habitat for bald eagles within the 7-state Pacific recovery area and to increase population levels in specific geographic areas to the extent that the species can be de-listed. The primary recovery objectives for this area are to provide secure habitat for bald eagles and increase populations in specific geographic areas. De-listing should occur on a region-wide basis and should be based on the following criteria: (1) a minimum of 800 pairs nesting in the seven-state recovery area; (2) these pairs should annually produce an average of at least 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65% over a five-year period; (3) population recovery goals must be met in at least 80% of the management zones that have nesting potential; and (4) a persistent, long-term decline in any sizeable (greater than 100 eagles) wintering aggregation would provide evidence for not de-listing the species (U.S. Fish and Wildlife Service 1986). Another recovery criteria is to have stable or increasing wintering populations.

The decline in nesting populations during the 20th century has been attributed to habitat loss (identified as the most significant long-term threat to all bald eagle populations in the recovery area), environmental contamination, electrocution, shooting, vehicular collisions, poisoning, and trapping (U.S. Fish and Wildlife Service 1986). These problems still exist today and are a growing concern (Hartman, U.S. Fish and Wildlife Service, pers. comm. 2002). Numerous cases of bald eagle and golden eagle poisoning have been caused by landowners unlawfully misusing pesticides and other chemicals for predator control.

By the late 1960's, the pesticide dichloro-diphenyl-trichloreothane (DDT) and its metabolites had caused widespread reproductive failures and resulted in drastic decreases in eagle numbers continent-wide (Sprunt et al. 1973, Wieneuyer et al. 1972). Other contaminants such as polychlorinated biphenyls and heavy metals such as mercury and lead may contribute to increased eagle mortality in some areas. The exact impact of DDT and other contaminants on Wyoming eagles is not known.

Secondary poisoning in eagles from eating lead-poisoned prey, particularly ducks and geese, was a concern identified in the early 1980's by Pattee and Hennes (1983). They reported that of 650 dead eagles, 7.2 percent probably died from lead poisoning. Their field evaluations in Missouri

and Minnesota found 9-11 percent of digested eagle pellets contained lead shot. However, Lingle and Krapu (1988) found in a wintering eagle study (1978-1980) that cast pellets contained a small percentage (0.3 percent) of lead shot. Due to the use of nontoxic shot being phased in during the 1980's and now required in many areas across the nation, the potential for eagles to suffer ill-effects or death from lead shot ingestion has likely decreased.

Loss of eagle habitat continues to impact bald populations within the 7-state Pacific recovery area. Development, both urban and recreational, logging, mineral exploration and extraction, as well as others forms of human activity are adversely affecting suitable breeding, foraging and wintering habitats (U.S. Fish and Wildlife Service 1986). The Pacific Bald Eagle Recovery Plan (1986) originally identified the cumulative long-term effects of small scale actions and individual projects, while not jeopardizing the continued existence of the species, are the single most important threat to bald eagle recovery. Increased human activity and various land developments can adversely affect the suitability of breeding and wintering habitats (Juenemann and Frenzel 1972, Lish 1975, Grubb and King 1991).

Electrocution and collision with power lines has been a significant cause of mortality for golden and bald eagles. Before the 1970's, raptor electrocution had been noted by several researchers (Hallinan 1922, Marshall 1940, Edwards 1969, Coon et al. 1970). However, it was not until the 1970's, that its magnitude was known. Efforts to reduce power line mortalities by biologists, the utility industry, federal and state agencies, led to the publication of *Suggested Practices For Raptor Protection On Power Lines* (Miller et al. 1975) and *Mitigating Bird Collisions With Power Lines: The State of the Art in 1994 (Avian Power Line Interaction Committee (APLIC) 1994).* Despite the publication of *Suggested Practices* in 1975,1981,and 1996, and efforts on the part of the electric industry to correct many problem power lines, researchers have continued to report raptor use of power lines, and raptor electrocution deaths (APLIC 1996). Literature accounts from North America since 1981 indicate that the raptor electrocution problem is still widespread (APLIC 1996).

Electrocution deaths of bald eagles have been documented across the country, including Montana (APLIC) 1996). Bald eagle losses to electrocution were probably underestimated in the 1970,s and early 1980's because studies were not conducted in areas with bald eagle concentrations. Bald eagles frequently congregate in large numbers during the winter (Stalmaster 1987). In predominately treeless areas, such as coal bed methane fields in Montana and Wyoming, power poles may be the only perches available to bald eagles. The National Wildlife Health Laboratory (1985) reported that 130 (9.1%) of 1,429 dead bald eagles examined from 1963-1984 were electrocuted, with 55% of those mortalities occurring between 1978-1984. Franson et al.(1995), summarized that 12 % of the known bald eagle mortalities were the result of electrocution. Between 1986 and 1996 electric utility company records from across the western United States and Canada documented 118 bald eagles, 272 golden eagles, and an additional 358 unidentified eagles were electrocuted (Harness 1997).

Approximately 77 eagles have been electrocuted on power lines, including 1 bald eagle, in the past year in the Powder River Basin in Wyoming (Associated Press 2002). In Montana, within the Powder River and Billings RMP project area, eagle mortality from electrocution and collision

from small distribution power lines common to oil and gas development was documented in 2000 and 2001 (Schomburg 2001). Although data was collected from 303 carcasses from 1996-2001, data from 273 carcasses were collected in 2000 and 2001. Cause of death of 23 raptor carcasses were attributed to mid-span collisions, with 21 identified as golden eagle (*Aquila chrysaetos)* and one as bald eagle (Schomburg 2001). Cause of death of 280 raptor carcasses were attributed to electrocution, with 219 identified as golden eagle, 4 were bald eagle and 11 were either golden or bald eagles (Schomburg 2002). Data were collected from 4090 power poles in an area of ongoing efforts to modify power poles to reduce the probability of electrocutions. Northwestern Power, a major utility company in Montana, documents one to two bald eagle electrocutions each year in Montana (Milodragonovich, Northwestern Energy, pers. Comm. 2002). Within the last year, the Service has received information on eleven eagle mortalities in the Great Falls and surrounding area (Speckman, U.S. Fish and Wildlife Service, pers. Comm. 2002). Three eagles were killed by vehicular collisions (two bald eagles) and eight eagles were electrocuted (four bald eagles).

Proposed Species/Critical Habitat:

Mountain Plover

On December 30, 1982, the Service designated the mountain plover as a category 2 candidate species, meaning that more information was necessary to determine whether the species status was declining, stable, or improving (47 FR 58458). In 1990, we prepared a status report on the mountain plover indicating that Federal listing may be warranted (Leachman and Osmundson 1990). We elevated the mountain plover to a category 1 candidate species in the November 15, 1994, Animal Candidate Notice of Review (59 FR 58982). At that time, category 1 candidate species were defined as those species for which we had sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list. A proposed rule to list the mountain plover as threatened was published on February 16, 1999 (64 FR 7587). A final listing decision on this species is pending.

Description

The mountain plover is a small bird, about the size of a killdeer (*Charadrius vociferus*) and is the sole member of the plover family (Family *Charadriidae*) that inhabits grasslands on a year-long basis. The type specimen was collected in 1837 by J. K. Townsend on the Sweetwater River of Wyoming. There are no recognized subspecies. It is a compact bird (about 7-9 inches long) with light brown above and paler underparts, lacking the contrasting dark breast bands

typical of many other plover species. In flight, its underwings are white. Breeding plumage differs only by the addition of a dark line between the bill and eyes contrasting with a pale forehead. The bill is black, the legs are gray to light brown-yellow, feet are dark brown, and claws are black. The sexes are similar in appearance.

Life History/Habitat Use

The mountain plover is a migratory species of the shortgrass prairie and shrub-steppe eco-regions of the arid West. The universal characteristics of mountain plover habitat on both the breeding and wintering grounds are short vegetation, bare ground, and flat topography. They are found associated with prairie dog towns, plains, alkali flats, agricultural lands, cultivated lands, sod farms, prairie dog towns, and low shrubs at both breeding and wintering locales. Unlike other plovers, they are rarely associated with water.

In Montana, there is compelling evidence that mountain plovers are dependent on active prairie dog colonies for nesting (Dinsmore 2000). Mountain plover selectively use black-tailed prairie dog towns (*Cynomys ludovicianus)* for breeding, nesting, and feeding (Knowles et al. 1982, Knowles and Knowles 1984, Olson 1985, Olson and Edge 1985, Olson-Edge and Edge 1987, Dinsmore 2000, Dinsmore 2001, Knowles and Knowles 2001). Not all prairie dog towns offer suitable habitat for mountain plover, mostly due to topographic incompatibility. There are habitats other than prairie dog towns that provide nesting, feeding and breeding habitat for mountain plover in Montana. Knowles and Knowles (1998) demonstrated that barren areas with glacial tell, stockwater sites grazed by sheep ,cattle and ground squirrels, dwarf shrub communities associated with silty overflow sites and bentonitic soils, all have some levels of documented mountain plover use. Livestock and/or bison (*Bison bison*) grazing on prairie dog towns will increase mountain plover use substantially Knowles and Knowles (2001). Knowles and Knowles (2001) still conclude that "based on historical notes and contemporary observations, viable populations of mountain plovers are probably dependent upon extensive areas of black-tailed prairie dog colonies.

The dependency of mountain plovers on prairie dogs in Montana is probably tied to two factors: habitat and food (Dinsmore 2001). Mountain plovers prefer to nest on flat, arid landscapes, especially in areas that are intensively grazed (Knopf 1996). In Montana, the only open, grazed habitat is found on active prairie dog colonies (Dinsmore 2001). Prairie dog colonies also harbor more food items than the surroundings habitats (Dinsmore 2001, Knopf 1996). Mountain plovers are insectivorous with beetles, grasshoppers, crickets, and ants as their principal food items (Rosenberg et al. 1991).

Mountain plovers have a rapid-clutch mating system in which a female may lay a clutch for a male and then lay a second clutch for herself (Graul 1973, Dinsmore 2001). The nest of the mountain plover is a simple scrape on the ground, which may be lined with debris. Nests are usually placed in areas where vegetation is less than 4 inches in height, the amount of bare ground in the area exceeds 30%, and near a conspicuous object such as a manure pile or rocky

area. In shortgrass prairie habitat, vegetation associated with nest sites includes *Bouteloua gracilis* (blue grama), *Buchloe dactyloides* (buffalo grass) and *Opuntia* spp. (prickly pear cactus). In shrub-steppe grasslands, vegetation around nests includes low-growing shrubs such as *Artemisia nova* (black sage) and *Atriplex gardneri* (Gardner saltbush) (Day 1994, Knopf 1996). Topography is typically flat or gently rolling. Nests occur on ground with less than 5 percent slope, which is commonly heavily grazed by domestic livestock and/or prairie dogs (Graul 1973,

Kantrud and Kologiski 1982, Knowles and Knowles 1998). Generally, "suitable mountain plover habitat" refers to areas containing these characteristics: low relief, vegetation generally less than 4 inches in height, and bare ground present and at least locally exceeding 30% of the area.

The breeding season begins soon after birds arrive in late March or early April. In Montana, mountain plovers do not arrive on breeding grounds until the latter part of April. Breeding season displays involve different calls and flight displays, including "falling leaf" and pursuit flights to advertize territory occupancy and define boundaries between territories. Territories in Colorado are about 40 acres, and adjacent territories may overlap significantly along boundaries. Breeding plovers show close site fidelity, often returning to the same territory in subsequent years. Territories tend to be aggregated with several breeding pairs occurring within a few square miles surrounded by empty but apparently suitable habitat (Knopf 1996).

Nests may be initiated 1-2 weeks after arrival on the breeding grounds and the clutch of 3 eggs may take 3-12 days to complete. Incubation lasts approximately 29 days. In Colorado, egg-laying began April 15, continuing through mid-June, with one late nest observed June 23. Adults were found to incubate or attend nests with increasing frequency and duration as the incubation period continued. Nest attendance in Wyoming increased from approximately 50% of daylight hours early in incubation to approximately 100% within days of hatching (Laun 1957). Eggs appear highly resistant to chilling but susceptible to overheating in the sun due to their dark coloration (Knopf 1996). Mountain plovers nest on nearly level groung (often near roads), adults and chicks often feed on or near roads, and roads may be used as travel corridors by mountain plovers, all of which make plovers susceptible to being killed by vehicles (McCafferty 1930, Laun 1957, Godbey 1992, Knowles and Knowles 1996).

Chicks leave the nest soon after the last egg hatches. Chicks are usually attended by one adult, brooded about one-third of the time for the first day. Daily movements of the broods may be extensive, with broods ranging over as much as 200 acres between hatch and fledglings. Chicks fledge approximately 33 days post-hatch (Knopf 1996).

Known predators of adult mountain plovers are few. Kit fox (*Vulpes macrotis*) and prairie falcon (*Falco mexicanus*) are the only documented predators of adults. However, their ground nests are vulnerable to mammalian predators including the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), swift fox, badger, and coyote, and possibly corvids (crows, ravens and magpies). Ground squirrels, coyotes, Swainson's hawks (*Buteo swainsonii*), prairie falcons, and loggerhead shrikes (*Lanius ludovicianus*) have been observed taking flightless young (Knopf 1996).

Species in the shorebird family are generally long-lived, with low annual reproductive rates and small clutch sizes. Available information on the mountain plover conforms to this pattern. Annual survival estimates for this species are unavailable, though over-winter survival is high, estimated at 0.9474 from a sample of 44 birds (Knopf 1996). Few data exist on the life span of the mountain plover, though one banded bird was recovered after 6 years.

Mountain plovers probably start breeding in their second year of life. Normal clutch size is 3, very rarely 4. Two-egg clutches probably result from predation of individual eggs. Birds are largely monogamous, though the pair bond is only maintained for a short period during breeding. There is some evidence that at least some females lay two clutches, one brooded by the male and the other by the female, with this strategy common in some years (Knopf 1996).

Nest success has been estimated to vary from 26-65% between years and may be influenced by rainfall. Mountain plovers in Weld County, Colorado, fledged an estimated 0.26 and 1.4 young per nest in different studies between 1969 and 1974, though the higher estimate is believed to be biased by the exclusion of nests which totally failed (Knopf 1996). In Phillips County, Montana, annual nest success was between 45% in 1999 and 72% in 2000 with a average annual nest success of 58% for 600 nests pooled across years (Dinsmore 2001).

Distribution

Mountain plovers occupy suitable breeding habitat in many of the Great Plains states from Canada south to Texas from late March through July. Flocks may form as early as mid-June prior to migration to wintering habitats in August through October. Wintering areas are concentrated in the Central Valley of California, Texas and Mexico. There are no wintering areas in Montana and Wyoming. Historically, the mountain plover was considered numerous on breeding grounds in western and central Kansas and Oklahoma, western Nebraska and South Dakota, and eastern Colorado, Montana, and Wyoming.

Montana, Colorado and Wyoming have the majority of breeding mountain plovers, although some breed in Kansas, Nebraska, New Mexico, and Oklahoma (U.S. Fish and Wildlife Service 2002a). Based on historic records for Montana, the mountain plover was found throughout the shortgrass habitats of Montana, east of the Continental Divide (Knowles and Knowles 1998). Knowles and Knowles (1998) presents historic documentation of mountain plover within parts of the BLM's project area: in 1879, McChesney regarded the mountain plover as abundant around Big Horn County; in 1903 Silloway considered the mountain plover as a regular summer resident in parts of Judith Basin, Wheatland, Golden Valley and Musselshell Counties; and in 1911, Saunders considered the mountain plover as a common grassland species in areas including Gallatin County. More recent records of mountain plover in Dawson, Garfield, Prairie, Custer, Carter, Bighorn, Blaine, Phillips, Wheatland, Golden Valley, Treasure, Musselshell and Carbon Counties can be found in Knowles and Knowles (1998).

Approximately 1,500 birds are estimated to occur in Wyoming, some in areas adjacent to proposed CBM development in Montana. Birds have been observed during the breeding season over much of the shortgrass prairie of the eastern parts of Wyoming, with high densities reported in the Laramie Plains of northern Albany County and eastern Carbon County (Laun 1957, Johnson et al. 2000), Converse County (Parrish 1988), Laramie County (Graul 1975), Park County (U.S. Bureau of Land Management 1988), and Sweetwater County (Beauvais and Smith 1999).

Status and Threats

Endemic grassland birds have declined more rapidly than other bird species, and the mountain plover's decline is greater than the other grassland endemics (Knopf 1994, Sauer et al. 1997). Available data indicate that population numbers of mountain plovers have declined range-wide by more than 50 percent since 1966 to fewer than 10,000 birds. The eastern extent of the range has been greatly reduced, possibly due to conversion of native prairie to cultivated agriculture as well as control of burrowing rodents. Mountain plovers are no longer known to breed in Canada or South Dakota.

Graul and Webster (1976) estimated mountain plover numbers and distribution in Montana and Wyoming at 88,400 birds. In Montana, Knowles and Knowles (1996) estimated less than 2,000 mountain plovers in Phillips and Blaine counties, and less than 800 individuals at the other 8 occupied locations in the State. Following six years of research, Dinsmore (2001) estimated a population of 95 - 180 individual breeding mountain plovers in his study area in southern Phillips County, which was lower than his earlier estimate of 400 - 500 individuals. Dinsmore's (2001) south Phillips County study area is the best mountain plover habitat in Montana. While other areas of Phillips and Blaine counties, and other locations in the State, have more acres of suitable mountain plover habitat, the density of nesting mountain plovers is less than that found in southern Phillips County. Based on his six years of research, Dinsmore (pers. comm. 2002) believes it is unlikely that there are more than 700 mountain plovers throughout all of Phillips and Blaine counties, but that the Knowles and Knowles (1996) estimate of 800 mountain plovers in other areas of Montana is reasonable. Therefore, we believe the best information currently available indicates the total population in Montana is less than 1,500 mountain plovers (Knowles and Knowles 1996, Knowles and Knowles 1998, Dinsmore 2001, U.S. Fish and Wildlife Service 2002a).

Identified or suspected reasons for the decline include conversion of shortgrass and shrub steppe habitats, changes in range management to emphasize uniform grass cover, declines in native ungulates and burrowing animals, oil and gas development and associated road construction, and possibly population sinks created by certain agricultural practices. A population 'sink' (Pulliam 1988) is an area within the breeding range of a species or population where reproduction is not adequate to balance mortality, but population levels are maintained by immigration of breeders produced in a nearby 'source' area.

Strategies adopted by the Forest Service (FS) and BLM, should be effective in minimizing impacts on Federal lands, but the likelihood of these measures being implemented on split-estate lands or private property is less than for the activities on Federal lands (U.S. Fish and Wildlife Service 2002a). The time-of-year and spatial buffers adopted by the FS and BLM to protect nesting birds would only have value when the essential nesting characteristics are not permanently altered. In the absence of such provisions, however, and given the current rate of oil and gas development, the Service believes that oil and gas development could be a threat to mountain plovers and their habitat (Brockway 1992).

ENVIRONMENTAL BASELINE

Listed Species/Critical Habitat:

Bald Eagle

Under the provisions of section 7 (a)(2), when considering the "effects of the action" on listed species, the Service is required to consider the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, tribal, local, and private actions and other human activities in the action area (50 CFR 404.02). Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical. There is no critical habitat designated for the bald eagle, so none will be impacted.

In the Service's November 8, 1995, biological opinion addressing the proposed Tongue River Rail Road Company's additional rail line from Ashland to Decker, Montana, in the Powder River Basin (U.S. Fish and Wildlife Service 1995), the Service anticipated one bald eagle could be lethally taken as a consequence of increased disturbance. The incidental take was expected to occur as a result of potential premature fledglings and/or nest abandonment during the construction phase and possible train strikes of adult birds during the operational phase. The Tongue River Rail Road biological opinion considered impacts to bald eagles in a area that is a part of the current action on coal bed methane.

Although, the majority of bald eagle nesting territories occur in western Montana, a significant number of bald eagles nest within or adjacent to the proposed activities. Bald eagles winter throughout these areas, locally concentrated by open water, roost sites or available prey (that may not be associated by aquatic sites). It is estimated that an average 10-15 bald eagles winter along the Tongue River below the Tongue River dam (U.S. Fish and Wildlife Service, 1992). Fluctuating numbers of bald eagles winter along the Yellowstone and its other major tributaries. Significant numbers of eagles pass through these areas as migrants.

In Wyoming, there are 10 historically active bald eagle nests within the Powder River Basin Oil and Gas project area. Forty-two bald eagle winter roosts have been documented within the project area. The eastern front of the Big Horn Mountains and the Powder River Basin is a known wintering area for bald eagles and observations of bald eagles are common during the winter months.

In the Montana and Wyoming, both portions of the Powder River Basin contain a large proportion of private land and tribal lands within the project area which have not been surveyed, additional winter roost sites likely exist.

Historically, these bald eagle nests and winter roosts have been affected by relatively few activities. Grazing has been the predominant land use in the area and has likely had only minimal effects on the eagles and their habitat, although some impacts to riparian areas may have

occurred. Conventional oil and gas development continues to occur in the Powder River Basin in both Montana and Wyoming. Drilling for coal bed methane in the Powder River Basin in Wyoming began in 1985. As of May 29, 2002, 13,306 coal bed methane wells have been drilled with roughly 9000 wells in production (U.S. Fish and Wildlife Service 2002b).

Eagle habitat within the project area in the Powder River Basin is also influenced by hydrology changes caused by the Tongue River Dam on the Tongue River and Yellowtail Dam on the Big Horn River, which has limited the magnitude and frequency of flooding which results in less scouring of river banks necessary for cottonwood regeneration. Periodic channel migrations accompanied by erosion of streambanks and deposition of alluvial material to form sandbars is essential to the maintenance of riparian cottonwood communities. Cottonwoods require nonvegetated, recently deposited alluvium for successful seed germination and establishment. Seeds germinate within 48 hours and must have a continuous supply of moisture for several weeks. On-going ranching practices have also resulted in clearing of cottonwoods for alfalfa crops and in combination with grazing practices keep most cottonwood seedlings from becoming established. Additionally, the project area is affected by coal mining operations in both Montana and Wyoming.

Proposed Species/Critical Habitat:

Mountain Plover

The BLM indicates in the biological assessment, the status of mountain plover is not well understood within the project area, but may breed within the planning area, particularly in black-tailed prairie dog towns. The Service admits that data are lacking on the occurrence of mountain plover in the planning area. Montana Fish, Wildlife and Parks (Graham, Montana Fish, Wildlife and Parks in litt. 1999) states that "surveys indicate that Montana has a widely distributed population of mountain plover(s) and while the population level fluctuates, it is still substantial". Current (within last few years) documented nesting occurred within the statewide planning area in Phillips, Blaine, Golden Valley, Wheatland, Musselshell, Treasure, Carter, Carbon, and Bighorn Counties (Knowles and Knowles 1998, 1999). Past and present accounts of mountain plovers in Montana imply that mountain plover were restricted to specific (suitable) habitats, but where these habitats were common, so were mountain plover (Knowles and Knowles 1999). Mountain plovers are likely to be found on suitable habitat throughout the entire project area. Mountain plovers are most often associated with relatively flat (less than 5% slope), open short-grass prairie rangelands, often on or near prairie dog towns and other grazed areas. In Montana, the overwhelming majority of nesting birds occur within active prairie dog towns. In the biological assessment, the BLM stated that although specific prairie dog colony information is not available or incomplete, black-tailed prairie dogs are known to be common in preferred habitats throughout the project area. In addition to prairie dogs, livestock grazing is an important land use in the project area, with some areas heavily grazed.

Proctor (1998) developed a GIS (geographic information system) model to provide a methodology for creating habitat maps outlining suitable black-tailed prairie dog habitat on lands in the northern Great Plains shortgrass prairie at a scale that will help identify regional potentials

years and within riparian area nesting habitat, should prevent eagles from abandoning traditional nesting sites in the project area. However, the BLM also envisions that periodic or complete abandonment of non-nesting habitat may occur depending on the level of human use and noise.

Bald eagles may be affected by disturbance near winter roost sites and perch areas. Much of the project area is devoid of significant human disturbance, with grazing as the major land use. Many of the eagles may be unaccustomed to activities involving large equipment and significant human activity for even a short period of time, such as with drilling, construction of power lines and road building. Some eagles may lose foraging opportunities and could even choose to abandon the roost sites completely, depending on the level of activity. Currently, there are no stipulations or no surface occupancy requirements for bald eagle winter roosts. The BLM's commitment to the inventory and monitoring of bald eagle winter roosts as outlined in the Wildlife Monitoring and Protection Plan should lessen the likelihood of roost abandonment. However. The lack of information regarding roost site locations on private land and the lack of surveys for roost sites may leave some roost sites vulnerable to abandonment resulting from human disturbance.

The Service believes that as a direct result of the construction of significant number of miles of new roads and small distribution lines, there will be loss of bald eagles. The BLM's biological assessment states that increased traffic, road kills and carrion, resulting from CBM activities, potentially increases vehicle collision hazard to bald eagles. Bald eagles often forage on carcasses of other animals, particularly in the winter when aquatic food resources are not as readily available. Foraging may also be intensified during the nesting period while adults are feeding nestlings. If there is an increase in carcass availability as a result of collisions with vehicles in the project area or increased big game hunter harvest spoils, bald eagles may increase foraging activities in the project area. Regardless of the BLM's commitments to implement measures to lessen the likelihood of collisions, some will probably occur.

The Service agrees with the BLM's biological assessment that above-ground transmission facilities even with proper design and construction requirements (APLIC 1996), pose an electrocution threat to bald eagles. Power lines also pose strike hazards for bald eagles, especially near perennial rivers and water bodies that support fish and waterfowl. Removal of large trees in wintering areas, particularly at established roost sites, would also displace bald eagles by removing perch and roost sites. Even though, operators may adhere to all the requirements for construction of new power lines or modify existing power lines to be raptor friendly, some eagles may still be lost to line strikes or electrocution.

Proposed Species/Critical Habitat:

Mountain Plover

Disturbance leading to loss of reproductive potential may occur in several ways. Different effects to nesting plovers are likely depending on the onset, duration, and frequency of human disturbance. Aside from direct take of nests, chicks, and adults through vehicle collision, human

disturbance may cause direct loss of eggs or chicks if attending mountain plover adults are displaced long enough to expose the eggs or chicks to excessive heating, chilling, or predation.

If disturbance occurs more frequently than weekly through the breeding season, nesting birds may be displaced and may initiate nests a secure distance from the disturbed area. While this may reduce the amount of nest failure from disturbance, it may nonetheless result in reduced plover reproduction if plovers are displaced to less suitable nesting areas. Indeed, significant amounts of previously occupied habitat may be made unavailable in this way. Preliminary data in Wyoming, from the Foote Creek Rim suggest that breeding plovers may be displaced from areas of high human activity (WEST, Inc. 1999). If nesting birds are displaced to nest in less suitable habitat where nesting success is lower, this would result in lost breeding potential.

If disturbance begins after the onset of nesting or occurs at intervals greater than two weeks apart, birds may have already initiated nesting within the disturbance area. Then, human activity causing displacement of incubating adults from active nests may result in addling eggs due to extremes of temperature or destruction of eggs by predators. During incubation, the mountain plover is fairly insensitive to human disturbance from vehicles as close as 3 meters but may be displaced from the nest by a human on foot at a much greater distance. Eggs or newly hatched chicks may also be crushed by vehicle traffic at any speed. Additionally, the presence of dogs greatly increases the distance at which plovers leave their nests, thus exposing the eggs to predation, chilling, and other adverse effects (F. Knopf, U.S. Geological Survey, Biological Resources Division, pers. comm. 200).

Human disturbance is especially problematic where human activity has created disturbed areas attractive to nesting mountain plovers. In Utah, mountain plovers have been found to nest as close as 6 meters from open roads or operating oil well pads (Ellison et al. 1999), presumably attracted by the abundance of bare soil. Creation of apparently suitable habitat with high levels of human disturbance may actually attract breeding plovers to an 'ecological trap' (Pulliam 1988) where nests are initiated but fail due to disturbance and reproductive effort is wasted.

Mountain plovers are attracted to roads and are known to lead broods onto roads to forage at night (Laun 1957, Ellison et al. 1999). Direct loss of chicks or even adults to vehicle collisions may increase where increasing traffic volumes correspond with concentrations of nesting and brood-rearing activity. The BLM's commitment to establish speed limits or employ other methods, such as speed bumps, on project roads within known nesting areas should help reduce the likelihood of such collisions. However, because the birds may freeze and squat close to the ground in response to approaching vehicles, some level of mortality is likely.

In addition to activities that may lead to direct mortality of adults or young, and reduce production, several factors may lead to indirect mortality. The eggs and young, and to a lesser extent adults, are susceptible to a number of avian and mammalian predators. These include corvids (ravens, magpies, crows), birds of prey (hawks and owls), coyotes, badgers, weasels (*Mustela* spp.), and foxes (*Vulpes* spp.). These predators may benefit from human activities in a number of ways. Power poles, fence posts, associated gas facilities, and other elevated structures may provide new hunting perches and nest sites for avian predators, increasing their hunting

effectiveness and range. Buildings, trailers, and other permanent structures may provide safe den sites for mammalian predators. Research on the more well-studied sage grouse (*Centrocercus urophasianus*) has demonstrated that birds avoid elevated perch sites, including power lines and fence posts by as much as ½ mile (Braun 1998). Mountain plover adults, chicks, and eggs live in the same environment and suffer the same predators, therefore these structures may adversely affect their habitat and behavior similarly. The BLM's commitment to minimize hunting perches within known of nesting areas will help minimize the effect.

Finally, an increase in road-killed animals due to more roads and heavier traffic may provide an increased food supply for both avian and mammalian predators, most of which are also scavengers. This increased food source may increase predator population size and may also extend their range into previously uninhabited areas, leading to higher rates of predation on mountain plover eggs, chicks, and even adults. Such an ecological relationship has been demonstrated in the Mojave Desert of California. Increases in roads and traffic have extended the range of avian predators (common raven and red-tailed hawk) exposing young desert tortoises (*Gopherus agassizii*) to much higher rates of predation than before development (Knight et al. 1993, Knight and Kawashima 1993). The BLM's commitment to establish speed limits on project roads should help reduce the availability of carrion to attract predators.

Mountain plovers show high site fidelity to breeding territories between years and the persistence of breeding concentrations may be more important than mere availability of apparently suitable habitat for the persistence of the mountain plover. The necessity of social facilitation for effective breeding has been demonstrated in a number of avian species. Habitat degradation occurring outside of the breeding season may cause abandonment of historically used breeding areas, though no direct mortality of plovers, eggs, or chicks occurs. Removal or degradation of nesting habitat on historically used sites resulted in loss of breeding capability upon the birds' return, and/or resulted in loss of the pair for lack of available feeding or nesting habitat. Development activities, including construction of roads, well pads, and ancillary facilities that degrade habitat in historically used breeding areas could have this effect, whether or not they occur during the breeding season. Human activity associated with project development and operation in historically used breeding areas may cause them to abandon the breeding area, particularly if disturbance extends over more than one breeding season.

The key issue is whether or not birds displaced by project activities will move to new areas and successfully breed. Currently, information is inadequate to answer this question. Dinsmore (2001) found that although large areas of suitable plover habitat may be available at nearby sites in Blaine and Phillips counties, mountain plovers appear faithful to breeding sites and may by reluctant to move even short distances. Until this question is resolved the prudent management approach must be to identify and protect all breeding concentrations of the species.

Specific phases of gas development and the specific activities that may cause adverse effects are outlined below.

Development: Given the BLM's existing commitment to survey for plovers and delay work either 37 days, or 7 days post-hatch if any mountain plover nests or broods are found within 1/4

mile of development, the likelihood of ground-disturbing activities (including construction of roads, well pads, pipelines, ancillary facilities) causing direct mortality of plovers is discountable. However, increased traffic to and from other project construction sites may cause direct adverse effects that could result in mortality through collisions with vehicles, and indirectly by increasing predator numbers (by providing road-killed animals), thereby possibly increasing predation on adults, eggs, or chicks. The BLM's commitment to post speed limits within identified nesting areas reduces the likelihood of such effects.

Drilling operations may displace breeding mountain plovers some distance from the pad, making additional nesting habitat unsuitable for some distance around the drill rig, and may constitute harassment. Traffic and risks of vehicle collision will greatly increase during drilling. Any of these factors that incrementally reduce the habitat quality leading to abandonment of a previously used breeding area, or reduced reproductive success, may constitute adverse effects that could result in mortality.

Operation: Though traffic will greatly decrease after construction, operating wells will still require periodic maintenance and visits, thereby maintaining low levels of impact associated with traffic and human activity. Elevated structures on the well pad could provide new nest and perch sites for corvids (i.e., common raven and black-billed magpie) and birds of prey, including ferruginous hawks, golden eagles, great horned owls, and loggerhead shrikes. Presence of these known or suspected predators of mountain plovers and their eggs and chicks will increase the likelihood of mortality. The BLM's commitment to minimize hunting perches within ½ mile of nesting areas will help minimize the effect. Maintenance of producing wells during the breeding season will occasionally produce levels of traffic, noise, and human activities that could lead to direct mortality of mountain plovers or displacement from the vicinity of the well pad. Recreational use of the new road system will cause increased disturbance and risk of vehicle collisions. Any of these factors that incrementally reduce the habitat quality leading to abandonment of a previously used breeding area or reduced reproductive success would constitute adverse effects that could lead to mortality.

Abandonment and Reclamation: Reclamation of drill pads, roads, and pipelines will involve a small increase in traffic, noise, and human activity from operation-level activities, possibly leading to mortality as well as disturbance and displacement of nesting plovers in the area. Reclamation activities initiated during the breeding season, unless adequate surveys determine no birds are present, may crush eggs or chicks or lead to nest failure by displacing attendant adults. Placement of a marker to identify plugged wells may provide a permanent hunting perch for avian predators, increasing mortality risk to mountain plovers or displacing breeding birds from suitable habitat. Reclamation with plant species that produce a long-lasting stand of tall, dense vegetation will preclude nesting by mountain plovers as long as that vegetation persists.

Inter-related and Inter-dependent Effects: The highly interspersed surface and mineral ownership on the analysis area creates challenges for protection of mountain plovers and their habitats. There will be some actions regarding non-Federal surface and/or minerals that would not occur but for a Federal action (i.e., they are inter-related or inter-dependent to the Federal action). ROW's for access to non-Federal in holdings is an example of a common Federal action leading

to inter-related and inter-dependent actions on non-Federal lands. Development actions of non-Federal minerals occurring as a result of a BLM action would have the same effects on nesting plovers or historically used breeding areas as such development of Federal minerals, described above. To the extent that these actions are inter-related or inter-dependent to a Federal action, any effects to mountain plovers associated with development of non-Federal minerals must be considered prior to permit issuance or other authorization by the BLM.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The cumulative effects are difficult to quantify for several reasons. Because private surface ownership within the project area is significant, many new wells and many miles of roads and pipelines are reasonably certain to occur on private lands. This is evidenced by the current and historic rates of coal bed methane development on private land throughout the Powder River Basin in Wyoming. However, some of the gas development activities on non-Federal land will require grants of right-of-way from the BLM for access and are, therefore, inter-related and inter-dependent to the right-of-way grants. These grants and inter-related and inter-dependent actions constitute Federal actions subject to review under section 7 of the Act and therefore are not considered under cumulative effects.

The CBM emphasis areas in Montana are within the Powder River Basin. Concurrent proposals for CBM development in the Powder River Basin occur in Wyoming. In Wyoming, the Powder River Basin Oil and Gas Project is located in all or parts of Campbell, Converse, Johnson, and Sheridan counties. The proposed project includes 39,400 coal bed methane (CBM) wells and 3,200 conventional (i.e., non-CBM) oil and/or natural gas wells within a project area of almost 8,000,000 acres. The project also includes construction of associated facilities, including access roads, gas gathering and water disposal pipelines, electrical utilities, and production facilities (such as compressor stations, central delivery point, or well pod buildings and meters), and facilities for treating, discharging, disposing of, containing, or injecting produced water.

In Wyoming, well spacing is expected to occur in an 80-acre spacing pattern (8 wells or well pads per square mile). The potential short-term disturbance during drilling and installation of facilities (up to10 years) is estimated to be approximately 240,000 acres, with 278,633 acres short term disturbance to vegetation. Following reclamation of pipelines and partial reclamation of other facilities the long-term disturbance associated with CBM development would be approximately 108,800 acres, with 128,069 acres long term disturbance to vegetation continuing during the productive life of the project (approximately 20 years).

The Apsaalooke Crow, in Yellowstone and Big Horn counties in Montana, have recently signed an agreement to develop production of an estimated 200 to 600 billion cubic feet of methane gas (Raabe 2002). The Northern Cheyenne, located in Big Horn, Rosebud, and Powder River

counties, soon may also enter into similar agreements for CBM development. Reasonable and Foreseeable Development, as presented in the DEIS, estimates up to 8,000 CBM wells could be drilled on the Northern Cheyenne and Crow tribal lands, collectively.

Finally, the data are not adequate to determine the distribution and abundance of the bald eagle, and mountain plover on private lands in the project area. For this reason, the extent of cumulative effects to the species is difficult to quantify. However, given the surface and gas ownership patterns, as well as the current level of development of this private coal bed methane, the direct and indirect effects of these private actions are likely to adversely affect the species addressed in this opinion in a similar manner and to a similar degree as those Federal actions addressed in this opinion.

CONCLUSION

Listed Species/Critical Habitat:

Bald Eagle

After reviewing the current status of the bald eagle, the environmental baseline for the action area, the effects of Coal Bed Methane Production in Montana as managed by the Miles City and Billings Field Offices and the State of Montana, and the cumulative effects, it is the Service's biological opinion that the direct and indirect effects of Coal Bed Methane Production in Montana, as proposed, are not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected.

The Service has reached this conclusion, based in part on, but not limited to, the following:

1) The bald eagle has experienced significant recovery across much of its range since listing.
2) The project area encompasses a relatively small amount of the bald eagle's entire range.
3) Higher densities of bald eagles and their nesting territories occur in the northwestern Montana.
4) A relatively small number of roosts sites may potentially be adversely affected by the project.
5) Construction, one of the activities likely to adversely affect the birds, will be of a short duration.
6) Even with anticipated losses from the direct and indirect effects of coal bed methane development, recovery goals in Montana will be achieved.

Proposed Species/Critical Habitat:

Mountain Plover

After reviewing the current status of the mountain plover; the environmental baseline for the action area; the effects of the coal bed methane development in the project area; and, the cumulative effects, it is the Service's conference opinion that the direct and indirect effects of Coal Bed Methane Production in Montana as managed by the Miles City and Billings Field Offices (loss of some breeding habitat and potentially a few individuals) are not likely to jeopardize the continued existence of the mountain plover. No critical habitat has been proposed for this species, therefore, none will be affected.

The Service has reached this conclusion by considering the following:

1) Mountain plovers are widely distributed throughout their breeding range, with the current population estimated at 8,000 to10,000 individuals (U.S. Fish and Wildlife Service 2002a). This Project would result in the loss of a few individuals or nests and would currently have a relatively minor impact when considering the population as a whole.

2) Suitable habitat for the mountain plover is present, but highly scattered throughout the project area.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, would, kill trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the BLM so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by

this incidental take statement. If the BLM (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the BLM must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Listed Species

Bald Eagle

In the revised biological assessment, the BLM estimated that 27,917 miles of utility power lines (utility corridors) would be developed for an estimated 18,300 wells. A study by Schomburg (2001) documented eagle mortality for collisions and electrocution from small power distribution lines in oil and gas fields in an area that is a sub-sample of the BLM's analysis area for coal bed methane. Although, approximately 65% of the carcasses were recovered during ground surveys in 2000 and 2001, the data collected reflects all known eagle kills that occurred between 1996 and 2001. Schomburg surveyed 4,090 power poles or approximately 231 miles of distribution line. A minimum of 5 eagle carcasses were identified as bald eagle. Four mortalities were due to electrocution and one was due to collision with the wires. Other unknown carcasses (14 unknown eagle carcasses could be bald eagles) were not considered in this determination. Using Schomburg's bald eagle kill rate on projected 27,917 miles of new small distribution lines, it is estimated that 101 bald eagles potentially could be lost per year due to electrocution and collision in association with the proposed project. However, these mortality estimates were extrapolated from an area where most of the power lines had yet to be raptor-proofed. By fully implementing the BLM's conservation measures addressing the reduction of raptor mortality from power lines, the Service believes bald eagle mortality from electrocution would be nearly eliminated. However, some electrocution of bald eagles would likely still occur in rare instances, such as has occurred when two eagles fighting on power lines were electrocuted. Bald eagle mortality may also occur from collisions with power lines.

Although, the Service does not have similar data on bald eagle mortality due to vehicular collisions, it is probable that one bald eagle per year may be killed on the estimated 9,018 miles of proposed roads within the analysis area.

In summary, due to some of the same concerns the Service had in the Tongue River Railroad BO, the extensive project area in the Powder River and Billings RMP planning areas, and the probability that some bald eagles will be lost on distribution lines or due to vehicular collision, the Service anticipates that four bald eagles per year may be lethally taken as a result of CBM project activities.

Proposed Species

Mountain Plover

Incidental take is expressed as the number of individuals reasonably likely to be taken or the extent of habitat likely to be destroyed. The Service anticipates up to five mountain plovers per year will be taken due lost productivity on up to 20,000 acres of suitable habitat, and three mountain plovers will be taken annually due to vehicle collisions as a result of this proposed action.

The incidental take is expected to be in the form of direct lethal take of adult mountain plovers and their chicks, harm through modification of breeding behavior, and acres of habitat lost. Habitat loss is defined as the permanent or temporary alteration of suitable habitat in such a way as to displace a species into unsuitable areas or impair/disrupt or prevent normal behavioral patterns such as breeding, feeding or sheltering. Direct lethal take of adult mountain plovers or chicks may occur through vehicle collision. The likelihood of vehicle collision is highest during development but remains elevated through operation and abandonment.

Indirect lethal take, especially of eggs and chicks, may occur through increases in predator abundance due to project features providing increased perch and nest sites around plover nesting areas and increased food sources in the form of carrion caused by vehicle collisions. Displacement of adults from nests or broods long enough to cause take of eggs or chicks through exposure to the elements or predators may occur, especially if people will be nearby on foot for many hours. However, given the commitment to survey for nests within 1/4 mile of a well (in suitable habitat), and the subsequent restriction of delaying work until completion of nesting, most mortality via harm and harassment will likely be avoided.

Displacement of breeding birds from known nesting areas to less suitable nesting habitat may occur due to habitat alteration and cause harm through reproductive failure. Human activity associated with project development and ongoing operation may also cause displacement and could cause take in the form of harassment. Where development increases predator abundance or hunting efficiency, nesting plovers may be displaced to nest in less suitable habitat. Abandonment of previously occupied breeding aggregation areas due to habitat degradation may result. Loss of such a formerly used site would constitute take.

The Powder River and Billings resource analysis areas include 5,009,784 acres of federal mineral estate, of which 1,221,448 acres (24.38%) is mountain plover suitable habitat. The BLM has determined that the project will result in an estimated direct loss of about 75,762 acres of wildlife habitat to well pads, roads, pipeline and utility corridors. We therefore project that approximately 18,471 acres (75,762 acres x 0.2438) of suitable mountain plover habitat will be lost in the project area. This will result in a direct loss of productivity for 5.37 mountain plover pairs annually to direct loss of habitat (density of mountain plover x 18,471 acres of lost suitable

habitat = 10.75 or 5.37 pairs). Based on mountain plover productivity data and nest and fledgling success data from Montana, there will be a loss of five chicks annually to direct loss of habitat.

Due to the difficulty in detecting loss of productivity in mountain plovers, the Service will use an estimate of 20,000 acres of suitable habitat as a surrogate measure of take. To produce a brood, a mountain plover needs approximately 160 acres (Fritz Knopf, U.S. Geological Survey, pers. comm. 2002). Therefore the project area has the potential of 7,634 pairs. However, from known mountain plover densities in Montana, the project area should have approximately 355 pairs. We estimate then that 1,164,640 acres of unoccupied suitable mountain plover habitat and 56,800 acres of projected occupied suitable habitat occurs in the project area. Long term impacts need to be avoided in on these acres. Since the BLM has determined that 75,762 acres of wildlife habitat will be directly lost and 24.38 % is suitable mountain plover habitat, 18,471 acres of suitable mountain plover habitat will be lost, only 1.5% of suitable mountain plover habitat in the project area. Allowing for estimate variability, some level of take due to lost productivity would occur on up to 20,000 acres of suitable habitat during the life of the project.

Within mountain plover suitable habitat will be active prairie dog colonies. These acres are of highest value to nesting mountain plovers. These acres are probably limited in number. Due to this, the Service anticipates a portion of take related to habitat loss will occur on active black-tailed prairie dog colonies within suitable mountain plover habitat.

Since mountain plovers are extremely precocious and will leave the nest within hours of hatch, direct mortality as a result of project construction is not anticipated given the BLM's commitments to avoid nests during the breeding season. However, given the estimated number of new roads (9,018 miles) proposed for this project, the Service anticipates some direct mortality as a result of collision with vehicles. Considering the likelihood of vehicular caused mortality, one adult mountain plover and two chicks could be taken as a result of collisions with vehicles. This level of expected mortality will result from vehicular collision while the adult and chicks are foraging along the roads. This level of take is anticipated annually, not cumulatively, during the life of the project.

The Service anticipates such lethal take of the mountain plover will be difficult to detect due to the cryptic nature of eggs and chicks, the dispersed nature of breeding birds, the lack of current distribution data on the analysis area, the rapidity with which carcasses are scavenged, and difficulty of measuring increased mortality of adults, eggs or chicks as a result of increased predator abundance.

In summary, the Service anticipates loss of habitat will result in the take of five chicks annually due to lost productivity during the life of the project. This amount of take shall be measured using the surrogate measure of no more than 20,000 acres of suitable habitat lost to coal bed methane development on federal mineral estate. Additionally, the Service anticipates three mountain plover will be taken annually due to vehicle collisions during the life of the project.

EFFECT OF THE TAKE

Listed Species

Bald Eagle

In the accompanying biological opinion, the Service determined that this level of anticipated take of the bald eagle is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Proposed Species

Mountain Plover

In the accompanying conference opinion, the Service determined that this level of anticipated take of mountain plovers is not likely to result in jeopardy to the species or destruction or adverse modification of proposed critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of bald eagles and mountain plovers. For the mountain plover, the prohibitions against taking the species found in section 9 of the Act do not apply until the species is listed. However, the Service advises the BLM to consider implementing the following reasonable and prudent measures as they pertain to the mountain plover. If this conference opinion for the mountain plover is adopted as a biological opinion following listing, these measures, with their implementing terms and conditions, will be non-discretionary.

Bald Eagle and Mountain Plover

1. The BLM shall ensure implementation of all conservation measures identified and committed to as part of the action as outlined above in Project Description and more fully described in the revised Biological Assessment and Wildlife Monitoring and Protection Plan.

2. The BLM shall ensure direct habitat disturbance does not exceed that discussed in the Biological Assessment, Wildlife Monitoring and Protection Plan, Record of Decision, and evaluated in this Biological/Conference Opinion. Through minimization and monitoring of direct habitat disturbance and habitat loss, indirect disturbance to the species will also be minimized.

3. Reduce the possibility of vehicular caused mortality for bald eagles and mountain plovers.

Bald Eagle

1. Reduce the likelihood of disruption of nesting and roosting activities.

2. Reduce the likelihood of electrocution and collision with utility lines.

3. Through minimization and monitoring of direct habitat disturbance and habitat loss, indirect disturbance to the species will be minimized.

Mountain Plover

The following reasonable and prudent measures are designed first to avoid direct impacts to nesting mountain plovers through activity-specific nest searches, and second, to avoid or minimize impacts to known nesting aggregations by 1) avoiding or minimizing direct and indirect take of adults, eggs, or chicks on these areas, and 2) avoiding the abandonment of nesting aggregation areas.

1. The BLM shall work to avoid abandonment of nesting areas.

2. The BLM shall limit project-related features that increase the population levels or hunting efficiency of predators of the mountain plover in the vicinity of known plover nest sites.

3. Operators and BLM employees shall be shown how to identify the mountain plover and provided information about its habitat requirements, natural history, status, threats, and possible impacts of gas development activities. Incidental observations of mountain plovers shall be solicited from all operator and BLM field personnel.

4. Through minimization and monitoring of direct habitat disturbance, indirect disturbance to the species will be minimized.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

Bald Eagle and Mountain Plover

To fulfill reasonable and prudent measure No. 1, the following terms and conditions for both the bald eagle and mountain plover shall be implemented:

1. In the event that a bald eagle (dead or injured) or mountain plover (dead or injured) is located during construction and operation, the Service's Billings Sub-Office of the Montana Field Office (406-247-7366) and the Service's Law Enforcement Office (406-247-7355) will be notified within 24 hours. The action agency must provide for monitoring the actual number of individuals taken. Because of difficulty in identification, all small birds found dead should be stored in a freezer for the Service to identify.

To fulfill reasonable and prudent measure No. 2, the following terms and conditions for both the bald eagle and mountain plover shall be implemented:

1. The BLM shall monitor all loss of bald eagle (nesting, potential nesting and roost sites) and suitable mountain plover habitat associated with all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. Bald eagle nesting, potential nesting and roost sites and suitable mountain plover habitat have been defined previously under 'habitat use' and 'critical habitat' respectively, for each species. The actual measurement of disturbed habitat can be the responsibility of the BLM or their agent (consultant, contractor, etc) with a written summary provided to the Service's Montana Field Office upon project completion. The tracking will include the location and acres of habitat loss, field survey reports, what stipulations were applied, and a record of any variance granted to timing and/or spatial buffers. The monitoring of habitat loss for these species will commence from the date the Record of Decision (ROD) is signed. The actual measurement of disturbed habitat can be the responsibility of the BLM's agent (consultant, contractor, etc.) with a written summary provided to the Service's Montana Field Office semi-annually, or immediately if the BLM determines that action (i.e., Application for Permit to Drill (APD), all facilities or infrastructure) will adversely affect a listed species. However, it is the responsibility of the BLM to ensure that the semi-annual reports are complete and filed with the Service in a timely manner. The semi-annual report will include field survey reports for endangered, threatened, proposed and candidate species for all actions covered under the *Montana Statewide Draft Oil and Gas EIS and Amendment of the Powder River and Billings RMPs* and ROD. The semi-annual reports will include all actions completed under this BO up to 30 days prior to the reporting date. The first report will be due 6 months from the signing of the ROD and on the anniversary date of the signing of the ROD. Reporting will continue for the life of the project.

2. The BLM will initiate informal consultation with the Service when 50 percent of the incidental take exempted in this take statement has occurred for either the bald eagle or the mountain plover. Additional measures may be implemented to further minimize the potential for take of listed species

To fulfill reasonable and prudent measure No. 3, the following terms and conditions for both the bald eagle and mountain plover shall be implemented:

3. As outlined in the guidance and conservation measures in the *CBM Programmatic Wildlife Monitoring and Protection Plan for the Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans* that "All new roads required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions. Appropriate speed limits will be adhered to on all project area roads, and Operators will advise employees and contractors regarding these speed limits."

Bald Eagle

To fulfill reasonable and prudent measure No. 1, the following terms and conditions shall be implemented:

1. The appropriate standard seasonal or year-long stipulations for raptors or no surface occupancy for bald eagles as identified in the Billings Resource Management Plan (U.S. Bureau of Land Management 1983), Powder River Resource Management Plan (BLM 1984), and Oil and Gas Resource Management Plan/ EIS Amendment (BLM 1992) will be applied. This includes No Surface Occupancy within ½ mile of nests active in the last seven years and ½ mile of roost sites.

2. Nest productivity will be assessed and conducted by the BLM or a BLM approved biologist in areas with high levels of development (i.e., areas with greater than or equal to four well locations/section) on and within one mile of the project area. Active nests located within one mile of project-related disturbance areas will be monitored between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings per nest).

To fulfill reasonable and prudent measure No. 2, the following terms and conditions shall be implemented:

3. No new above-ground power line should be constructed within the Primary Use Area or ½ mile from an active eagle nest or nest that has been occupied within the recent past. No surface occupancy or use is allowed within 0.5 miles of known bald eagle nest sites that have been active within the past seven years. All other actions will be consistent with the *Montana Bald Eagle Management Plan - July 1994*.

4. Power lines will be built to standards identified by the Avian Power Line Interaction Committee (1996) to minimize electrocution potential. The Service has more specific recommendations that reaffirm and compliment those presented in *Suggested Practices*. It should be noted that these measures vary in their effectiveness to minimize mortality, and may be modified as they are tested in the field and laboratory. Local habitat conditions should be considered in their use. The Service does not endorse any specific product that can be used to prevent and/or minimize mortality, however, we are providing a list of *Major Manufacturers of Products to Reduce Animal Interactions on Electrical Utility Facilities.*

New Distribution Lines and Facilities

The following represents areas where the raptor protection measures will be applied when designing new distribution line construction:

4(a) Bury distribution lines where feasible.

4(b) Raptor-safe structures (e.g., with increased conductor-conductor spacing) are to be used that address adequate spacing for each problematic species (i.e., minimum 60" for bald eagles would cover all species).

4(c) Equipment installations (overhead service transformers, capacitors, reclosers, etc.) are to be made raptor safe (e.g., by insulating the bushing conductor terminations and by using covered jumper conductors).

4(d) Jumper conductor installations (e.g., corner, tap structures, etc) are to be made raptor safe by using covered jumpers or providing adequate separation.

4(e) Employ covers for arrestors and cutouts.

4(f) Lines should avoid high avian use areas such as wetlands, prairie dog towns, and grouse leks. If not avoidable, use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation and decrease loss of avian predators to electrocution.

Modification of Existing Facilities

Raptor protection measures to be applied when retrofitting existing distribution lines. Problem structures may include dead ends, tap or junction poles, transformers, reclosers and capacitor banks or other structures with less than 60" between conductors or a conductor and ground. The following modifications will be made:

4(g) Cover exposed jumpers.

4(h) Gap any pole top ground wires.

4(i) Isolate grounded guy wires by installing insulating link.

4(j) On transformers, install insulated bushing covers, covered jumpers, cutout covers and arrestor covers.

4(k) When mortalities occur on existing lines and structures, raptor protection measures are to be applied (e.g. modify for raptor-safe construction, install perches, perching deterrents, nesting platforms, nest deterrent devices, etc).

4(l) Use anti-perching devices to discourage perching in sensitive habitats such as grouse leks, prairie dog towns and wetlands to decrease predation, and decrease loss of avian predators to electrocution.

4(m) In areas where midspan collisions are a problem, install line-marking devices that have been proven effective. All transmission lines that span streams and rivers, should maintain proper spacing and have markers installed.

These additional standards to minimize migratory bird mortalities associated with utility transmission lines, will be incorporated into the Terms and Conditions for all APD's and stipulations for Right-Of-Way applications.

To fulfill reasonable and prudent measure No. 3, the following terms and conditions shall be implemented:

5. Inventory and monitoring protocol for the bald eagle will be as described for raptors, with the following additions. Operators will indicate the presence of eagle habitat as previously defined, on their application. Prior to CBM development or construction, surveys of the wooded riparian corridors within 1.0 mile of a project area will be conducted in the winter and/or spring by biologists and/or BLM-approved biologists to determine the occurrence of winter bald eagle roosts. Surveys will be conducted from daybreak to 2 hours after sunrise and/or from 2 hours before sunset to1 hour after sunset by fixed-wing aircraft. Follow-up ground surveys, if necessary, will be conducted during the same time frame. Surveys will be at least 7 days apart. The location, activity, number, and age class (immature, mature) of any bald eagles observed will be recorded and if a roost or suspected roost is identified, BLM, USFWS, and MTFWP will be notified and a GPS record of the roost/suspected roost will be obtained and entered into the BLM GIS database. There will be No Surface Occupancy within 0.5 miles of any identified bald eagle roost sites.

Mountain Plover

To fulfill reasonable and prudent measure No. 1, the following terms and conditions shall be implemented:

1. Surface use is prohibited within 1/4 mile of active mountain plover nest sites. Disturbance to prairie dog towns will be avoided where possible. Any active prairie dog town occupied by mountain plover on federally managed surface or federal mineral estate will have Controlled Surface Use, specifically no surface use between April 1 and July 31. This area may be reduced to no surface use within 1/4 mile of an active nest, once nesting has been confirmed. An exception may be granted by the authorized officer after the SMA consults with the FWS on a case by case basis and the operator agrees to adhere to the new operational constraints.

2. Due to the declining status of mountain plover in the analysis area and, the need to not lose this most important and limited nesting habitat, all active black-tailed prairie dog colonies within suitable mountain plover habitat will have No Surface Occupancy (NSO). This NSO will be applied only to federally managed surface acres. This NSO may be modified in an amendment to this biological opinion after analysis of impacts to this preferred nesting habitat is completed (see term and condition 10, below).

3. If suitable mountain plover habitat is present, surveys for nesting mountain plovers will be conducted prior to ground disturbance activities, if ground disturbing activities are anticipated to occur between April 10 and July 10. Disturbance occurring outside this period is permitted, but any loss of mountain plover suitable habitat must be documented. Sites must be surveyed three times between the April 10 and July 10 period, with each survey separated by at least 14 days. The earlier date will facilitate detection of early-breeding plovers. A disturbance-free buffer zone of 1/4 mile will be established around all mountain plover nesting locations between April 1 and July 31. If an active nest is found in the survey area, the planned activity should be delayed 37 days, or seven days post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days (U.S. Fish and Wildlife Service 2002). Exceptions and/or waiver to stipulations can be made through consultation with FWS on a case by case basis.

4. Roads will be located outside of nesting plover habitat wherever possible. Apply mitigation measures to reduce mountain plover mortality caused by increased vehicle traffic. Construct speed bumps, use signing or post speed limits as necessary to reduce vehicle speeds near mountain plover.

5. Native seed mixes will be used to re-establish short grass prairie vegetation during reclamation.

6. There will be No Surface Occupancy of ancillary facilities (e.g., compressor stations, processing plants) within ½ mile of known nesting areas. Variance may be granted after consultation with the Service.

7. In habitat known to be occupied by mountain plover, no dogs will be permitted at work sites to reduce the potential for harassment of plovers.

To fulfill reasonable and prudent measure No. 2, the following terms and conditions shall be implemented:

8. Creation of hunting perches will be minimized within ½ mile of occupied nesting areas. Utilize perch inhibitors (perch guards) to deter predator use.

To fulfill reasonable and prudent measure No. 3, the following terms and conditions shall be implemented:

9. Operators and the BLM shall be provided by the Service with educational material illustrating and describing the mountain plover, its habitat needs, life history, threats, and gas development activities that may lead to incidental take of eggs, chicks, or adults with requirements that these material be posted in common areas and circulated in a memorandum among all employees and service providers.

To fulfill reasonable and prudent measure No.4, the following terms and conditions shall be implemented:

10. The BLM will determine the acreage of occupied black-tailed prairie dog habitat within the suitable mountain plover habitat on federally managed surface acres and on federal mineral estate lands. Further, a reasonable effort should be made to estimate the actual impacts, including habitat loss, CBM development will have on occupied black-tailed prairie dog acres within suitable mountain plover habitat over the project area. The project area is large and certain areas will likely be developed for coal bed methane before others. The BLM, Service, and cooperators, will develop a survey protocol that may include prioritization of subsets of the project area. Based on the results of such analysis, the NSO detailed in term and condition 2 above may be modified in an amendment to this biological opinion.

11. Prior to permit approval, habitat suitability will be determined. The BLM, FWS and MFWP will estimate potential mountain plover habitat across the CBM area using a predictive habitat model. Over the next 5 years, information will be refined by field validation using most current Service mountain plover survey guidelines (U.S. Fish and Wildlife Service 2002c) to determine the presence/absence of potentially suitable mountain plover habitat. In areas of suitable mountain plover habitat, surveys will be conducted prior to ground disturbance activities by the BLM or a BLM-approved

Operator biologist using the Service protocol at a specific project area plus a 0.5 mile buffer. Efforts will be made to identify mountain plover nesting areas that are not subject to CBM development to be used as reference sites. Comparisons will be made of the trends in mountain plover nesting occupancy between these reference areas and areas experiencing CBM development.

12. The BLM shall monitor all loss of mountain plover habitat associated with all portions of this action (operators will indicate the presence of prairie dog towns or other mountain plover habitat indicators on their application). Suitable mountain plover habitat has previously been defined under 'critical habitat' for the mountain plover. The actual measurement of disturbed habitat can be the responsibility of the BLM, their agent (consultant, contractor, etc.) with a written summary provided to the Service's Montana Field Office upon project completion, or immediately if the anticipated impact area is exceeded.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. The BLM must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Coordination of Incidental Take Statements with Other Laws, Regulations, and Policies

The Fish and Wildlife Service will not refer the incidental take of mountain plovers or bald eagles for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d), if such take is in compliance with the terms and conditions specified herein.

Please be aware that if take of a bald eagle or mountain plover may occur or nest manipulation is proposed for this project, then either a permit from the Service's Migratory Bird Office in Denver or incidental take coverage is necessary. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur. Incidental take coverage for the mountain plover does not occur until the mountain plover is listed as a threatened species. The mountain plover is currently protected by the Migratory Bird Treaty Act. Therefore, take of this migratory bird is prohibited, the issuance of this conference opinion notwithstanding.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to

minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Develop programmatic standards and guidelines to be incorporated into Land Use Plan amendments or revisions for all future actions. Conservation measures should apply to operations and maintenance activities.

2. All existing power lines and other transmission lines within the foraging areas of bald eagles and mountain plovers using the project area and surrounding habitat should be reconstructed to the standards of the Avian Power Line Interaction Committee (1994, 1996), if they do not already meet those standards. Incorporate additional standards to minimize migratory bird mortalities into the Terms and Conditions for all APD's and stipulations for Right-Of-Way applications.

3. Removing carrion from or near roads as soon as possible would minimize the possibility of vehicular collision with bald eagles foraging on or near roads and to avoid attracting avian and mammalian predators of mountain plover. Road-killed animals (excluding migratory birds) should be promptly removed from areas within ½-mile of identified mountain plover nesting areas. In the event that area employees are scheduled by shifts, if possible, work schedules and shift changes should be set to avoid the periods from ½-hour before to ½-hour after sunrise and sunset during June and July, when mountain plovers and other wildlife are most active. The BLM should work cooperatively with industry, county officials and local ranchers to minimize any mortality associated with vehicular traffic.

4. Cottonwood regeneration should be encouraged within the project area through reduction, modification and/or removal of domestic grazing, recreational use, or mineral extraction, if those activities are identified as being a cause of lack of regeneration.

5. Surveys of the entire project area should be conducted for mountain plovers (both nesting and brood rearing activities) to provide an estimate of population numbers in the area, availability of suitable habitat, and impacts of coal bed methane development on this species.

6. Research to better understand the effects of oil and gas development on breeding mountain plovers should be conducted. The focus of research should be to measure recruitment to the fall population, philopatry, and site fidelity between developed and undeveloped mountain plover breeding concentration areas on or near the project area. This effort would require close monitoring of a large sample of breeding adults, and possibly color-marking or radio-marking adults and juveniles.

7. Mountain plover display high site fidelity and their long-term absence from an area may preclude natural re-occupation of suitable habitat. If long term monitoring does not document any significant numbers of mountain plover in suitable habitat in the project area, translocate young mountain plover to unoccupied habitat to attempt re-establishment of local populations. Monitor marked birds to determine success of translocation.

8. Re-establish prairie dog colonies in reclaimed or suitable habitat for nesting mountain plovers by translocating prairie dogs from occupied colonies within the area.

9. Utilize remote monitoring technology to reduce site visits to well pads and ancillary facilities thereby, reducing wildlife disturbances and mortalities.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation and conferencing on the actions outlined in the April 10, 2002 Revised Biological Assessment regarding Coal Bed Methane Production in Blaine, Gallatin, Park, Carter, Powder River, Custer, Rosebud, Treasure, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Musselshell, Yellowstone, and Big Horn Counties, Montana. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the mountain plover is listed. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the mountain plover as endangered or threatened and any subsequent adoption of this conference opinion, the BLM shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect the species or critical habitat in a manner or to an extent not considered in this conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the species or critical habitat that was not considered in this conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

The portion of the incidental take statement addressing the mountain plover provided in this

conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the mountain plover has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the mountain plover may occur between the listing of the mountain plover and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

Thank you for your assistance in the conservation of endangered, threatened, and proposed species. If you have any questions or comments regarding this biological opinion, please contact Mr. Lou Hanebury, of my staff, at (406)247-7367.

R. Mark Wilson
Field Supervisor

September 4, 2002
Date

Copies to: Director, MDFWP, Helena, MT.
Regional Supervisor, MDFWP, R-5, Billings, MT.
Regional Supervisor, MDFWP, R-7, Miles City, MT.
State Director, BLM, Billings, MT.
Forest Supervisor, Custer National Forest, Billings, MT.
Chief, Land and Minerals, BIA, Billings, MT.
Resident Agent In Charge, FWS, Billings, MT.
Field Supervisor, FWS, Cheyenne, WY.
Billings Suboffice, FWS-ES

for prairie dog ecosystem recovery, "*including the needs of associated species*." Preferred and Potential suitable habitat categories were developed, and when tested, 94.5% known prairie dog pixels fell within the preferred and potential habitat categories (Proctor 1998). The three categories that identified suitable habitat for black-tailed prairie dogs were the preferred (favored vegetation and favored slope), potential (favored slope, less favored vegetation) and potential (favored vegetation and less favored slope). Favored vegetation can be described as very low cover grassland, salt-desert shrub, dry salt-flats, and mixed barren sites. Favored slope has a 0-4% slope and less favored slope ranges 4-25% slope (Proctor 1998). Mountain plover nests occur on ground with less than 5 percent slope, which is commonly heavily grazed by domestic livestock and/or prairie dogs (Graul 1973, Kantrud and Kologiski 1982, Knowles and Knowles 1998). Because mountain plover unsuitability increases as slope increases over 5%, the black-tailed prairie dog preferred habitat category and potential habitat category with favored slope will, for the purposes of this biological opinion, define suitable habitat for the mountain plover in Montana. The most preferred and valuable suitable habitat is the suitable habitat in this definition that is occupied by black-tailed prairie dogs. Habitat loss is defined as the permanent or temporary alteration of habitat in such a way as to displace a species into unsuitable areas or impair/disrupt or prevent normal behavioral patterns such as breeding, feeding or sheltering. For purposes of quantification of habitat loss, suitable mountain plover habitat will be rendered unsuitable or considered a loss of habitat within 1/4 mile of any long term disturbance, roads, above-ground structures, wells, compressor stations, pipeline and utility corridors.

The preferred habitat for mountain plover occurs in the statewide planning area in the following counties (acres): Treasure (43 acres), Rosebud (147,671 acres), Powder River (166,425 acres), Wheatland (1,448 acres), GoldenValley (1,007 acres), Musselshell (93,015 acres), Sweet Grass (2,965 acres), Stillwater (4,571 acres), Yellowstone (52,855 acres), Big Horn (8,399 acres), Carbon (65,269 acres), Blaine (276,860 acres), Park (4,204 acres), Gallatin (17,151 acres), Carter (444,656 acres), and Custer (233,128 acres) counties. The BLM analysis area excludes suitable mountain plover suitable habitat acreage from Blaine, Gallatin, and Park counties.

We have good estimates of suitable habitat within the analysis area from Proctor (1999). Dinsmore (2001) derived mountain plover population estimates within his study area in south Phillips County and produced an estimate for Blaine and Phillips Counties, Montana (U.S. Fish and Wildlife Service 2002a). Using the same suitable habitat categories from Proctor (1999) in Blaine and Phillips Counties and Dinsmore's population estimates, we can derive the number of plovers per suitable habitat acre. Based on this data, we estimate that there are 710 individuals or 355 pairs of mountain plovers in the federal mineral estate in the project area (0.0005817 mountain plover/acre x 1,221,448 acres of suitable habitat).

Mountain plovers average 2.9 eggs/nest (Knopf 1996) and approximately 90% of all pairs raise 2 nests per pair of mountain plovers with a weighted nest success of 42% (Dinsmore et al. In Press). In Montana, mountain plovers have a fledgling success of approximately 40% (Dinsmore 2001). The mean life span of a mountain plover in Phillips County was 1.25 years (Knopf, U.S. Geological Survey, pers. comm. 2002). Thus, each adult must produce 0.8 chicks per year to replace itself. If each adult must produce 0.8 chicks/year to maintain population, then, 568.4 mountain plover chicks must be recruited in the analysis area each year in order to maintain

itself. Based on our population estimate for the analysis area, and previous productivity and success estimates from Montana, only 328.6 chicks would be produced each year in the analysis area. Therefore, this population is likely in decline.

In adjacent areas in Wyoming, the BLM contracted with the Wyoming Natural Diversity Database and Western EcoSystems Technology Inc. to conduct presence/absence surveys for mountain plover in the Powder River Basin during the spring of 2001. A combined total of seven mountain plovers were observed within the Powder River Basin analysis area (Keinath and Ehle, 2001, Good, Young and Eddy, 2002). However, both reports (Keinath and Ehle, 2001) and (Good, Young and Eddy, 2002) qualify their results by noting that due to private landowner considerations survey routes were limited to public roads. Because much of the Powder River Basin in Wyoming is privately owned, areas of suitable habitat were inaccessible and not surveyed. Therefore, the results of these surveys likely underestimate the extent of use of suitable habitat within the Powder River Basin.

Grazing is an important land use in the project area and appears to be compatible, and probably beneficial, to the plover. Coal mining has been an influence in the basin in both Montana and Wyoming. Conventional oil and gas development continues to occur in the Powder River Basin in both Montana and Wyoming. Drilling for coal bed methane in the Powder River Basin in Wyoming began in 1985. As of May 29, 2002, 13,306 coal bed methane wells have been drilled with roughly 9000 wells in production (U.S. Fish and Wildlife Service 2002b).

EFFECTS OF THE ACTION

Listed Species/Critical Habitat:

Bald Eagle

Bald eagles may be affected by the project in several ways, including human disturbance, equipment noise, electrocution, collision with power lines and construction of new roads (collision with vehicles).

Bald eagles are sensitive to a variety of recreational, research, resource and urban development activities. *The Montana Bald Eagle Management Plan* (MBEWG 1994) defined disturbance, to be "any human elicited response that induces a behavioral or physiological change in a bald eagle contradictory to those that facilitate survival and reproduction. Disturbance may include elevated heart or respiratory rate, flushing from a perch or events that cause a bald eagle to avoid an area or nest site." The Service predicts that there will be some disturbance to nesting bald eagles in the project area, but due to stipulations, no productivity should be lost.

The BLM in the revised biological assessment stated that bald eagles are sensitive to human presence. Disturbance to foraging, resting, roosting, or migrating eagles is possible through surface use in other areas not addressed by stipulations. Assumptions listed in the introduction of the Wildlife section (Chapter 4 Wildlife), in the Powder River and Billings Amendment to the RMPs and EIS, including no surface use or occupancy within ½ mile of nests active in the last 7

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