

**2002 WILDLIFE STUDIES
JONAH FIELD II
NATURAL GAS DEVELOPMENT PROJECT**

Prepared for

**U.S. Bureau of Land Management
Pinedale Field Office
Pinedale, Wyoming**

and

Jonah Field II Operators

By

**TRC Mariah Associates Inc.
Laramie, Wyoming
MAI Project 35395**

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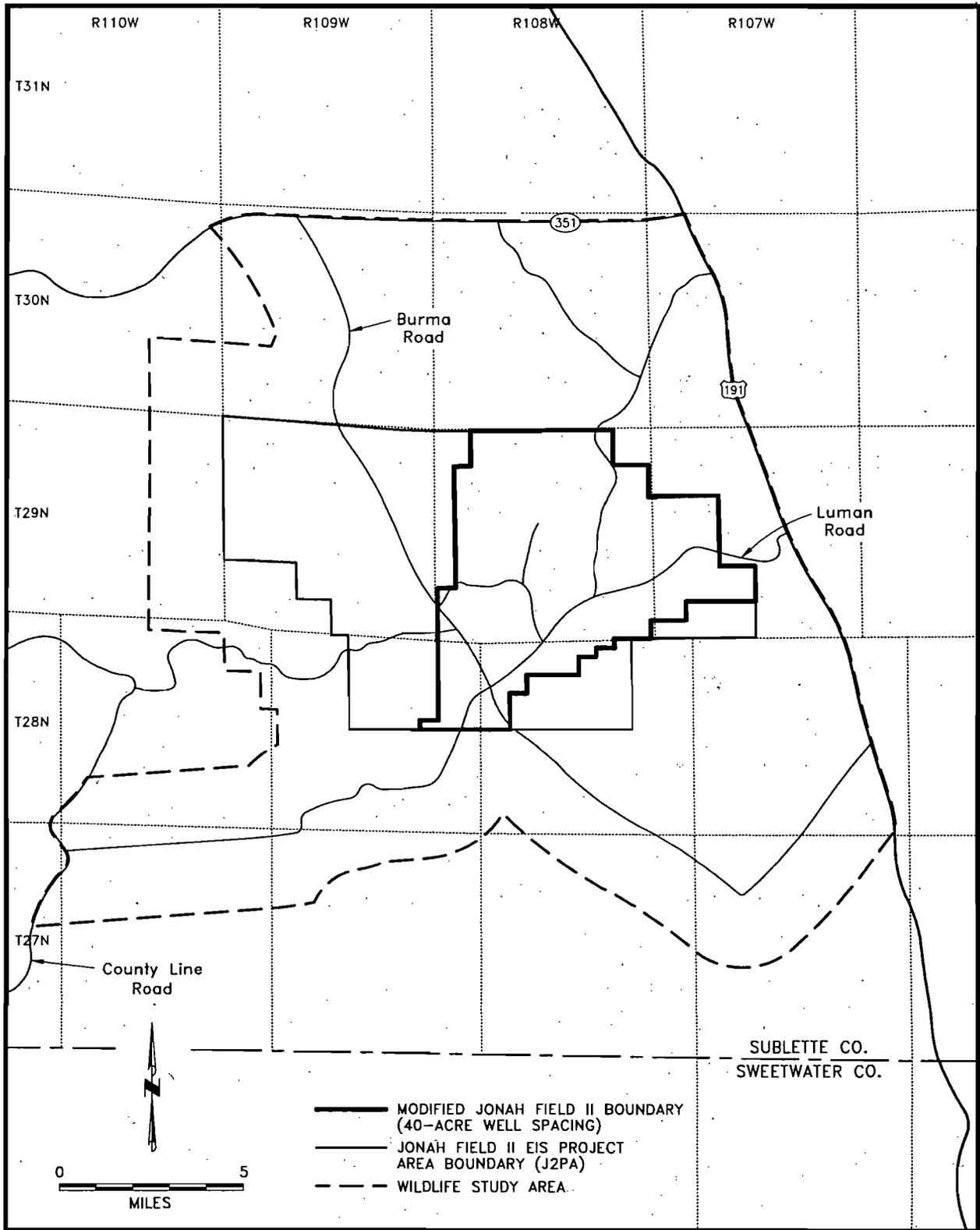
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1.0 INTRODUCTION

This report was prepared by TRC Mariah Associates Inc. (TRC Mariah) for EnCana Oil & Gas Inc., BP America, and other natural gas operators (collectively referred to herein as the Operators), in compliance with the Bureau of Land Management (BLM) Record of Decision (ROD) for the Jonah Field II natural gas project (Appendix D in BLM 1998a) and the Decision Record (DR) for the Modified Jonah Field II project (BLM 2000a). The goals of the ROD Wildlife Monitoring/Protection Plan (WMPP) and subsequent modifications made in the DR are to monitor wildlife population trends on and adjacent to the Jonah Field II project area (J2PA) and Modified Jonah Field II project area (MJ2PA) during the course of project development and operations and to recommend measures to avoid and/or minimize adverse impacts to wildlife present in project-affected areas. Implementation of the plan, as presented in this report, provides land managers and project personnel opportunities to achieve and maintain wildlife productivity and populations in the project area by minimizing and/or avoiding potential adverse impacts to wildlife associated with project development. Wildlife monitoring was initiated in 1997 and continued through 2002.

This report presents the methods and results of 2002 wildlife studies, as well as selected summary data from past monitoring studies conducted within the Jonah wildlife study area (WSA), which includes the MJ2PA, J2PA, and adjacent areas (Map 1.1 and Appendix A). Wildlife data collected from 1997 through 2001 are presented in TRC Mariah (1999, 2001a, 2001b). Observational data presented in this report were primarily collected by BLM, TRC Mariah, and Wyoming Game and Fish Department (WGFD) personnel and were supplemented by U.S. Fish and Wildlife Service (USFWS), University of Wyoming Cooperative Wildlife Unit (COOP), Operator, and Wyoming Wildlife Consultants personnel. Trends across years are noted, where possible. Potential wildlife disturbance sources are identified, and monitoring and protection measures proposed for 2003 are presented. Monitoring and protection measures are consistent with those required in the original ROD (BLM 1998a) and the DR and environmental assessment (EA) for the Modified Jonah Field II project (BLM 2000a and 2000b) and include additional BLM- and/or Operator-requested measures.



Map 1.1 Wildlife Study Area, Jonah Field II Project, 2002.

2.0 METHODS

Inventory and monitoring protocols are identified below for each wildlife species/category. The wildlife species/categories for which specific inventory and monitoring procedures were applied were developed based on management agency (i.e., BLM, USFWS, WGFD) and individual concerns identified during the preparation of the environmental impact statement for the Jonah Field II project (BLM 1997, 1998b) and the EA for the Modified Jonah Field II Project (BLM 2000b). Specific inventory and monitoring techniques generally follow the methods presented in the WMPP for this project (Appendix D in BLM 1998a,) and additional methods identified in BLM (2000b).

2.1 RAPTORS

From 1997 through 2002, raptor nest surveys of the WSA were conducted by helicopter (1997 and 1998) or on the ground (1999 through 2003) to determine the location and activity status of raptor nests in the area (TRC Mariah 1999, 2001a, 2001b). On April 10 and 12 and May 9-10, 12-13, and 24, 2002, raptor nest activity status surveys were conducted by Diane Thomas and Randall Blake of TRC Mariah on the ground using four-wheel-drive vehicles and pedestrian reconnaissance. All known nests were visited at least once during these surveys.

On June 25 and 26, 2002, raptor nest productivity surveys were conducted by Diane Thomas, TRC Mariah, using a four-wheel-drive vehicle and/or pedestrian reconnaissance. All active nest locations within 1.0 mi of existing or proposed development areas (see Appendix A) were visited, as well as any other active nests for which productivity data were easily obtained in the course of other scheduled monitoring. In the case of nest failure or abandonment, attempts were made to identify causative factors. All raptor activity/productivity surveys were conducted using procedures that minimize potential adverse effects to nesting raptors as identified in the ROD (Appendix D in BLM 1998a). Specifically, the following measures were taken to protect raptors nesting or potentially nesting in the area (Call 1978; Grier and Fyfe 1987).

- Nest visits were conducted as late in the season as possible to collect necessary data without undue disturbance to pairs establishing territories/nests.
- Nests were approached with caution, and the status (i.e., activity, number of nestlings/fledglings) was determined from a distance with binoculars and/or spotting scope.
- Nests were approached, if necessary, tangentially and in an obvious manner so as to avoid startling adults or fledglings.
- Nests were not approached during adverse weather conditions (i.e., extremely hot or cold weather, high winds, precipitation events).
- Visits were kept as brief as possible to avoid or minimize disturbance to nesting birds.
- Inventories were coordinated with biologists in the BLM Pinedale Field Office.
- The number of visits to each nest was kept to a minimum to avoid repeated disturbance to nesting birds.
- All raptor nest location data were provided to the BLM Pinedale Field Office and kept confidential. The data are available for interested parties only as deemed appropriate by the BLM.

In 2002, photos were taken of nests that had not been previously photographed. In addition, some nests for which photos were available were rephotographed to provide better documentation of the nest and its location. Global positioning system (GPS) locations also were obtained or refined for most of the known nests in the WSA. All data collected during raptor activity and productivity surveys (including GPS data and nest photographs) were recorded on maps, Raptor Observation Data Sheets and/or Raptor Nesting Records (see Appendix A [Wildlife Map], Appendix B [Raptor Observation Data Sheets], and Appendix C [Raptor Nesting Records]).

Additional monitoring of some nests within the overlap of the Jonah Field II and Anticline WSAs may have been conducted by Mr. John Dahlke, Wyoming Wildlife Consultants, Pinedale, Wyoming (TRC Mariah In progress). These data were not available at the time this report was

prepared; however, these data will be presented in the 2002 Anticline wildlife studies report, scheduled for release in early 2003. All necessary data for determining activity and productivity of nests within the Jonah WSA were gathered by TRC Mariah personnel and are presented herein.

Because common ravens often use nests previously used by raptors and vice versa, documentation of known raven nests was initiated in 2001. Raven nests were recorded on the same data forms as raptor nests (see Appendices B and C); however, only raven nests observed during the course of scheduled monitoring were recorded. No effort was made to document all raven nests in the WSA.

Nesting territory boundaries are difficult to determine, particularly if nesting activity in an area is inconsistent or if the number of years of nesting data available is limited. In past years, the boundary of each ferruginous hawk nesting territory was approximated based on the location of known nests in the area. In 2002, several ferruginous hawk territory boundaries were amended based on the location of new nests and associated topographic characteristics (see Appendix A, Wildlife Map). These territory boundaries, while helpful from a management point of view (i.e., to determine current and historical occupancy of an area and to assist in locating potential sites for artificial nest structures [ANSs]), may not reflect the actual ferruginous hawk nesting territories in the Jonah WSA. No attempts were made to determine the general foraging territories for nesting pairs.

Pursuant to the 1999-2000 wildlife annual report (TRC Mariah 2001a), two ANSs (i.e., FH126 and FH128) were erected in the vicinity of ferruginous hawk territory 6 (see Appendix A, Wildlife Map) on September 18, 2001. Observations of these ANSs in 2002 indicated that birds had not built on the platforms, and the nest material placed on them during construction had fallen to the ground or blown away. During the 2002 raptor productivity surveys, new nest material was gathered and attached to the wire base of the ANS structures to provide a more natural-looking nest site and to increase the likelihood that the structure will be used by birds in future years.

2.2 GREATER SAGE-GROUSE

Monitoring of greater sage-grouse leks was conducted in 2002 to determine the extent of grouse breeding activities in the WSA and to record any newly discovered leks. The locations of known leks are provided on the Wildlife Map, Appendix A. Surveys were conducted by WGFD, BLM, and COOP personnel and included one aerial flight of portions of the WSA to identify lek locations and several ground surveys to determine the extent of lek use. Data on lek attendance and location and survey dates, weather conditions, and other notes are provided on Greater Sage-Grouse Lek Records (see Appendix D).

No investigations were conducted at leks 2, 5-7, 11, 15, 20-21, and 24, and leks 12, 14, and 22 were not located during on-site investigations. In the 1999-2000 Jonah Field II annual report (TRC Mariah 2001a), it was recommended that monitoring of leks 5, 6, 8, 11, 12, 13, 14, and 15 be discontinued because of the apparent lack of use in the past several years; however, leks 8 and 12-14 were visited at least once during the 2002 season. Leks 2, 7, 20-21, and 24 were not monitored, although it has not been recommended that monitoring of these leks be discontinued.

Lek 16 was briefly monitored on a single morning by Jim Dunder of the BLM Rock Springs Field Office, who indicated that in the past several years, birds from this lek may have relocated to the Mud Hole State lek approximately 3-4 mi east-southeast (NW of Section 20, T29N, R106W). The Mud Hole State lek was monitored in 2000 and 2001, with the peak number of males recorded 151 and 139, respectively (personal communication, November 22, with Jim Dunder, BLM Rock Springs Office).

Although recommended in previous annual reports (TRC Mariah 1999, 2001a, 2001b), no surveys for greater sage-grouse winter use of the J2PA and surrounding areas were conducted by the BLM in 2002 (personal communication, November 2002, with John Westbrook, BLM, Pinedale, Wyoming).

2.3 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND OTHER BLM WYOMING SPECIES OF CONCERN

Inventory and monitoring of threatened, endangered, proposed, candidate, and other BLM Wyoming species of concern (TEPC&WSC) were conducted in conjunction with surveys for raptors and greater sage-grouse and during prairie dog town mapping and mountain plover nesting surveys. Federally listed or proposed species are described below, and a current list (September 2002) of BLM Wyoming species of concern for the WSA is provided in Table 2.1. Additional species-specific surveys were implemented by the BLM in conjunction with on-site investigations conducted as components of Application for Permit to Drill (APD) and/or right-of-way (ROW) application processes, as deemed necessary by the BLM and in compliance with the biological assessment for the project (Appendix E in BLM 1997). Data collection methods and results/clearances for TEPC&WSC species associated with APD and ROW application reviews are not included in this report but are available from the BLM Pinedale Field Office in Pinedale, Wyoming.

2.3.1 Black-footed Ferret

During 2002, TRC Mariah personnel remapped and censused prairie dog town (PDT) 9 (see Appendix A [Wildlife Map]) to determine overall burrow density, define areas of high burrow density within the town, more accurately define the town's current size and location, and determine whether the town meets the black-footed ferret habitat criteria of ≥ 8.0 burrows per acre established in the USFWS (1989) guidelines. All open burrows with a diameter ≥ 7 cm were censused and their location marked with a GPS. Counted burrows were physically marked (i.e., with a footprint or scuff mark) to avoid duplication. In the field, the edge of the town was determined to be the point at which no burrows were observed within approximately 0.25 mi of an outlying burrow. In the office, town boundaries were further refined using geographic information system (GIS) data such that burrows along the edge of the town were within at least 200 m of other burrow(s). As a result of the remapping effort, PDT 9 was split into two towns, PDT 9a and PDT 9b, and areas with high burrow density were defined using GIS (see Appendix A [Wildlife Map]).

Table 2.1 BLM Wyoming Animal Species of Concern Documented or Potentially Occurring on or in the Vicinity of the Jonah Field II Natural Gas Project Area, 2002.¹

Species		Other Designation and Ranking ²	Documented on or in Vicinity of the J2PA? ³	Habitat Type(s) ⁴
Common Name	Scientific Name			
Long-eared myotis	<i>Myotis evotis</i>	G5/S1B, S1?N, NSS2	Yes	FT
Whitetail prairie dog	<i>Cynomys leucurus</i>	G4/S2S3, NSS3 (Petitioned 7/11/2002)	Yes ⁵	UB
Idaho pocket gopher	<i>Thomomys idahoensis</i>	G4/S2?, NSS3, IUCN-LR (nt)	Yes ⁵	BS, P/R
Pygmy rabbit	<i>Brachylagus idahoensis</i>	G4/S2, NSS3, IUCN-LR (nt)	Yes ⁶	BS, P/R
White-faced ibis	<i>Plegadis chihi</i>	G5/S1B, SZN, FSR2, NSS3	Yes ⁵	FT, P/R
Trumpeter swan	<i>Cygnus buccinator</i>	G4/S1B, S2N, FSR2, FSR4, NSS2	Yes	FT
Northern goshawk	<i>Accipiter gentilis</i>	G5/S23B, S4N, FSR2, FSR4, NSS4	Yes ⁵	FT
Ferruginous hawk	<i>Buteo regalis</i>	G4/S3B, S3N, FSR2, NSS3	Yes ⁵	UB
Peregrine falcon	<i>Falco peregrinus</i>	G4/T3/S1B, S2N, FSR2, NSS3 (Removed from federal endangered list 8/25/1999)	Yes ⁵	FT
Greater sage-grouse	<i>Centrocercus urophasianus</i>	G5/S3 (Petitioned 6/8/2002)	Yes ⁵	UB
Long-billed curlew	<i>Numenius americanus</i>	G5/S3B, SZN, FSR2, NSS3	Yes ⁵	P/R, FT
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	G5/S2B, SZN, FSR2, NSS2, (Petitioned 7/25/2001)	No	FT
Burrowing owl	<i>Athene cunicularia</i>	G4/S3B, SZN, FSR2, NSS4	Yes ⁵	BS, SB, CP
Sage thrasher	<i>Oreoscoptes montanus</i>	G5/S3B, SZN, PIF Priority	Yes ⁵	UB
Loggerhead shrike	<i>Lanius ludovicianus</i>	G5/S4B, SZN, FSR2	Yes ⁵	UB
Brewers sparrow	<i>Spizella breweri</i>	G5/S3B, SZN, PIF Priority	Yes ⁵	UB
Sage sparrow	<i>Amphispiza billineata</i>	G5/S3B, SZN, PIF Priority	Yes ⁵	UB
Northern leopard frog	<i>Rana pipiens</i>	G5/S3, FSR2, NSS4	Yes	P/R
Boreal toad (northern Rocky Mountain population)	<i>Bufo boreas boreas</i>	G4T4/S2, FSR2, FSR4, NSS2	Yes	P/R
Spotted frog	<i>Rana pretiosa</i>	G4/S2S3, FSR2, FSR4, NSS4	Yes	P/R

¹ From Wyoming BLM State Director's Sensitive Species List (Animals and Plants), September 20, 2002.

² Rankings:

Wyoming Natural Heritage Program

Uses a standardized system developed by The Nature Conservancy's Natural Heritage Network to assess the global and state-wide conservation status of each plant and animal species, subspecies, and variety. Each taxon is ranked on a scale of 1-5, from highest conservation concern to lowest. Codes are as follows:

G = Global rank: rank refers to the range wide status of a species.

T = Trinomial rank: rank refers to the range wide status of a subspecies or variety.

S = State rank: rank refers to the status of the taxon (species or subspecies) in Wyoming. State ranks differ from state to state.

ZN = Taxa that are not of significant concern in Wyoming during non-breeding seasons.

1 = Critically imperiled because of extreme rarity (often known from five or fewer extant occurrences or very few remaining individuals) or because some factor of a species' life history makes it vulnerable to extinction.

Table 2.1 (Continued)

- 2 = Imperiled because of rarity (often known from 6-20 occurrences) or because of factors demonstrably making a species vulnerable to extinction.
- 3 = Rare, or local, throughout its range or found locally in a restricted range (usually from 21-100 occurrences).
- 4 = Apparently secure, although the species may be quite rare in parts of its range, especially at the periphery.
- 5 = Demonstrably secure, although the species may be rare in parts of its range, especially at the periphery.
- B = Breeding rank: a state-rank modifier indicating the status of a migratory species during the breeding season (used mostly for migratory birds and bats).
- N = Nonbreeding rank: a state-rank modifier indicating the status of a migratory species during the nonbreeding season (used mostly for migratory birds and bats) ZN or ZB. Taxa that are not of significant concern in Wyoming during breeding (ZB) or non-breeding (ZN) seasons. Such taxa often are not encountered in the same locations from year to year.
- ? = Questions exist regarding the assigned G, T, or S rank of a taxon.

U.S. Forest Service

- FSR2 = Region 2, Rocky Mountain Region.
- FSR4 = Region 4, Intermountain Region.

Wyoming Game and Fish Department

The Wyoming Game and Fish Department has developed a matrix of habitat and population variables to determine the conservation priority of all native, breeding bird and mammal species in the state. Six classes of native status species (NSS) are recognized, of which classes 1, 2, and 3 are considered to be high priorities for conservation attention.

These classes can be defined as follows:

- NSS1 = Includes species with on-going significant loss of habitat and with populations that are greatly restricted or declining (extirpation appears possible).
- NSS2 = Species in which (1) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are greatly restricted or declining; or (2) species with on-going significant loss of habitat and populations that are declining or restricted in numbers and distribution (but extirpation is not imminent).
- NSS3 = Species in which (1) habitat is not restricted, but populations are greatly restricted or declining (extirpation appears possible); or (2) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are declining or restricted in numbers or distribution (but extirpation is not imminent); or (3) significant habitat loss is on-going but the species is widely distributed and population trends are thought to be stable.
- NSS4 = *EITHER* Populations are either declining or restricted in number or distribution. Extirpation is not imminent. Habitat is not restricted but is vulnerable; however, no known significant loss has occurred. Species is not sensitive to human disturbance. *OR* Species is widely distributed. Population status and trends are unknown but suspected to be stable. Habitat is restricted or vulnerable, but no recent or ongoing significant loss has occurred. Species may be sensitive to human disturbance.

IUCN - International Union for Conservation of Nature Rodent Specialist Group, North American Red List

- LR = Lower Risk. A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered, or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:
- nt = Near Threatened. Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

Partners in Flight (PIF)

A coalition of federal, state, and provincial agencies, private groups, corporations, and individuals dedicated to neotropical migratory bird conservation.

- ³ Indicates documentation of amphibian, reptile, or bird species in Sublette County (Baxter and Stone 1980; Fertig 1997; WGFD 1999); documentation of bird species within latitude 42°, longitude 109° (Dorn and Dorn 1999; WGFD 1996, 1999); and/or documentation of mammal species within latitude 42°, longitude 109° (WGFD 1992, 1996, 1999) or within Sublette County (Fertig 1997).
- ⁴ BS = big sagebrush, CP = cushion plant, FT = fly through, P/R = pond/riparian, SB = saltbush, UB = ubiquitous.
- ⁵ Species has been documented breeding within latitude 42°, longitude 109° (Dorn and Dorn 1999; WGFD 1999).
- ⁶ Species occurred historically within latitude 42°, longitude 109° (WGFD 1999).

2.3.2 Bald Eagle, Ferruginous Hawk, and Golden Eagle

Inventory and monitoring protocols for bald eagle, ferruginous hawk, and golden eagle were implemented as described for raptors (see Section 2.1).

2.3.3 Mountain Plover

During 2002, all suitable mountain plover breeding habitat (i.e., active prairie dog colonies and/or relatively flat areas with low-growing vegetation less than 4-6 inches in height indicative of cushion plant and Gardner's saltbush communities) within the MJ2PA and a 0.5-mi buffer was surveyed three times to determine the presence or absence of breeding mountain plover.

Surveys were conducted in accordance with 2002 USFWS guidelines (USFWS 2002). Survey procedures were as follows.

- Surveys were conducted during early courtship and territory establishment.
- Surveys were conducted from sunrise to 10:00 a.m. and/or from 5:30 p.m. to sunset.
- Surveys were conducted from four-wheel-drive vehicles or, where access was problematic and/or no visual observations were made from vehicles, all-terrain vehicles were used.
- Surveyors remained in or close to vehicles when scanning with binoculars.
- Suitable habitat was surveyed three times during the survey window (May 1- June 15), with each survey separated by at least 14 days.
- Surveys were not conducted in inclement weather (e.g., poor visibility).
- Surveys focused on locating displaying or calling males.
- GPS locations of nests (post-nesting) and individuals, if present, were taken, and activity, number of individuals, and other pertinent data were recorded.

All data collected during surveys, including location, weather conditions, habitat characteristics, and results, were recorded on Mountain Plover Survey Forms (Appendix E).

Two newly defined areas of mountain plover habitat were surveyed in 2002. One area [REDACTED] [REDACTED] was mapped with GPS; the second area [REDACTED] [REDACTED] was surveyed but was not mapped with GPS in 2002. In addition, per a request by John Westbrook, biologist for the BLM Pinedale Field Office, mountain plover habitat in the vicinity of PDT 5 was monitored during a single visit and the extent of suitable mountain plover habitat was mapped with GPS. The area was not visited a second and third time because it is outside of the MJ2PA and associated 0.5-mi buffer.

Additional surveys within 0.25 mi of proposed well locations or 300 ft of proposed roads may have been investigated/cleared by the BLM prior to disturbance in association with APD and ROW application field reviews. Data from these investigations are available for review at the BLM Pinedale Field Office in Pinedale, Wyoming.

2.3.4 Western Burrowing Owl

Prairie dog colonies and other suitable burrowing owl nesting habitats on the MJ2PA were searched during late spring and summer 2002 by TRC Mariah personnel to determine the extent of burrowing owl nesting. Specifically, burrowing owl nesting surveys were conducted in association with mapping of PDT 9, mountain plover nesting surveys, and raptor nesting activity and productivity monitoring. Additional monitoring of some nests within the overlap of the Jonah and Anticline WSAs may have been conducted by Mr. John Dahlke, Wyoming Wildlife Consultants (TRC Mariah In progress); however, those data were not available at the time this report was prepared. The number and location of active nests in the area were identified and efforts were made to determine fledgling success for active nests.

2.3.5 Other TEPC&WSC Species

Formal surveys for other TEPC&WSC were not conducted during 2002. However, site-specific investigations were implemented by the BLM in areas of potential habitat within 0.5 mi of proposed disturbance sites during on-site reviews conducted in conjunction with APD and ROW

application review processes. This information is available for review at the BLM Pinedale Field Office.

2.4 GENERAL WILDLIFE

Observations of general wildlife were recorded during species-specific investigations, and data are presented in Appendix B (General Wildlife Observation Data Sheets). Additional observations were made by BLM personnel during on-site investigations conducted during APD and ROW application review processes, and this information may be reviewed at the BLM Pinedale Field Office.

No formal surveys for pronghorn antelope or other species/wildlife categories were conducted during 2002.

3.0 RESULTS AND PROPOSED MONITORING/PROTECTION MEASURES

With the completion of the 2002 monitoring and final report, the Operators have completed 5 years of wildlife monitoring in compliance with the BLM ROD for the Jonah Field II natural gas project (Appendix D in BLM 1998a) and the Decision Record (DR) for the Modified Jonah Field II project (BLM 2000a). Given that ongoing operations continue in the MJ2PA, the Operators have voluntarily committed to a continuation of annual wildlife monitoring in 2003, with an annual report provided to the Pinedale BLM field office by January 1, 2004.

The following chapter presents the results of 2002 wildlife investigations on the WSA. Proposed monitoring/protection measures for 2003 are also identified and would be implemented by the BLM, WGFD, and/or an Operator-financed BLM-approved wildlife biologist.

The proposed wildlife protection measures were developed specifically for potentially impacted wildlife resources on and adjacent to the MJ2PA and J2PA. The principal protection measure proposed for most wildlife species is avoidance of sensitive/crucial habitats (e.g., raptor nests, greater sage-grouse leks), where practical. However, numerous other species-specific measures have been identified.

3.1 RAPTORS

3.1.1 Results

Table 3.1 provides information on the location, recent history, and activity status of known raptor/raven nests on the WSA. For the purposes of development planning, an active nest is defined as one which has been used by raptors (not ravens) in at least one of the past 3 years. An "unknown" activity status is assigned to nests for which a complete history of use over the past 3 years is not available (i.e., the nest was not checked or not located in one or more of the

Table 3.1 Raptor Nest Locations and Activity Status, 2002, Jonah Field II Wildlife Study Area.

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
AK16	A ⁶	a ⁶	I	I	2002	[REDACTED]	[REDACTED]
AK17	A ⁶	a ⁶	I	I	2002	[REDACTED]	[REDACTED]
AK18	A	a	I	I	2002	[REDACTED]	[REDACTED]
AK30	A	I	I	a	2000	[REDACTED]	[REDACTED]
AK39	A	a	I	I	2002	[REDACTED]	[REDACTED]
AK50 ^{8,9}	A	I	A	I	2001	[REDACTED]	[REDACTED]
AK52	A	a	I	I	2002	[REDACTED]	[REDACTED]
AK80	I	I	I	I	U	[REDACTED]	[REDACTED]
AK88	A	a	a	a	2002	[REDACTED]	[REDACTED]
AK92	U	I	U	U	U	[REDACTED]	[REDACTED]
AK97	U	I	I	U	U	[REDACTED]	[REDACTED]
AK142	A ⁶	a ⁶	NR	NR	2002	[REDACTED]	[REDACTED]
AK143	A ⁶	a ⁶	NR	NR	2002	[REDACTED]	[REDACTED]
BO19	I	I	I	I	1997 ¹⁰	[REDACTED]	[REDACTED]
BO23	I	I	I	I	1997 ¹⁰	[REDACTED]	[REDACTED]
BO76	I	I	I	I	1998 ¹⁰	[REDACTED]	[REDACTED]
BO77	A	I	I	A	2000	[REDACTED]	[REDACTED]
BO86	A	A	A	A	2002	[REDACTED]	[REDACTED]
BO117	A	I	A	NR	2001	[REDACTED]	[REDACTED]
BO124	A	I	a	NR	2001	[REDACTED]	[REDACTED]
BO136	A	a	NR	NR	2002	[REDACTED]	[REDACTED]
BO140	A	a	NR	NR	2002	[REDACTED]	[REDACTED]

Table 3.1. (Continued)

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
CR105	A-R	I	A	NR	2001	[REDACTED]	[REDACTED]
CR106	A-R	I	A	NR	2001	[REDACTED]	[REDACTED]
CR107	A-R	NC	A	NR	2001 ¹⁰	[REDACTED]	[REDACTED]
CR108 (2 nests)	A-R	A	A	A	2002	[REDACTED]	[REDACTED]
CR116	A-R	I	A	NR	2001	[REDACTED]	[REDACTED]
CR125	A-R	A	I	I	2002	[REDACTED]	[REDACTED]
CR131	A-R	A	NR	NR	2002	[REDACTED]	[REDACTED]
CR139	A-R	A	NR	NR	2002	[REDACTED]	[REDACTED]
FH1 (2 nests)	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH2 (2 nests)	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH4 ¹¹	A	I	I	A	2000	[REDACTED]	[REDACTED]
FH5	I	I	I	I	pre-1996	[REDACTED]	[REDACTED]
FH6	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH7	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH8	I	I	I	I	1996	[REDACTED]	[REDACTED]
FH9	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH10	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH11	I	I	I	I	pre-1996	[REDACTED]	[REDACTED]
FH12 (2 nests)	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH14 ¹²	A	A	I	I	2002	[REDACTED]	[REDACTED]

Table 3.1 (Continued)

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
FH21	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH22	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH24	A	I	I	a	2000	[REDACTED]	[REDACTED]
FH25	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH26	A	I	I	a	2000	[REDACTED]	[REDACTED]
FH28	U	U	I	I	U	[REDACTED]	[REDACTED]
FH37 ¹³ (2 nests)	A ⁶	a ⁶	A	I	2002	[REDACTED]	[REDACTED]
FH38	A ⁶	a ⁶	I	A	2002	[REDACTED]	[REDACTED]
FH42	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH43 (2 nests)	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH53	I	I	I	I	1998	[REDACTED]	[REDACTED]
FH54 (2 nests)	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH55	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH56	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH57 (2 nests)	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH59 (3 nests)	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH60	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH62	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH64	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]

Table 3.1 (Continued)

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
FH66 (2 nests)	I	I	I	I	pre-1997		
FH67	I	I	I	I	pre-1998		
FH68	I	I	I	I	pre-1997		
FH69	A	I	I	a	2000		
FH70	I	I	I	I	pre-1998		
FH71	I	I	I	I	1997		
FH73	I	I	I	I	pre-1996		
FH78	I	I	I	I	pre-1999		
FH82	U	I	I	NC	U		
FH84	I	I	I	I	pre-1999		
FH87 (2 nests) ¹⁴	A	A	I	I	2002		
FH89	I	I	I	I	pre-2000		
FH90	I	I	I	I	pre-2000		
FH93	I	I	I	I	pre-2000		
FH94 ¹⁵	I	I	I	I	pre-2000		
FH95	I	I	I	I	pre-2000		
FH96	I	I	I	I	pre-1999		
FH98	U	I	I	NR	pre-2001		
FH99	U	I	I	NR	pre-2001		
FH101	U	I	I	NR	pre-2001		
FH102	U	I	I	NR	pre-2001		

Table 3.1 (Continued)

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
FH103 (2 nests)	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH104	I	I	I	I	pre-1997	[REDACTED]	[REDACTED]
FH109	U	I	I	NR	pre-2001	[REDACTED]	[REDACTED]
FH110	I	I	I	I	pre-1998	[REDACTED]	[REDACTED]
FH112	U	I	I	NR	pre-2001	[REDACTED]	[REDACTED]
FH115	U	I	I	NR	pre-2001	[REDACTED]	[REDACTED]
FH118	U	I	I	NR	pre-2001	[REDACTED]	[REDACTED]
FH119	U	I	I	NR	pre-2001	[REDACTED]	[REDACTED]
FH126 (ANS)	n/a ¹⁶	I	n/a ¹⁶	n/a ¹⁶	n/a ¹⁶	[REDACTED]	[REDACTED]
FH128 (ANS)	n/a ¹⁶	I	n/a ¹⁶	n/a ¹⁶	n/a ¹⁶	[REDACTED]	[REDACTED]
FH129	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH130	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH132	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH135	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH137	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH138	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
FH141	U	I	NR	NR	pre-2002	[REDACTED]	[REDACTED]
GE36	A	A	I	A	2002	[REDACTED]	[REDACTED]
GE47	A	A	A	A	2002	[REDACTED]	[REDACTED]
GE48	I	I	I	I	pre-1996	[REDACTED]	[REDACTED]

Table 3.1 (Continued)

Nest Number ^{2,3}	Activity Status ⁴	Activity by Year ¹			Most Recent Activity	Legal Location	UTM Coordinates ⁵
		2002	2001	2000			
GE51	A	I	a	A	2001		
GE72	I	I	I	I	pre-1998		
GE74 ¹⁷	A	A	I	I	2002		
ME100 ¹⁸	U ¹⁹	I	U ¹⁹	NR	U ¹⁹		
ME120 ¹⁸	U ¹⁹	I	U ¹⁹	NR	U ¹⁹		
ME121 ¹⁸	U ¹⁹	I	U ¹⁹	NR	U ¹⁹		
ME122 ¹⁸	U ¹⁹	I	U ¹⁹	NR	U ¹⁹		
ME134	A	A	NR	NR	2002		
PF27	I	I	I	I	1997 ¹⁰		
PF41	U	I	I	U	1998 ¹⁰		
PF61	I	I	I	I	1997		
PF63	I	I	I	I	pre-1998		
PF79	I	I	I	I	1999		
PF81	A	A	I	A	2002		
PF113	A	I	A	NR	2001		
PF123	U	I	I	NR	pre-2001		
UN133	U ¹⁰	U	U	U	U ¹⁰		

¹ A = active; a = likely active; I = inactive; NC = not checked/not located; NR = nest had not yet been recorded; U = unknown.

² AK = American kestrel; BO = burrowing owl; CR = common raven; FH = ferruginous hawk; GE = golden eagle; PF = prairie falcon; ME = merlin; UN = unknown species.

³ The following nests have been removed from monitoring because detailed searches for the nests over numerous years revealed no nest or activity in the area of the nests as mapped, or the nest is gone or has been destroyed: BO75, CR111, CR114, CR127, FH3, FH13, FH15, FH20, FH29, FH58,

Table 3.1 (Continued)

- FH65, FH83, FH85, UN31, UN32, UN33, UN34, UN35, UN40, UN44, UN45, UN46, and UN49. UN74 was active with golden eagles in 2002; therefore, it has been redesignated as GE74.
- ⁴ Overall activity status is based on the BLM definition of an active nest as one which has been used by raptors in at least 1 of the past 3 years. For overall activity status, nests for which activity was likely, but not confirmed, were considered active (A). Nests which were assigned an unknown activity status (U) lack a conclusive activity determination for at least 1 of the past 3 years and/or were newly recorded and have not been monitored for 3 consecutive years. Nests confirmed inactive in all of the past 3 years are deemed inactive (I). Nests designated A-R were used by ravens in at least one of the past 3 years but were not used by raptors and, thus, are not considered active for planning and development purposes.
- ⁵ E = easting; N = northing; n/a = not available.
- ⁶ One of the two nests (i.e., AK16 or AK17; AK142 or AK143, and FH37 or FH38) was likely active in 2002.
- ⁷ Nest location corrected significantly in 2002.
- ⁸ Redesignated as AK from UN in 2001.
- ⁹ Possibly used by great horned owl or prairie falcon in 1999.
- ¹⁰ Date is of last confirmed activity, but activity status was unknown in at least one of the years since the last known activity; thus, more recent activity may have occurred.
- ¹¹ Used by prairie falcon in 2000.
- ¹² Used by golden eagle in 1999.
- ¹³ Used by red-tailed hawk in 2001.
- ¹⁴ Used by golden eagle in 2002.
- ¹⁵ Redesignated from PF to FH in 2001.
- ¹⁶ Artificial nest structure erected in September 2001. No prior nest history exists.
- ¹⁷ Redesignated from UN to GE in 2002.
- ¹⁸ Redesignated from SS to ME in 2002.
- ¹⁹ One of the four existing ME nests (ME100, ME120, ME121, ME122) was active in 2001, but the exact nest was undetermined.

past 3 years or the nest was newly recorded). Any nest newly recorded within the last 2 years has an unknown activity status because nest history in the past 3 years is incomplete.

Information on productivity, nearby project features, and proposed protection measures at active and unknown activity status nest sites within project-affected areas is presented in Table 3.2. Nest sites with unknown activity status are included in Table 3.2 because not enough information is available for these sites to confirm an inactive (i.e., no seasonal stipulations required) status.

Fifteen raptor/raven nests were newly recorded in 2002: two American kestrel nests (AK142 and 143); two burrowing owl nests (BO136 and 140); two common raven nests (CR131 and 139); seven ferruginous hawk nests (FH129-130, 132, 135, 137-138, and 141); one merlin nest (ME134); and one unknown raptor nest (UN133). Five nests were redesignated in 2002: SS100, 120, 121, and 122 were changed from sharp-shinned hawk to merlin and UR74 was changed from an unknown raptor nest to a golden eagle nest.

In 2002, 17 of 129 monitored raptor/common raven nest sites on and adjacent to the WSA were used by raptors. Four additional nests were used by common ravens (see Table 3.1 and Appendices B and C). Because ravens are neither raptors nor a species of special concern, their nests were not checked for productivity in 2002 unless the nests were easily observed during the course of scheduled surveys. A number of active raptor nests in the area occur at distances greater than the seasonal restrictions buffer (i.e., 1.0 mi for ferruginous hawks and 0.5 mi for all other raptor species) and from the MJ2PA (i.e., where productivity monitoring is not required); thus, productivity data for those nests may not be available (see Appendix C).

Ten of the 129 nests monitored in 2002 are proposed for removal from future monitoring and have been removed from Table 3.1. BO75 was never precisely mapped with GPS, and no activity has been observed in the area since 1998. Pipeline ROW surface disturbance has occurred in the area and the nest may have been destroyed. CR111, 114, and 127 all have fallen from the man-made structures on which they were constructed and are no longer viable nests.

Table 3.2 Summary of Active Raptor Nests and Nests With Unknown Activity Within 0.5 Mi (1.0 Mi for Ferruginous Hawks) of the Modified Jonah Field II Project Area, 2002.

Species/ Nest No. ^{1,2}	Activity ³	Legal Location	Nest Condition ⁵	Seasonal Buffer Radius	Most Recent Nest Production ⁶			Nearby Project Features ⁷	Mitigation/Actions ⁸
					Eggs	Nestlings	Fledglings		
AK16	A ⁴	[REDACTED]	U, 2002	0.5 mi	U, 2002	U, 2002	U, 2002	Three existing wells and associated roads and pipelines within 0.5 mi	Continue activity status and productivity monitoring
AK17	A ⁴	[REDACTED]	U, 2002	0.5 mi	U, 2002	U, 2002	U, 2002	One existing and one proposed well and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK18	A	[REDACTED]	U, 2002	0.5 mi	U, 2002	U, 2002	U, 2002	Existing road and pipeline within 0.5 mi	Continue activity status and productivity monitoring
AK142	A ⁴	[REDACTED]	Excellent, 2002	0.5	U, 2002	U, 2002	U, 2002	Existing road and wells and one proposed well within 0.5 mi	Continue activity status and productivity monitoring
AK143	A ⁴	[REDACTED]	Excellent, 2002	0.5	U, 2002	U, 2002	U, 2002	Existing road and wells and one proposed well within 0.5 mi	Continue activity status and productivity monitoring
BO77	A	[REDACTED]	U, 2002	0.5 mi	U, 1999-2000	U, 1999-2000	1, 1999 U, 2000	Numerous existing project features and one proposed well and road within 0.5 mi	Continue activity status and productivity monitoring
BO117	A	[REDACTED]	U, 2002	0.5 mi	1+, 2001	1+, 2001	1+, 2001	Numerous existing project features and one proposed well and two proposed resource roads within 0.5 mi	Continue activity status and productivity monitoring
FH4 ¹⁰	A	[REDACTED]	Fair to good, 2002	1.0 mi	U, 2000	U, 2000	U, 2000	Numerous existing project features and three proposed wells and resource roads within 1.0 mi	Continue activity status and productivity monitoring
FH14 ¹¹	A	[REDACTED]	Good, 2002	1.0 mi	U, 2002	0, 2002	0, 2002	Numerous existing project features, five proposed wells, and four proposed resource roads within 1.0 mi; limited alternative nest sites available in territory 5	Continue activity status and productivity monitoring; if territory 5 is inactive in 2003, potential development of ANS(s)
FH24	A	[REDACTED]	Nest gone, 2001	1.0 mi	U, 2000	0, 2000	0, 2000	One existing well and road, three proposed wells, and four proposed resource roads within 1.0 mi; limited alternative nest sites	Continue monitoring the area for new and active nests

Table 3.2 (Continued)

Species/ Nest No. ^{1,2}	Activity ³	Legal Location	Nest Condition ⁵	Seasonal Buffer Radius	Most Recent Nest Production ⁶			Nearby Project Features ⁷	Mitigation/Actions ⁸
					Eggs	Nestlings	Fledglings		
FH98	U	[REDACTED]	Poor, 2002	1.0 mi	U	U	U	Numerous existing project features, six proposed wells, and five proposed resource roads within 1.0 mi	Continue monitoring the area for new and active nests
FH115	U	[REDACTED]	Fair, 2002	1.0 mi	U	U	U	Two existing wells, one pipeline, and several resource roads; and three proposed well and resource roads within 1.0 mi	Continue monitoring the area for new and active nests
FH126	n/a ¹²	[REDACTED]	Poor, 2002	1.0 mi	n/a	n/a	n/a	No existing or proposed project features within 1.0 mi	Continue monitoring the area for new and active nests
FH128	n/a ¹²	[REDACTED]	Poor, 2002	1.0 mi	n/a	n/a	n/a	Several existing wells, roads, and pipelines and one proposed well and resource road within 1.0 mi	Continue monitoring the nest structure for activity; add new material to platform if necessary to provide an attractive nest location
FH141	U	[REDACTED]	Poor, 2002	1.0 mi	U	U	U	Several existing project features and nine proposed wells and associated resource roads within 1.0 mi	Continue monitoring the nest structure for activity; add new material to platform if necessary to provide an attractive nest location

¹ See Appendix A, Wildlife Map, for nest locations.

² FH = ferruginous hawk (see Table 3.3 for nesting territory); AK = American kestrel; BO = burrowing owl.

³ Active nests (A) defined by activity or likely activity in at least one of the past three nesting seasons. Nests for which overall activity status cannot be determined because data are lacking in at least one of the past 3 years (e.g., nests which were newly recorded within the last three years) are assigned an unknown (U) activity status. See Appendix C, Raptor Nesting Records, for further detail.

⁴ Either AK16 or AK17 was active in 2002, but probably not both and either AK142 or AK143 was active in 2002, but probably not both.

⁵ Most recently recorded nest condition; year is indicated. U = unknown (i.e., either not recorded, or in the case of cavity and burrow nesters, not discernable).

⁶ Presents number of items and year for most recent activity in the past 3 years. U = unknown.

⁷ See Appendix A, Project Features Map. Map was developed from best current data available from the Operators.

⁸ Seasonal and standard avoidance measures are not included since they would be applied as necessary for all active nests.

⁹ Nest location corrected significantly in 2002.

¹⁰ Used by prairie falcon in 2000.

¹¹ Used by golden eagle in 1999.

¹² Artificial nest structure erected in 2001; only one year's data (i.e., 2002) exists.

Nests FH13, 15, 20, 65, 83, and 85 were all in complete disarray or had fallen to the ground below at the time of the 2002 activity surveys. With the addition of a newly defined territory in 2002, an estimated 12 ferruginous hawk nesting territories are now defined within the WSA, five of which have been occupied at least once during the last 3 years (2000-2002). Ferruginous hawk nests in the territories have occasionally been used by other species: Territories 1, 4, and 5 were active with ferruginous hawks in 2000, 2000, and 2002, respectively; Territory 6 was active with prairie falcons in 2000; and Territory 10 was active with prairie falcons in 2000, red-tailed hawks in 2001, and ferruginous hawks in 2002. The approximate territory boundaries are shown on the Wildlife Map in Appendix A, and their locations are briefly described in Table 3.3. Boundaries of several territories were refined in 2002 to include newly recorded nests and to more closely depict likely boundaries.

FH24, 25, 87, and 89 are isolated nests which have not been assigned territories. In 2000, FH24 was used by ferruginous hawks, and in 2002, FH87 was used by golden eagles. FH25 and 89 have been inactive the past 3 years.

Seventy-five known ferruginous hawk nest sites were monitored in 2002, six of which are no longer intact as described above. The remaining 69 sites (including the two ANSs erected in 2001) occur on or adjacent to the WSA (see Table 3.1). Eight of the sites (i.e., FH4, 14, 24, 26, 37, 38, 69, and 87) were determined to be active during at least 1 of the past 3 years--activity status for 18 of the nests is unknown. FH14 was the only nest occupied by ferruginous hawks in 2002, and it appears to have been abandoned before any eggs were laid; thus, no young were produced.

Project features proximal to active ferruginous hawk nests (i.e., occupied in at least 1 of the past 3 years) and nests with unknown activity status are identified in Table 3.2 and Appendix A (Project Features/Planning Map). Project features/developments on the MJ2PA exist and are further planned proximal to nest territories 5, 6, and 7. Other activities (e.g., recreational activities/off-road vehicle use, livestock grazing, wildlife/predator interactions, climate) will continue to occur in these and other territories. Ferruginous hawk nesting territory 7 was not

Table 3.3 1999-2002 Activity Status of Ferruginous Hawk Nesting Territories, Jonah II Wildlife Study Area.¹

Territory	Nests Included in Territory ²	Activity Status ³		
		2000	2001	2002
1	68-71, 99, 118, 129	A (FH69) (unknown success)	I	I
2	62, 64, 66-67, 84, 90, 96, 101-102, 119, 130, 137	I	I	I
3	56-57, 60	I	I	I
4	26, 28, 93-95, 112	a (FH26) (unknown success)	I	U
5	14, 141	I	I	A (FH14) (failed)
6	2, 4-12, 78, 115, 126, 128	A (FH4) ⁴ (unknown success)	I	I
7	21-22, 73, 98	I	I	I
8	53-55, 82, 109-110	U	U	I
9	42-43, 135	I	I	I
10	37-38, 132	A (FH38) ⁴ (unknown success)	A (FH37) ⁵ (failed)	A (exact nest active is unknown) (failed)
11	59, 103-104	I	I	I
12	1,138	U	U	I

¹ See Appendix A, Wildlife Map, for locations.

² No nesting territory is established for nests FH24, 25, 87, and 89. Nests FH3, 29, 58, and 91 were removed from monitoring in 2001. Nests FH13, 15, 20, 65, 83, and 85 were removed from further monitoring following the 2002 surveys.

³ Further detail is provided in Appendix C, Raptor Nesting Records; I = inactive; a = likely active; A = active; U = unknown (not all nests in the territory were checked for activity in the year indicated). Numbers in parentheses indicate which nest in the territory was active.

⁴ Used by prairie falcon.

⁵ Used by red-tailed hawk.

active during the past 3 years, and all known nest sites in the territory are at suboptimal locations (i.e., on the ground surface with easy access by predators); therefore, nesting in territory 7 is unlikely to occur in all but the most active nesting years (i.e., when all other nearby nesting territories are occupied). It is also possible that nest territories 5, 6, and 7 and nest sites FH24 and FH89 will remain unused or will have limited success during the life of the Jonah II Field. Mitigation measures as defined in Section 3.1.2 are recommended for territories 5 and 6 in 2003.

Six American kestrel nests (i.e., AK16 or 17, 18, 39, 52, 88, and 142 or 143) were occupied in 2002, but productivity is unknown. The immediate vicinities of AK16 and 17 and AK 142 and 143 showed signs of activity but because, in both cases, the two nests are in close proximity to each other, the exact cavity used was not determined in either case. Of the 13 American kestrel nest sites currently in the WSA, 10 are listed as active (i.e., used within the past 3 years) and activity status for an additional two is unknown. Five of the active kestrel nests are within 0.5 mi of the MJ2PA and three of the five (AK17, 142, and 143) are within 0.5 mi of proposed project features (see Table 3.2 and Appendix B [Project Features/Planning Map]).

Ten burrowing owl nest sites were monitored in the WSA in 2002. One (BO75) was delisted following 2002 surveys as indicated above. Of the remaining nine, three were occupied by burrowing owls in 2002. At least one burrowing owl likely fledged from BO86--productivity for BO136 and 140 is unknown. Six burrowing owl nests have been used within the past 3 years, two of which (i.e., BO77 and 117) occur within the MJ2PA and are within 0.5 mi of proposed project features (see Table 3.2 and Appendix B [Project Features/Planning Map]).

Six golden eagle nests (four active and two inactive) are recorded within the WSA. Three of the nests were occupied by golden eagles in 2002. One, or possibly two golden eagles fledged from GE47, GE36 failed, and GE74 likely was abandoned before or shortly after eggs were laid. In addition, FH87 was used by golden eagles in 2002, but no young fledged from the nest. No active golden eagle nest occurs within 0.5 mi of the MJ2PA.

Eight prairie falcon nest sites (two active, two with an unknown activity status, and four inactive) occur within the WSA. Only one of the nests (PF81) was occupied in 2002, with 5-6 young produced. None of the prairie falcon nests is within 0.5 mi of the MJ2PA.

Five merlin nests (ME100, 120-122, and 134) are recorded within the WSA, two of which have been used in the past 3 years and one of which was occupied in 2002. In the 2001 wildlife monitoring report (TRC Mariah 2001b), ME100 and 120-122 were mistakenly identified as sharp-shinned hawk nests. However, upon closer inspection in 2002, their status as merlin nests was confirmed. The exact nest structure used in 2001 was not determined--ME134 was used in 2002. Although no young were observed because of the hidden nature of the nest surface, given the vigorous and consistent defense of the area by both adult birds during the early May and late June visits, it is likely that at least one merlin fledged in 2002. All five nests are >0.5 mi from the MJ2PA.

No red-tailed hawks were recorded nesting in the WSA in 2002, and no nests in the WSA are designated as red-tailed hawk nests, although red-tailed hawks did occupy FH37 in 2001.

One nest of an unknown species (UN133) is known to occur within the WSA (>1.0 mi from the MJ2PA). The nest was newly recorded in 2002 and was not occupied.

Eleven common raven nests were monitored within the WSA in 2002. Three nests (i.e., CR111, 114, and 127) were delisted after the survey because they are no longer intact. The remaining eight nests have not been used by raptors in the past 3 years and, thus, are not active. However, four of the nests were occupied by ravens in 2002. An incubating adult raven was observed flushing from CR108 by nearby recreational off-road vehicle (ORV) activity early in the nesting season. The bird remained away from the nest for over an hour and the nest was subsequently abandoned. CR125, on a natural rock outcrop, was apparently abandoned or failed early; and CR131, a newly built nest on a power pole, produced two fledglings. CR139, built on well tank stairs, also failed, with a follow-up visit of the site revealing no sign of the nest or nest remnants.

3.1.2 Monitoring/Protection Measures

The primary mitigation measure for raptor species in the WSA is avoidance of active nest locations during the breeding season. Active nests are defined as nests that have been used by raptors within the last 3 years. Unless excepted by the BLM during APD and ROW application reviews, all surface-disturbing activities will be restricted from February 1 through July 31 within a 0.5-mi radius of active raptor nests, except ferruginous hawk nests, for which the seasonal buffer is 1.0 mi (see Table 3.2). The seasonal buffer distance and exclusion dates may vary depending on factors such as nest activity status, raptor species, prey availability, natural topographic barriers, and line-of-sight distances. In addition, well locations, roads, ancillary facilities, and other surface structures requiring repeated human presence will not be constructed within 825 ft of active raptor nests (2,000 ft for bald eagles), where practical (BLM 1998a). Facility construction in these areas will require specific approval from the BLM.

The Operators have committed to continue monitoring of nest activity status and productivity in the WSA as identified in the ROD (BLM 1998a [Appendix E], 2000b) in 2003. Nest activity status will be monitored from the ground, and new nests will be photographed and located with a GPS. As time allows, efforts to locate new nests will be increased in areas of the WSA that have received less focus in past ground surveys and have the greatest potential for suitable nesting habitat (i.e., primarily, the western portion of the WSA). Identification of new nests in the WSA provides valuable information on raptor nesting trends and spatial use of areas within and adjacent to the MJ2PA.

Operators will notify the BLM immediately if raptors or ravens are found nesting on project facilities. If nest manipulation or a situation requiring a "taking" of a nest becomes necessary, a special permit will be obtained from the Denver USFWS Office, Permit Section. Permit acquisition will be coordinated with the Wyoming State USFWS Office in Cheyenne and will be initiated with sufficient lead time to allow for development of mitigation measures. Required corresponding permits will be obtained from the WGFD in Cheyenne. Consultation and

coordination with the USFWS and WGFD will be conducted for all mitigation activities relating to raptors.

Because project development continues on and adjacent to active ferruginous hawk territories 5 and 6, two ANSs were established within territory 6 in 2001. It is recommended that two additional ANSs be erected in the vicinity of ferruginous hawk territory 5 (see Appendix A, Wildlife Map) if that territory is inactive in 2003 and the nest structures can be located such that they are unlikely to be disturbed during future natural gas development. If future development in the area precludes erection of ANSs in the vicinity of the territory, the BLM will be contacted to determine what, if any, alternative locations or mitigation might be recommended. Operators will be responsible for the construction and annual maintenance of ANSs throughout the life-of-project, and all ANSs on public lands will become the property of the BLM upon completion of the project. ANS construction and maintenance activities (if necessary) will be completed between August 1 and September 15 of each year (Appendix D in BLM 1997). Additional mitigations for nesting raptors may be designed on a site-specific basis, as necessary, in consultation with the BLM, USFWS, and WGFD.

In future years, additional ANSs may be constructed (up to two ANSs for each impacted nest) or existing degraded raptor nests may be upgraded/reinforced to mitigate potential impacts (BLM 1997, 2000a, 2000b). The location of ANSs or nests proposed for upgrading will be identified in annual reports. ANSs will be located within or proximal to potentially affected nesting territories, outside of the line-of-sight or nest buffer of actively nesting raptor pairs, and at sites sufficiently removed from proposed development activities to minimize or avoid potential adverse effects.

In places where existing project features (e.g., well locations) are located within the buffer areas for active raptor nests, no extensive maintenance activities (e.g., workovers) will be allowed between February 1 and July 31 without prior BLM notification and approval (BLM 2000a, 2000b). The seasonal buffer distance and applicable exclusion dates will be determined by the

BLM and specified in Conditions of Approval for APD, ROW applications, and/or Sundry Notices and may vary among nests and from year to year depending upon the potentially affected raptor species and variations in weather, nesting chronology, and other factors.

3.2 GREATER SAGE-GROUSE

3.2.1 Results

Table 3.4 presents a summary of greater sage-grouse lek activity on the WSA over the past 3 years, as well as nearby project features and proposed monitoring and other actions (see Appendix D, Greater Sage-Grouse Lek Records, for further detail). Table 3.5 presents information on lek use from 1992 through 2002. Leks 23 and 24 are adjacent to but outside the WSA. Lek 23 is shown on the Wildlife Map (Appendix A), but lek 24 is outside the mapped area. Available data for these leks are included in Table 3.5. Legal locations for all leks are provided in Table 3.4 and in the Greater Sage-Grouse Lek Records (Appendix D).

Of the 22 known leks within the WSA, leks 1, 2, 3, 7, 9, 10, 18, 19, 21, and 22 have shown consistent use during the years for which monitoring data are available, and no notable declines in use were identified (Table 3.5 and Appendix D, Greater Sage-Grouse Lek Records). Decreasing attendance has been observed at lek 4, with maximum male attendance down from 16 in 1994 to one in 2000 and 2001, and 0 in 2002. Due to the extent of nearby project development, this lek may continue to have low use or no use throughout the remainder of project development. No males were observed at leks 5, 6, 8, 11, 12, 13, 14, 15, or 16 in the last 3 to 4 years (Table 3.5), and these leks also may continue to be unused for the remainder of project development. No new leks were located during 2002.

No greater sage-grouse winter use studies were conducted by the BLM in 2002 (personal communication, November 2002, with John Westbrook, Pinedale BLM field office).

Table 3.4 Summary of Greater Sage-Grouse Lek Use, Potential Impacts, and Proposed Monitoring, Jonah Field II Wildlife Study Area, 2002.¹

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
1	[REDACTED]	O	Consistent use; active all 8 years surveyed since 1992	Five existing and two proposed wells and roads within 1.0 mi; additional roads and wells 1.0-2.0 mi from lek	Monitor attendance three times in 2003
2	[REDACTED]	O	Consistent use; active all 7 years surveyed since 1992; not surveyed in 2002	Existing pipeline within 0.25 mi; numerous existing and five proposed wells and roads within 1.0 mi; additional proposed and existing wells 1.0-2.0 mi from lek	Monitor attendance three times in 2003
3	[REDACTED]	O	Consistent use; active 6 of the 7 years surveyed since 1992	Proposed road within 0.25 mi; one existing and four proposed wells and road within 1.0 mi	Monitor attendance three times in 2003; move proposed road to outside 0.25-mi buffer
4	[REDACTED]	O	Decreasing maximum male attendance since 1996; inactive in 2002	Two existing and two proposed wells and roads within 0.25 mi; numerous proposed and existing wells, pipelines, and roads within 1.0 mi; additional proposed and existing wells and roads 1.0-2.0 mi from lek	Monitor attendance three times in 2003; move proposed wells and roads to outside 0.25-mi buffer
5	[REDACTED]	O ⁶	No known use in the 3 years surveyed since 1996; not surveyed 2000-2002	Existing well, pipelines, and resource and collector roads within 0.25 mi; two proposed and numerous existing wells, pipelines, and roads within 1.0 mi	Monitor attendance three times in 2003; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
6	[REDACTED]	O ⁶	No known use in the 4 years surveyed since 1996; not surveyed 2001-2002	Existing collector road at lek; one proposed well and associated resource road within 1.0 mi	Monitor attendance three times in 2003; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
7	[REDACTED]	O	Consistent use; active 6 of the 7 years surveyed since 1992; not surveyed in 2002	Proposed well and resource road within 0.5 mi; existing pipeline within 1.0 mi; an additional six proposed and numerous existing wells and roads 1.0-2.0 mi from lek	Monitor attendance three times in 2003; relocate proposed well and resource road to >0.5 mi from the lek

Table 3.4 (Continued)

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
8	[REDACTED]	O ⁶	No known use in the 5 years surveyed since 1996.	Existing pipeline and collector road within 1.0 mi; three proposed and numerous existing wells and associated roads and the Luman Compressor Station within 1.0-2.0 mi from lek	Monitor attendance three times in 2003; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
9	[REDACTED]	O	Consistent use; active all 6 years surveyed since 1992	One proposed and one existing well within 1.0 mi; an additional two proposed and two existing wells 1.0-2.0 mi from lek	Monitor attendance three times in 2003; GPS lek perimeter in 2003
10	[REDACTED]	O	Consistent use; active all 6 years surveyed since 1992	Five existing and five proposed wells and roads and the Falcon Compressor Station within 1.0 mi; additional proposed and existing wells 1.0-2.0 mi from lek	Monitor attendance three times in 2003
11	[REDACTED]	U ⁶	No known use in the 5 years surveyed between 1992 and 2002	Proposed road within 0.25 mi; five proposed wells and roads within 1.0 mi; additional proposed and existing wells 1.0-2.0 mi from lek	Monitor attendance three times in 2003; move proposed resource road to outside 0.25-mi buffer; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
12	[REDACTED]	O ⁶	Limited use 1992-2000; not located in 2001 or 2002	Existing wells and collector and resource roads within 1.0 mi; an additional ten proposed and one existing wells and resource roads 1.0-2.0 mi from lek	Monitor attendance three times in 2003
13	[REDACTED]	U ⁶	No known use in the 6 years surveyed between 1992 and 2002	Highway 351 within 0.5 mi	Monitor attendance three times in 2003; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
14	[REDACTED]	H ⁶	No known use between 1992 and 2000; not located in 2001 or 2002	Highway 191 within 0.25 mi	Monitor attendance three times in 2003

Table 3.4 (Continued)

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
15	[REDACTED]	O ⁶	No known use in the 4 years surveyed since 1996	Two existing and one proposed wells, and pipelines and roads within 0.25 mi; an additional nine proposed and numerous existing wells and roads within 1.0 mi; numerous additional wells and roads from 1.0-2.0 mi from lek	Monitor attendance three times in 2003; move proposed well and roads to outside the 0.25 mi buffer; following the 2003 survey, make a decision in cooperation with BLM and WGFD as to the management status of the lek (i.e., undetermined or historical) (see Section 3.2.2)
16	[REDACTED]	U	Not surveyed 1992-1999; inactive 2000-2002	One proposed road and Highway 191 within 0.25 mi	Monitor attendance three times in 2003; relocate proposed road to outside the 0.25-mi buffer
17	[REDACTED]	O	Consistent limited use from when first recorded in 1999 to 2001; inactive in 2002	One proposed well within 0.25 mi; two existing wells and an additional 15 proposed wells and associated roads within 1.0 mi; additional proposed and existing wells and roads 1.0-2.0 mi from lek	Monitor attendance three times in 2003; GPS lek perimeter in 2003; relocate the proposed well to outside the 0.25-mi buffer
18	[REDACTED]	O	Consistent heavy use since first located in 1999	Existing collector road within 0.25 mi; nine proposed and 11 existing wells and resource roads within 1.0-2.0 mi	Monitor attendance three times in 2003
19	[REDACTED]	O	First located in 2000; active all 3 years surveyed	None	Monitor attendance three times in 2003; GPS lek perimeter in 2003
20	[REDACTED]	U	Unknown; only surveyed 2 years since 1992; no birds observed during those surveys	Existing collector road within 0.25 mi	Monitor attendance three times in 2003; GPS lek perimeter in 2003
21	[REDACTED]	O	Not surveyed since first recorded in 2000	Two proposed wells and resource roads within 1.0 mi; numerous additional proposed and existing wells and roads 1.0-2.0 mi from lek	Monitor attendance three times in 2003
22	[REDACTED]	O	Not surveyed since first recorded in 2000	Eight proposed wells and resource roads and an existing pipeline within 1.0 mi; additional proposed and existing wells and roads within 2.0 mi of lek	Monitor attendance three times in 2003

Table 3.4 (Continued)

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
23	██████████	U	No data from 1992 to 2001; inactive in 2002	Highway 351 and one proposed well and resource road within 1.0 mi	Monitor attendance three times in 2003; relocate proposed well and road outside 0.25-mi buffer
24	██████████	O	Active in the 3 years surveyed since 1992; not surveyed in 2002	--	--

¹ See Appendix A, Wildlife Map and Appendix D, Greater Sage Grouse Lek Records, for additional information.

² See Table 3.5 for alternate names.

³ O = occupied (used at least once during the last 10 years); U = undetermined (not documented as having been used in the past 10 years, but insufficient data are available to designate the lek as historical); H = historical (not used during a consecutive 10-year period). Status definitions are based on the draft *Wyoming Greater Sage-Grouse Conservation Plan* (WGFD 2002). Leks with occupied or undetermined status are afforded the no surface occupancy and seasonal restrictions protective measures described in Section 3.2.2 of this report.

⁴ See Appendix A, Project Features Map.

⁵ Seasonal and standard avoidance measures are not included since they would be applied as necessary for all leks.

⁶ In 2000, it was recommended that these leks no longer be regularly monitored because of apparent lack of use/abandonment in recent years; however, given recommendations in the 2002 draft *Wyoming Greater Sage-Grouse Conservation Plan* (WGFD 2002), it is recommended that monitoring of these leks be resumed in 2003 and beyond.

Table 3.5 Greater Sage-Grouse Trends, Jonah Field II Wildlife Study Area, 1992-2002.¹

Lek No.	Lek Name(s)	History ²										
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1	Stud Horse Butte East/4-2	NS	NS	9	NS	26	6	31	25	22	12	10
2	Sand Draw # 3/4-6	NS	NS	2	NS	2	17	12	7	14	16	NS
3	Sand Draw Reservoir/Sand Draw # 4	NS	NS	NS	NS	16	0	36	26	22	27	17
4	Clay Hill Well/Clay Hill	NS	NS	16	NS	15	4	4	0	1	1	0
5	Sand Draw # 2/4-8	NS	NS	NS	NS	1	0	0	0	NS	NS ³	NS ³
6	Sand Draw # 5/4-9	NS	NS	NS	NS	3	0	0	0	0	NS ³	NS ³
7	Yellowpoint Ridge/4-7	NS	NS	36	NS	0	16	17	11	9	6	NS
8	Luman Well/4-10	NS	NS	NS	NS	2	0	0	0	0	NS ³	0
9	Alkali Draw	NS	NS	NS	NS	NS	50	26	62	47	45	46
10	The Rocks	NS	NS	NS	NS	NS	60	53	79	64	62	47
11	Bob/4-5	NS	NS	0	NS	0	NS	0	0	0	NS ³	NS ³
12	The Rocks Road/3-8	1	0	0	0	1	4	0	0+	0	NL ³	NL ³
13	Wagon Wheel/3-6	NS	NS	NS	NS	0	0	0	0	0	NS ³	0
14	Sand Springs Well # 1/3-7	0	0	0	0	0	0	0	0	0	NL ^{3,4}	NL ^{3,4}
15	Sand Draw #1/Sand Draw	NS	NS	NS	NS	1	0	0	0	0	NS ³	NS ³
16	Long Draw	NS	NS	NS	NS	NS	NS	NS	NS	0	0	0
17	Buckhorn Well #1	NS	NS	NS	NS	NS	NS	NS	5	3	3	0
18	Shelter Cabin Reservoir	NS	NS	NS	NS	NS	NS	NS	50+	90	73	43
19	Prairie Dog Town 5/Prairie Dog	NS	NS	NS	NS	NS	NS	NS	NS	9	22	7
20	Upper Alkali Creek	NS	NS	0	NS	0	NS	NS	NS	NS	NS	NS
21	South Rocks	NS	NS	NS	NS	NS	NS	NS	NS	10	NS	NS
22	Antelope State	NS	NS	NS	NS	NS	NS	NS	NS	9	NL	NL
23	Drill Pad	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0
24	Little Fred Satellite	UNK	UNK	UNK	UNK	UNK	UNK	4	≥1	NS	5	NS

¹ Further detail is provided in Appendix D, Greater Sage-grouse Lek Records.

² Numbers refer to maximum male attendance observed; NS = not surveyed; NL = not located- survey was attempted but no birds were observed and exact location of lek could not be confirmed; UNK = unknown; + = unclassified birds observed but not included.

³ In the 1999-2000 Jonah Wildlife Studies report (TRC Mariah 2001a), it was recommended that monitoring of these leks be discontinued because of apparent lack of use/abandonment in recent years. In light of the 2002 draft *Wyoming Greater Sage-Grouse Conservation Plan* (WGFD 2002), it is recommended that monitoring of all of these leks except lek 14 be resumed in 2003.

⁴ Lek 14 has been determined historical (i.e., inactive in 10 consecutive years) because in 2001 and 2002, it is likely that the lek was not located because the lek was inactive.

Removal of water development structures proximal to lek 4 (Clay Hill lek) was recommended in 2000 and 2001 (TRC Mariah 2001a, 2001b). However, as of November 2002, these structures remained in place (personal communication, November 2002, with John Westbrook, Pinedale BLM field office).

3.2.2 Monitoring and Protection Measures

Monitoring and identification of greater sage-grouse leks on the WSA, as specified in the WMPP (Appendix E in BLM 1998a) and the EA for the Modified Jonah Field II Project (BLM 2000b), will continue in 2003 as agreed upon by the Operators.

It is recommended that the WGFD or BLM continue to implement aerial (fixed wing) lek inventories of the WSA in 2003 to provide further lek locational data and to identify any new or previously undiscovered leks or lek satellites. Aerial surveys will be implemented during March/April. The absence/decreased use of leks 4-6, 8, and 11-16 may indicate that alternate lek sites are being used; therefore, it is recommended that aerial observations continue to be made in 2003 in the vicinity of these leks to locate any new unmapped leks.

A draft Wyoming Greater Sage-Grouse Conservation Plan has recently been prepared (WGFD 2002). In the plan, new definitions are provided for determining lek status for management purposes. An occupied lek is one which has been active at least one of the last 10 years--leks which have been inactive for 10 consecutive years are considered historic leks. Leks for which no known activity has occurred in the past 10 years but for which insufficient data are available to designate them as historic are considered undetermined (WGFD 2002). For management purposes in the MJ2PA, monitoring and protection measures specific for occupied leks are also recommended for leks of undetermined status.

Due to the apparent lack of use over the last few years, it was recommended in 2000 that attendance monitoring and active lek protection measures be discontinued for leks 5-6, 8, and 11-15. However, in light of the new lek status definitions, it is recommended that, with the

exception of lek 14, which is an historical lek, monitoring of all other leks in the WSA be resumed in 2003. Lek 12 has been used in at least 3 of the last 11 years, and thus, should be considered active until 10 consecutive years of inactivity are recorded. However, given the low incidence of strutting males at leks 5-6, 8, 11, 13, and 15 since 1992 (see Table 3.5), their apparent past treatment as inactive leks, and the presence of project facilities within 0.25 mi of several of the leks, and it is recommended that BLM and WGFD personnel cooperatively make a determination as to whether these leks qualify as historical leks if they remain inactive in 2003. This determination should be made by February 1 of 2004 so that 2004 monitoring plans can be made accordingly. Rationale for considering designation of these leks as historical is discussed below.

Lek 5 was first recorded in 1996, with a single male observed on one of the four days the lek was monitored that year. The lek was visited multiple times in the following three seasons but no birds were observed in the area. Currently, at least two wells and associated roads occur within 0.25 mi of the lek, and it appears unlikely that the lek will be re-established during the life of the project, given apparent lek inactivity since 1996 and the proximity of existing project features to the lek. In addition, given the lack of use since the lek was initially recorded, the lone male observed in 1996 may have been an incidental observation, rather than an indication of an active lek.

Lek 6 was also first recorded in 1996, with three males and five females observed on one of the five days the lek was visited that year. Although lek 6 was visited 11 times over the following 4 years, no grouse were recorded in the area. An existing collector road passes through the middle of the lek as mapped, and although the lek is outside the MJ2PA, the vehicular traffic on the road, coupled with the lack of grouse activity subsequent to the initial observation indicates that this lek may not be re-established during the life of the project.

Lek 8 was initially recorded in 1996, with two males observed on the lek during one of the five days the lek was visited that year. The lek was revisited 11 times in 5 of the next 6 years, but no birds were recorded. An additional three visits were made to the area in 2002, but the lek

was not located, indicating that strutting grouse were likely absent from the general vicinity. No project features occur within 0.5 mi of the lek, and the Operators have committed to a no surface occupancy buffer of 0.5 mi for the lek. Given the lack of use since the lek was initially recorded, the males observed in 1996 may have been an incidental observation, rather than an indication of an active lek.

No grouse have been recorded at leks 11 and 13 in the last 11 years, even though the leks have been monitored 5 and 6 years, respectively. No existing project facilities occur within 0.25 mi of either lek, although a resource road is proposed through the middle of lek 11. The last known date of activity for these leks is unknown.

One male grouse was observed on lek 15 during a single visit to the lek in 1996, but no grouse were observed in 12 visits to the lek over the following 4 years. At least two existing wells and associated roads occur within 0.25 mi of the lek, and one of the wells appears to be located directly on the lek site. Given the lack of activity in the past 11 years and the proximity of existing project features, it is unlikely that this lek will be re-established during the life of the project. In addition, the lack of use since the lek was initially recorded may indicate that the lone male observed in 1996 was an incidental observation rather than an indication of an active lek.

Monitoring of the leks in 2003 will be conducted by the WGFD, BLM, and/or the COOP. Ten consecutive years of historical data are essential to the determination of lek status in future years. Because 10 consecutive years of inactivity are recommended to designate a lek as historic (WGFD 2002), a lapse of even one year's monitoring may result in undetermined status for the following 10 years if the lek is not active during years for which monitoring has been conducted. Thus, efforts should be coordinated among agencies such that all 23 leks are monitored at least three times in 2003.

In 2001, it was recommended that lek perimeters be obtained for leks 9, 17, 19, and 20. Perimeters were not defined for these leks in 2002; thus, in 2003, it is recommended that WGFD and/or BLM determine lek perimeters at leks 9, 17, 19, and 20 using a GPS.

As with raptors, the principal protection for greater sage-grouse is avoidance of leks during the breeding season and the avoidance of probable nesting areas during the nesting season. In accordance with the Modified Jonah Field II DR and EA (BLM 2000a, 2000b), the following protection measures will be adhered to unless exempted by the BLM on a case-by-case basis.

All surface-disturbing activities, including pipeline construction, will be avoided within 0.25 mi of occupied leks. Operators will maintain a 0.5-mi disturbance-free buffer around leks 7 and 8 south of the MJ2PA (BLM 2000b) (see Appendix A, Wildlife Maps). In addition, no permanent high profile structures such as buildings and storage tanks (e.g., suitable raptor perches) will be constructed within 0.25 mi of any lek (BLM 2000b) and within up to 0.5 mi from areas within the line-of-sight of leks as deemed necessary by BLM on a case-by-case basis (BLM 2000a). A 600-ft no-disturbance buffer (i.e., 300 ft on either side of Sand Draw, Alkali Draw, and Granite Wash) (see Appendix A, Project Features/Planning) will be maintained (BLM 2000b) to protect nesting grouse. If natural gas reserves beneath the 600-ft no-disturbance buffer or the 0.25-mi active grouse lek buffer are deemed suitable for development, Operators may utilize directional drilling to access these resources.

All construction and drilling activity will be avoided during the strutting period (March 1-May 15) within 1.0 mi of occupied leks (BLM 2000a and 2000b). In addition, prior to the start of surface-disturbing activities during the nesting season (April 1-July 31) in potential sage grouse nesting habitat within 2.0 mi of an occupied lek, on-site reviews will be required by the BLM and conducted by a qualified biologist to determine if the area is being used by nesting grouse (BLM 1998a). If nesting grouse are not deemed present, the BLM may grant permission to proceed with surface-disturbing activities in the area. However, if nesting grouse are located, surface-disturbing activities will be delayed until July 31 or until nesting is completed.

Leks currently designated occupied (i.e., used within at least one of the past 10 years) include 1-10, 12, 15, 17-19, 21-22, and 24. In addition, insufficient information is available for leks 11, 13, 16, 20, and 23 to designate them as historical; thus, for planning purposes their status is

undetermined and it is recommended that they be treated as occupied, with stipulations that apply to occupied leks (i.e., no surface occupancy within 0.25 mi [0.5 mi for leks 7 and 8], seasonal timing restrictions, and on-site nesting clearances as described above) applied until it is determined that they are historic.

Currently, best data available provided by the Operators indicate proposed wells and roads within the 0.25-mi no surface occupancy buffer of leks 3 (one road), 4 (two wells and associated roads), 11 (one road), 15 (one well and several roads), 16 (one road), 17 (one well), and 23 (one well and road) and within the 0.5-mi no surface occupancy buffer of lek 7 (one well and road) (Appendix A, Project Features/Planning Map). These proposed project features and any others planned within 0.25 mi of leks 1-6, 9-13, and 15-24 (0.5 mi for leks 7 and 8) will require relocation outside the no surface occupancy buffers.

Additional wells, roads, and/or pipeline are proposed within 1.0 mi of leks 1-6, 9-11, 15, 17, and 21-23 (Appendix A, Project Features/Planning Map). Timing restrictions will be adhered to and nesting surveys will be conducted for any proposed construction or drilling within 1.0 mi of any occupied or potentially occupied leks (i.e., leks 1-13 and 15-24).

While Operators have committed to avoiding optimal greater sage-grouse nesting habitat during the nesting period, where practical (BLM 2000b), no optimal habitat (as defined in Table 2.1 of TRC Mariah [2001a]) has been identified in the MJ2PA (TRC 2001a). However, since grouse nesting and brood-rearing is known to occur in the sagebrush-dominated habitats on the area, it is recommended that no disturbance (other than linear crossings) be authorized within the basin big sagebrush vegetation type (this type is currently protected by a 600-ft buffer [i.e., 300 ft on either side of Sand Draw, Alkali Draw, and Granite Wash]) and that new surface disturbance within the dense sagebrush type be avoided during the nesting period where practical (see TRC Mariah 2001b, Appendix A, Habitat Map). Three proposed wells appear to be within the 600-ft basin big sagebrush buffer, as mapped (Appendix A, Project Feature/Planning Map). It is recommended that those wells and associated roads be relocated, as necessary, to avoid the buffer area.

It is recommended that the BLM implement formal greater sage-grouse winter use investigations on the J2PA and a 0.5-mi buffer during late winter (January/February) 2003 to identify potential grouse wintering areas (TRC Mariah 2001a). These surveys may be conducted aerially or on the ground, and all data collected should be provided on General Wildlife Observation Data Sheets or other suitable forms (see Appendix B). Operators will cooperate in any further ongoing greater sage-grouse studies within the WSA and with the WGFD on any existing and new grouse habitat improvement efforts (e.g., water developments) within Upland Game Bird Management Area 7 (TRC Mariah 2001a).

It is also recommended that prior to March 2003, water development structures proximal to lek 4 (Clay Hill) be removed, as directed by BLM. Removal of these facilities may eliminate potential raptor perch sites and/or reduce the use of this area by livestock and humans (TRC Mariah 2001a).

3.3 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND OTHER BLM WYOMING SPECIES OF CONCERN

3.3.1 Results

3.3.1.1 Black-footed Ferret

All whitetail PDTs within the J2PA have been mapped, and those within the MJ2PA were censused in 2001 or 2002 for open burrows using GPS to determine whether they meet the black-footed ferret habitat density criteria (i.e., ≥ 8 burrows per acre) established in the USFWS (1989) guidelines.

Results of the 2001 and 2002 censuses conducted on PDTs 1, 2a, 2b, 3a, 3b, 6, 8, 9a, 9b, 16-18, and 21-25e are presented in Table 3.6. Refined PDT boundaries and high-density areas within towns are presented in Appendix A (Wildlife Map). It was determined that PDT 6 and high-density portions of PDT 1 within the MJ2PA contain prairie dog burrow densities suitable for black-footed ferret (i.e., ≥ 8.0 burrows per acre), and black-footed ferret surveys may be

Table 3.6 Whitetail Prairie Dog Towns, Jonah Field II Wildlife Study Area, 2002.

Prairie Dog Town ¹	Acreage ²	Number of Open Burrows ^{2,3}	Burrow Density (burrows/acre) ^{2,4}
1	159 (42)	586 (370)	3.7 (8.8)
2a	174 (71)	646 (522)	3.7 (7.4)
2b	43 (25)	159 (137)	3.7 (5.5)
3a	56	34	0.6
3b	47	24	>0.5
4	903	NS	UNK
5	106	NS	UNK
6	212	1,811	8.5
7	800	NS	UNK
8	1,131 (131)	5,090 ⁵ (1,860) ⁶	4.5 (14.2) ⁶
9a	104 (13)	127 (66)	1.22 (5.08)
9b	166 (74)	1,011 (847)	6.09 (11.45)
10	39	NS	UNK
11	203	NS	UNK
12	79	NS	UNK
13	86	NS	UNK
14	105	NS	UNK
15	189	NS	UNK
16	214 (52)	1,477 ⁵ (718) ⁶	6.9 ⁵ (13.8) ⁶
17	108 (30)	702 ⁵ (468) ⁶	6.5 ⁵ (15.6) ⁶
18	328 (55)	1,345 ⁵ (913) ⁶	4.1 ⁵ (16.6) ⁶
19	10	NS	UNK
20	9	NS	UNK
21	73	137	1.9
22	210	840	4.0
23a	872	3,586	4.1
23b	14	36	2.6
24	2	13	6.5
25a	38	372	9.78
25b	7	3	0.4
25c	2	6	3.0
25d	<1	4	5.7
25e	.1	5	5

¹ See Appendix A, Wildlife Map, for location.

² Numbers in parentheses are for high-density areas; unless otherwise noted, number of open burrows and burrow density are based on a complete census of burrows in the town. Data for PDT 1, 2A, 2B, 3A, 3B, 6, and 21-25E are from TRC Mariah field data (2001a); data from PDT 9a and 9b are unpublished field data from 2002; data for PDT 8, 16, 17, and 18 are from Schlumberger Geco-Prackla (2000).

³ NS = not surveyed.

⁴ UNK = unknown.

⁵ Estimates based on a sample of up to 5% of the entire PDT (Schlumberger Geco-Prackla 2000).

⁶ Estimates based on a sample of approximately 5% of the dense portion of the PDT (Schlumberger Geco-Prackla 2000).

required if additional developments are proposed within these towns/areas. In addition, PDT 25a and portions of PDTs 8, 9a, 9b, and 16-18 in the southeastern portion of the WSA have prairie dog burrow densities suitable for black-footed ferret (see Appendix A, Wildlife Map), and black-footed ferret surveys may be required if development is proposed within these towns. Since prairie dog complexes have not been defined and cleared for ferrets in the MJ2PA and vicinity, it is also recommended that prior to constructing proposed project features in any identified prairie dog town, regardless of burrow density, USFWS be consulted, if deemed necessary by BLM, to determine the need, if any, for black-footed ferret surveys of the area (USFWS 1989).

3.3.1.2 Bald Eagle, Ferruginous Hawk, and Golden Eagle

No bald eagles were observed on the WSA during 2002 wildlife investigations. Information on ferruginous hawks and golden eagles is provided in Section 3.1.1.

3.3.1.3 Mountain Plover

Mountain plover were observed adjacent to the J2PA during 1999, and a single plover was observed within the J2PA during 2000 (TRC Mariah 2001a). During 2001 mountain plover surveys in the adjacent Pinedale Anticline Project Area (PAPA), two adult plovers were observed [REDACTED], approximately 75 m north of the WSA (TRC Mariah 2002); however, no mountain plover were observed during species-specific investigations on and within 0.5 mi of the MJ2PA during 2001.

During 2002 investigations, six mountain plovers were observed within 0.5 mi of the MJ2PA. Five mountain plover were observed in three areas near PDT 9a and 9b [REDACTED] and one was observed in PDT 5, [REDACTED]. During 2002 mountain plover surveys in the adjacent PAPA by TRC Mariah personnel, two adult plover were observed [REDACTED] [REDACTED] approximately 75 m north of the WSA (TRC Mariah In progress).

Two new areas of potential mountain plover habitat were added in 2002. The first [REDACTED] [REDACTED] has been mapped with GPS, and the second [REDACTED] [REDACTED] has not been mapped with GPS. Mapping of the latter area will be completed with GPS in 2003. No plovers were observed in either area in 2002 (see Sheets 4 and 11, Appendix E).

3.3.1.4 Western Burrowing Owl

Results of burrowing owl surveys are presented in Section 3.1.1, Raptors.

3.3.1.5 Other TEPC&WSC Species

Of the TEPC&WSC species listed in Table 2.1 as potentially occurring in the WSA, greater sage-grouse, whitetail prairie dog, western burrowing owl, and ferruginous hawk are discussed elsewhere in this report. The only other TEPC&WSC noted within the WSA during 2002 surveys and on-site investigations conducted during APD and ROW reviews were loggerhead shrike, sage thrasher, sage sparrow, and Brewer's sparrow (see Appendix B, General Wildlife Observation Data Forms), and these species likely breed in the area.

3.3.2 Monitoring and Protection

USFWS and/or WGFD consultation and coordination will be conducted for all necessary mitigation activities relating to TEPC&WSC and their habitats implemented during 2003.

3.3.2.1 Black-footed Ferret

In PDTs/portions of PDTs of sufficient size and burrow density for black-footed ferret habitat (i.e., PDT 6 and high-density portions of PDT 1) that are proposed for disturbance, black-footed ferret surveys will be conducted in adherence to USFWS guidelines as established in USFWS (1989). In addition, since prairie dog complexes have not been defined for the MJ2PA and

vicinity, USFWS will be contacted prior to development within any mapped prairie dog town, regardless of burrow density, if deemed necessary by BLM.

Two proposed wells are mapped within or directly adjacent to low burrow density areas of PDT 1 (see Appendix A, Project Features/Planning Map). These facilities should be located such that the PDT is avoided, or USFWS should be contacted to determine the need for black-footed ferret surveys prior to construction. Surveys, if necessary, will be conducted by a USFWS-qualified biologist no more than 1 year prior to proposed disturbance, and reports identifying survey methods and results will be prepared and submitted to the USFWS and BLM in accordance with Section 7 of the *Endangered Species Act of 1973*, as amended, and Interagency Cooperation Regulations. Surveys will be financed by the Operators.

If black-footed ferrets or their sign are found within the J2PA but outside the MJ2PA, the USFWS will be notified immediately and formal consultation will be initiated to develop strategies that ensure no adverse effects to the species (BLM 1997). If black-footed ferrets or their sign are found within the MJ2PA, the USFWS will be notified immediately, and no further disturbance will occur to the prairie dog complex in which the black-footed ferret was observed. Before ground-disturbing activities are initiated in black-footed ferret habitat, authorizations to proceed will be required from the BLM in consultation with the USFWS.

3.3.2.2 Bald Eagle, Ferruginous Hawk, and Golden Eagle

Monitoring and protection protocol for bald eagle, ferruginous hawk, and golden eagle in 2003 will be as described for raptors (see Section 3.1.2). Additional measures may be applied on a species- or site-specific basis, as deemed necessary by the USFWS and/or BLM, if potential impacts to these species are identified during 2003 APD and ROW application reviews.

3.3.2.3 Mountain Plover

The following protocol has been modified from that presented in BLM (Appendix E in 1998a) to accommodate USFWS changes to mountain plover survey and avoidance protocol. The protocol remains consistent with that presented in BLM (2000b).

During the period of May 1-June 15, 2003, mountain plover surveys will be conducted by an Operator-financed, BLM-approved biologist in accordance with USFWS guidelines (USFWS 2002) on suitable nesting habitat within 0.25 mi of proposed disturbance sites (BLM 2000c). Survey procedures will be as described in Section 2.3.3. If breeding birds are observed, additional surveys will be implemented immediately prior to construction to search for active nest sites. If an active nest is located, a 0.25-mi buffer zone will be established around the nest to prevent direct and indirect nest disturbance and planned activities will be delayed 37 days, or 1 week post-hatching (USFWS 2002). If a brood of flightless chicks is observed, activities will be delayed at least 7 days. In areas where no plover are observed, surface-disturbing activities will occur as near to completion of surveys as possible. Mountain plover surveys will not be conducted for construction activities planned for the period of July 11 through April 9.

Where access roads and/or well locations have been constructed prior to the mountain plover nesting season (April 10-July 10) and development activities have not been initiated prior to April 10, a BLM-approved biologist will conduct a site investigation of the disturbed area prior to proposed activities to determine whether mountain plover are present. If plovers are nesting in the area, Operators will delay development activities until nesting is complete.

The nest success and productivity of all mountain plover nests found within the MJ2PA will be monitored and reported to the BLM and USFWS Wyoming Field Office annually. Survey results will be compared with annual development plans to determine if any proposed surface-disturbing activities will affect occupied mountain plover nesting habitat. Where feasible, development plans will be modified to avoid nesting habitat (e.g., through road re-alignment).

No nesting mountain plovers were observed within or adjacent to the MJ2PA during surveys conducted from 1999 to 2001; but in 2002, six mountain plover were observed within 0.5-mi of the MJ2PA (see Appendix E). Any activities planned within concentration areas (i.e., areas where broods and/or adults have been observed in the current year or documented in at least 2 of the last 3 years) identified in 2002 will require Operators to consult with the BLM regarding initiation of informal conferencing with the USFWS prior to implementing surface disturbance within 200 m (656 ft) of identified mountain plover concentration areas.

If removal of mountain plover nesting habitat is unavoidable, loss will be minimized by creating additional nesting habitat; it is assumed that many of the existing and proposed pipeline reclamation areas on the MJ2PA would provide suitable plover breeding habitats. Areas of pipeline reclamation that provide suitable plover breeding areas will be identified annually. If nesting habitat is disturbed, the area will be reclaimed to approximate original conditions (topography, vegetation, hydrology, etc.) after completion of activities, such that disturbed potential mountain plover breeding habitat is reclaimed to conditions suitable for mountain plover breeding.

Operators will minimize road construction and maintenance activities (i.e., grading) in suitable plover habitat from April 10 to July 10. Prior to implementing surface disturbance within 200 m (656 ft) of known mountain plover concentration areas, Operators would consult with the BLM regarding initiation of informal conferencing with the USFWS (BLM 2000b).

Currently, Operator-provided data indicate that two wells are proposed in or directly adjacent to mountain plover habitat [REDACTED]

[REDACTED] Surface disturbance associated with construction of these or any other facilities proposed within identified mountain plover habitat should be avoided from April 10 to July 10 if feasible. Regardless, no construction will occur during this time period until three presence/absence surveys (per USFWS [2002] guidelines) are conducted with negative results.

If, during the life of the project, the mountain plover becomes listed as an endangered or threatened species and if project activities may affect mountain plover or their habitat, the BLM will initiate consultation with the USFWS; a formal *Endangered Species Act* Section 7 consultation may be necessary. No further surface-disturbing activities will be permitted in occupied or suitable mountain plover habitat until the USFWS issues a Biological Opinion (BO), which will include the reasonable and prudent measures and terms and conditions with which Operators must comply prior to the initiation of further development activities in the area covered by the BO.

It is recommended that mountain plover presence/absence surveys be conducted in 2003 in suitable and marginal habitat identified in Appendix A (Wildlife Map) to provide continued monitoring of potential use by plovers of these areas (personal communication, October 31, 2002, with John Westbrook, BLM, Pinedale Field Office).

3.3.2.4 Western Burrowing Owl

Monitoring and avoidance of prairie dog colonies (see Section 3.3.2.1) and avoidance of active raptor nests during the nesting period (see Section 3.1.2) will continue in 2003. Additionally, productivity monitoring will be implemented for all active burrowing owl nests on the MJ2PA and a surrounding 0.5-mi area. Additional measures may be applied in future years if burrowing owl nesting and/or productivity in the WSA appears to be declining. These potential measures will be identified by the BLM.

3.3.2.5 Other TEPC&WSC

No formal surveys for other TEPC&WSC are proposed for 2003; however, since loggerhead shrike, Brewer's sparrow, sage sparrow, and sage thrasher have been seen in the area (see Appendix B, General Wildlife Observation Data forms), special attention to these species is recommended for APD and ROW application field reviews. If, during implementation of surveys for other species or during APD and ROW application field reviews, any TEPC&WSC

is observed on areas within 0.5 mi of proposed disturbance sites, nests or other crucial features for the observed species, if any, will be avoided. Consultation and coordination with the BLM, USFWS, and WGFD also will be conducted, as necessary. Construction activities in these areas will be curtailed until there is concurrence among Operators, BLM, USFWS, and WGFD on what activities can be authorized. Activities will, in most cases, be delayed until such time that no adverse effects would occur (e.g., after fledging).

No additional protection measures will be applied for other sensitive species potentially present on the WSA; however, it is assumed that the protection protocol specified below for general wildlife will benefit TEPC&WSC as well (see Section 3.4.2). In addition, if TEPC&WSC are observed, efforts will be made to determine the activities of the species on the WSA (e.g., breeding, nesting, foraging, hunting). If any management agency (i.e., BLM, WGFD, USFWS) identifies a potential for impacts to any TEPC&WSC species, additional monitoring and/or protection measures may be implemented as directed by the BLM.

3.4 GENERAL WILDLIFE

3.4.1 Results

Limited data on other wildlife species observed on the WSA during 2002 surveys are provided in Appendix B and in APD and ROW application field review data available at the BLM Pinedale Field Office.

3.4.2 Monitoring and Protection

No formal wildlife monitoring for other wildlife is recommended for 2003.

Protection measures primarily designed to minimize impacts to other area resources (e.g., vegetation and surface water resources including wetlands, steep slopes) are identified in BLM (1998a, 2000b), and these measures provide additional impact mitigation for area wildlife.

Well locations, access roads, pipelines, and ancillary facilities will be selected and designed to minimize disturbances to areas of high wildlife habitat value, including wetlands and riparian areas. Areas with high erosion potential and/or rugged topography (i.e., steep slopes, dunes, floodplains, unstable soils) will be avoided, where practical.

Removal or disturbance of vegetation will be minimized through construction site management (e.g., by utilizing previously disturbed areas, using existing ROWs, designating limited equipment/materials storage yards and staging areas, scalping), and Operators will adhere to all reclamation guidelines presented in the Reclamation Plan for this project (see Appendix B in BLM 1997, 1998a, 1998b).

To minimize wildlife mortality due to vehicle collisions, Operators will continue to advise project personnel regarding appropriate speed limits (i.e., 35 mph or less, as posted) in the project area, and roads will be reclaimed as soon as possible after they are no longer required. Some existing roads in the area may be closed and reclaimed by Operators as authorized by the BLM. No roads are currently proposed for reclamation.

To protect plant populations and wildlife habitat, project-related travel will be restricted to established project roads; no off-road travel will be allowed, except in emergencies.

No road or pipeline ROW fencing is proposed; however, if ROW fencing is required, it will be kept to a minimum and the fences will consist of four-strand barbed wire that meets BLM and WGFD approval for facilitating wildlife movement. Wildlife-proof fencing will be utilized only to enclose reclaimed areas where it is determined that wildlife species are impeding successful vegetation establishment. No improvements to existing fences on the area are currently proposed.

No new wildlife/livestock water sources are currently proposed for development.

Potential increases in poaching will be minimized through continued employee and contractor education regarding wildlife laws, and Operators will notify all employees (contract and company) that conviction of a major game violation could result in disciplinary action. If violations are discovered, Operators will immediately notify the BLM and WGFD, and if the violation involves an employee or contractor, said employee or contractor will be disciplined and may be dismissed by the Operator and/or prosecuted by the WGFD.

Additional nonspecies-specific wildlife mitigations include the following.

- Reserve, workover, evaporation, and flare pits potentially hazardous to wildlife will be adequately protected by netting and/or fencing as directed by the BLM to prevent access by migratory birds and other wildlife.
- Siphons will be constructed at each reserve pit to collect, as necessary, any undesirable materials that may enter the pits.
- Potential impacts to fisheries will be minimized by using proper erosion control techniques (e.g., water bars, jute netting, rip-rap, mulch). Construction within 500 ft of open water and 100 ft of intermittent or ephemeral channels will be avoided, where possible. Channel crossings for roads and pipelines will be constructed when flows are not expected (i.e., late summer or fall). All necessary crossings will be constructed perpendicular to flow. No surface water or shallow groundwater in connection with surface water will be utilized for the proposed project.
- Firearms and dogs will not be allowed on the J2PA during working hours by BLM or Operator employees or their contractors unless excepted by BLM (e.g., dogs may be allowed to facilitate/conduct sage grouse nest location surveys). Operators will enforce existing drug, alcohol, and firearms policies.
- If injured wildlife are observed on the J2PA, Operator personnel will contact the BLM Pinedale Field Office and the WGFD Pinedale Office. Under no circumstances will injured wildlife be approached or handled.
- Wildlife monitoring as specified in the ROD (Appendix E in BLM 1998) will be continued in 2003.

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