2005 WILDLIFE STUDIES, JONAH FIELD NATURAL GAS DEVELOPMENT PROJECT

Prepared for

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

and

Jonah Field Operators

By

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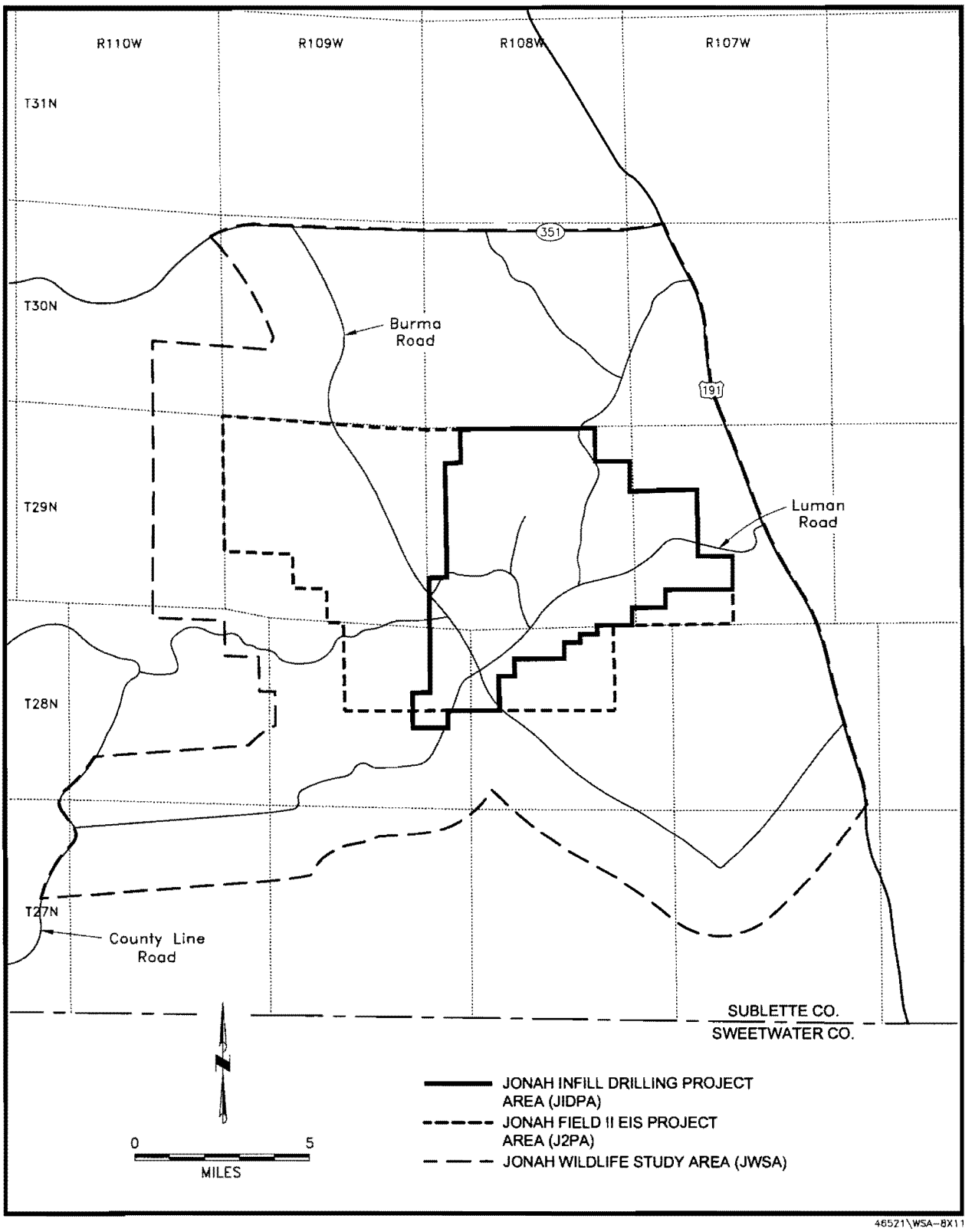
1.0 INTRODUCTION

This report was prepared by TRC Mariah Associates Inc. (TRC Mariah) for EnCana Oil & Gas Inc. (U.S.A.), 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 and as a result of annual recommendations are to monitor wildlife population trends on and adjacent to the Jonah Field II Project Area (J2PA), the Modified Jonah Field II Project Area (MJ2PA), and the Jonah Infill Drilling Project Area (JIDPA) during the course of project development and operations so that the adequacy of extant mitigation measures can be evaluated and modifications to existing measures can be made and/or new measures applied, as appropriate, by the BLM (Map 1.1). Current reliable information on raptor nest and sage grouse lek locations and activity status is also necessary to evaluate proposed gas development with respect to buffer zones and timing restrictions so that Operators can site and time proposed development activities in compliance with BLM stipulations, thus minimizing or avoiding adverse effects to wildlife resources.

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 affected areas by minimizing, avoiding, and/or mitigating potential adverse impacts associated with project development. An environmental impact statement (EIS) (BLM 2005) currently is being written to address impacts of additional drilling within the JIDPA (Map 1.1 and Appendix A).

Wildlife monitoring was initiated in 1997 and continued through 2005. Wildlife data collected from 1997 through 2004 are presented in TRC Mariah (1999, 2001a, 2001b, 2002a, 2004, 2005a).

This report presents the methods and results of the 2005 wildlife studies, as well as selected summary data from past monitoring studies conducted within the Jonah Field wildlife study area (JWSA), which includes



Map 1.1 Wildlife Study Area, Jonah Infill Drilling Project, 2005.

the original J2PA, the MJ2PA, the JIDPA, and adjacent areas. Appendix A contains maps for project features/planning; raptor nests; greater sage-grouse; threatened, endangered, proposed, candidate, and BLM Wyoming sensitive (TEPC&BWS) species/other wildlife; and big game crucial ranges and winter observations. Raptor/Common Raven and General Wildlife Observation Data Sheets are contained in Appendix B. Appendix C is comprised of Raptor Nesting Records for monitored nests within the JWSA; Appendix D provides Greater Sage-Grouse Lek Records; and Appendix E provides Mountain Plover Survey Forms and results.

Observational data presented in this report were collected primarily by TRC Mariah, BLM, and Wyoming Game and Fish Department (WGFD) personnel and were supplemented by personnel from U.S. Fish and Wildlife Service (USFWS), University of Wyoming Cooperative Wildlife Unit (COOP), Operators, and Wyoming Wildlife Consultants, LLC (WWC). Trends across years are noted, where possible. Potential wildlife disturbance sources are identified, and monitoring and protection measures proposed for 2006 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, 2000b), and they also include BLM- and/or Operator-requested measures. Additional monitoring and protection measures may be required by the BLM upon completion of the Jonah Infill final EIS and ROD.

2.0 METHODS

The wildlife species/categories for which specific inventory and monitoring procedures were applied were developed based on concerns identified during the preparation of the EIS 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 B in BLM [1998a]) and additional methods identified by BLM (2000b).

Locational data presented in geographic information system (GIS) maps and shapefiles are projected in NAD83 Universal Transverse Mercator (UTM) Zone 12 North in accordance with BLM requirements (personal communication, October 20, 2004, with Karen Rogers, GIS specialist, BLM Pinedale Field Office [PFO]). Details on raptor nest history, wildlife observation dates and observers, and other pertinent information are presented in the GIS metadata provided.

The locations of existing and proposed project facilities for the Project Features Planning Map in Appendix A were obtained by combining data on existing and proposed wells provided by BLM PFO on December 30, 2005 (aliquot shapefile of well locations), with proposed well locations for 2006 provided by Operators in December 2005.

2.1 RAPTORS

Raptor nest surveys of the JWSA have been conducted annually since 1997 to determine the location and activity status of raptor nests in the area (TRC Mariah 1999, 2001a, 2001b, 2002a, 2004, 2005a). Raptor activity and productivity surveys were conducted using procedures that minimize potential adverse effects to nesting raptors as identified in the ROD (Appendix D in BLM [1998a]). The following measures were used as applicable and within the confines of the survey requirements (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 and approved by biologists in the BLM PFO.
- The number of visits to each nest was kept to a minimum to avoid repeated disturbance to nesting birds.

All raptor nest locations are provided to the BLM PFO and other entities as identified in the distribution list at the front of this document. These data are of a sensitive nature and are to be kept confidential. The data are available to other interested parties only as deemed appropriate by the BLM.

Raptor nest activity status surveys were conducted on the ground using four-wheel-drive vehicles and pedestrian reconnaissance on April 13 and 16-22 and May 8-10, 13, 15-16, and 18-19 by Diane Thomas, Jan Hart, Kristy Palmer, and Larry DeBrey of TRC Mariah. All known raptor nests within the JWSA were visited at least once, and most nests were visited twice--once each in April and May--during activity surveys to determine if each nest was still intact, whether it was being used, and, if so, by what species. Burrowing owl nest activity surveys were conducted in conjunction with mountain plover nesting surveys and prairie dog town mapping efforts, as well as during raptor activity surveys. Because of the extent of recent development in the Warbonnet area and the lack of raptor nesting activity in ferruginous hawk Territory 1 in recent years, WWC was retained by selected Pinedale Anticline Operators, in cooperation

with the BLM, to conduct weekly activity surveys of ferruginous hawk nests in that vicinity throughout the spring to more closely monitor the territory and to determine if ferruginous hawks attempted to occupy the area early in the nesting season.

Nest sites and ferruginous hawk nest territories located within 1.0 mi of the JIDPA (see Appendix A, Raptor Nest Map) determined or suspected occupied in 2005, as well as other occupied nests for which productivity data were easily obtained in the course of other scheduled monitoring, were revisited monthly from June until the nest failed or fledged young to determine productivity. Monthly monitoring of active nests within the overlap of the JWSA and the Pinedale Anticline Wildlife Study Area (PAWSA) also was conducted, and those data are included herein. The raptor nest productivity surveys were conducted on June 22-26, July 17-18 and 23, and August 10 and 13-17 via four-wheel-drive vehicle or on foot and were often coupled with other ongoing surveys (e.g., Sand Draw reconnaissance, wildlife surveys for the Jonah Field 3-D vertical seismic profile [VSP] project [TRC Mariah 2005b]). In cases of nest failure or abandonment, an attempt was made to identify the causative factor(s).

As in 2004, an additional effort was made during 2005 raptor surveys to locate and record ferruginous hawk nests in areas that appeared most likely to have previously unrecorded nests, particularly in the southeastern and south-central portions of the JWSA. Photos were taken of all newly recorded nests, as well as any other nest(s) for which photos were not available. In addition, some nests for which photos were available were rephotographed to provide better documentation of the nest and its location. A Trimble GeoExplorer 3 handheld correctable Global Positioning System (GPS) unit was used to obtain locations for newly located nests, as well as nests within the JWSA for which GPS locations were previously unavailable or unreliable. All data collected during raptor activity and productivity surveys were recorded on maps, Raptor Observation Data Sheets, and/or Raptor Nesting Records (see Appendix A [Raptor Nest Map], Appendix B, and Appendix C, respectively).

Documentation of known raven nests was initiated in 2001 because common ravens often use nests previously used by raptors and vice versa. Raven nests were recorded on the same data forms as raptor

nests (see Appendices B and C); however, only previously recorded raven nests or nests newly observed during the course of scheduled surveys were monitored. No effort was made to document all raven nests in the JWSA.

Nesting territory boundaries are difficult to determine, particularly if nesting activity in an area is inconsistent or if the number of years of available nesting data is limited. In past years, the boundary of each ferruginous hawk nesting territory in the JWSA was approximated based on the location of known nests in the area and topographic and geographic characteristics of the area. Several ferruginous hawk territory boundaries were amended in 2005 based on the location of newly recorded nests and associated topographic characteristics, and one new territory (i.e., Territory 28) was defined (see Appendix A, Raptor Nest Map). In addition, Territories 18 and 23 were combined in to one territory (18/23) until further data become available that might provide a better understanding of the ferruginous hawk nesting activity patterns in that area. These territory boundaries, while helpful from a management point of view (i.e., to determine current and historic 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 within the JWSA because nesting territories change from year to year depending on population fluctuations, prey availability, and other ecological factors. No attempts were made to determine the foraging territories of nesting pairs; however, prairie dog towns, as well as areas used by ground squirrels and rabbits adjacent to ferruginous hawk nesting territories, likely provide the most heavily utilized foraging habitat during the nesting season.

2.2 GREATER SAGE-GROUSE

Monitoring of greater sage-grouse leks was conducted in 2005 to determine the extent of grouse breeding activities within the JWSA and to record any newly discovered leks. Data on lek attendance and location, survey dates, weather conditions, and other notes are provided on Greater Sage-Grouse Lek Records (see Appendix D). In addition, BLM personnel conducted an aerial search for new leks in the area in early May. Specific methodology for that survey is available from the BLM PFO.

In early spring, WGFD and BLM compiled a schedule identifying the agencies and specific individuals who would be responsible for monitoring each of the sage-grouse leks within the JWSA. No Operator-financed assistance was requested. Thus, TRC Mariah conducted no monitoring of sage-grouse leks in the JWSA except in conjunction with noise monitoring studies conducted at The Rocks and Yellow Point Ridge South leks (TRC Mariah 2005c). However, the Antelope State, Big Fred Satellite, and Sand Springs Draw leks ultimately did not get monitored. The locations of known leks are provided on the Greater Sage-Grouse Map in Appendix A.

Greater sage-grouse winter use surveys of the development areas and/or the JWSA were recommended in previous annual reports (TRC Mariah 1999, 2001a, 2001b, 2002a, 2004) to assist in identifying areas that provide important winter cover and foraging habitat, particularly during severe winters (i.e., substantial snow cover over a large percent of an area for a prolonged period of time). Conditions during the winter of 2003-2004 provided an excellent opportunity to gather winter sage-grouse locational data, as snow cover and depth were greater than in recent winters. Thus, the Operators, in cooperation with the Pinedale Anticline Operators and in coordination with WGFD and the BLM PFO, funded a winter greater sage-grouse aerial survey of the combined JWSA and PAWSA. In 2005, although the winter was less harsh than the previous winter, a second year of sage-grouse winter use data was collected.

The 2005 winter survey was conducted by Diane Thomas and Jan Hart on February 11-14, 2005, using a Bell Long Ranger helicopter flying at speeds of 40-70 knots and at altitudes of approximately 70-100 ft (higher where livestock, residences, highways, or other sensitive resources were present). As in 2004, the surveyed area was systematically flown along north/south transects spaced at 0.5-mi intervals, with all greater sage-grouse observations within approximately 0.25 mi of either side of the transect recorded.

In addition to location and number of individuals, data were collected on several habitat-related parameters--snow cover, slope, and position--for each location where grouse or their sign were recorded. Four classes of snow cover were used--none, minimal (>50% of the vegetation visible above the surface

of the snow), moderate (25-50% of the vegetation visible above the surface), and high (<25% of the vegetation visible above the surface). These classes were used because they were most easily and reliably estimated from the air. Although the resulting data are not reliable indicators of absolute snow cover, they provide information on available forage relative to snow cover, which is relevant to where grouse would be expected to occur. Slope was described as steep, moderate, or flat to rolling, the latter of which included shallow drainage channels. Position was classified as drainage (which included bottomlands adjacent to drainages), midslope, or mesa top/ridgetop.

A Trimble GeoExplorer 3 GPS unit was used to maintain transect flight paths. GPS data generally were collected simultaneously by both observers on separate GPS units to minimize the chance of data loss due to hardware failure or other equipment malfunction. In the office, GPS data were differentially corrected, duplicates were deleted, and a shapefile was created in ArcGIS 8.0. The data and shapefiles were provided to WGFD and BLM PFO for their potential use in delineating important greater sage-grouse winter habitat within the combined wildlife study areas. Results of additional site-specific clearance of areas planned for winter disturbance are available for review at the BLM PFO, and limited data from those surveys (i.e., winter observations of greater sage-grouse provided to TRC Mariah by WWC) are included on the Greater Sage-Grouse Map in Appendix A.

2.3 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND BLM WYOMING SENSITIVE SPECIES

Inventory and monitoring of TEPC&BWS species were conducted in conjunction with the 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 the most current list of BLM Wyoming sensitive species (BLM 2002) for the JWSA 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), right-of-way (ROW) application, and/or Sundry Notice 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&BWS species

Table 2.1 BLM Wyoming Sensitive Animal Species Documented or Potentially Occurring on or in the Vicinity of the Jonah Field Wildlife Study Area, 2005. [1]

Species		Other Designation and Ranking[2]	Documented on or in Vicinity of the JIDPA?[3]	Habitat Type(s)[4]
Common Name	Scientific Name			
Mammals				
Long-eared myotis	*Myotis evotis*	G5/S1B, S1?N, NSS2	Yes	FT
Whitetail prairie dog	*Cynomys leucurus*	G4/S2S3, NSS3 (Petitioned 7/11/2002)	Yes[5, 6]	UB
Idaho pocket gopher	*Thomomys idahoensis*	G4/S2?, NSS3, IUCN-LR (nt)	Yes[5]	BS, P/R
Pygmy rabbit	*Brachylagus idahoensis*	G4/S2, NSS3, IUCN-LR (nt)	Yes[6, 7]	BS, P/R
Birds				
White-faced ibis	*Plegadis chihi*	G5/S1B, SZN, FSR2, NSS3	Yes[5]	FT, P/R
Trumpeter swan	*Cygnus buccinator*	G4/S1B, S2N, FSR2, FSR4, NSS2	Yes	FT
Northern goshawk	*Accipiter gentilis*	G5/S23B, S4N, FSR2, FSR4, NSS4	Yes[5]	FT
Ferruginous hawk	*Buteo regalis*	G4/S3B, S3N, FSR2, NSS3	Yes[5, 6]	UB
Peregrine falcon	*Falco peregrinus*	G4/T3/S1B, S2N, FSR2, NSS3 (Removed from federal endangered list 8/25/1999)	Yes[5]	FT
Greater sage-grouse	*Centrocercus urophasianus*	G5/S3 (Petitioned 6/8/2002; removed from consideration for listing 1/07/2005)	Yes[5, 6]	UB
Mountain plover	*Charadrius montanus*	G2/S2B, SZN (Proposed listing withdrawn 9/2003)	Yes[5, 6]	CP
Long-billed curlew	*Numenius americanus*	G5/S3B, SZN, FSR2, NSS3	Yes[5]	P/R, FT
Yellow-billed cuckoo	*Coccyzus americanus*	G5/S2B, SZN, FSR2, NSS2, (Petitioned 7/25/2001)	No	FT
Burrowing owl	*Athene cunicularia*	G4/S3B, SZN, FSR2, NSS4	Yes[5, 6]	BS, SB, CP
Loggerhead shrike	*Lanius ludovicianus*	G5/S4B, SZN, FSR2	Yes[5, 6]	UB
Sage thrasher	*Oreoscoptes montanus*	G5/S3B, SZN, PIF Priority	Yes[5, 6]	UB
Brewer's sparrow	*Spizella breweri*	G5/S3B, SZN, PIF Priority	Yes[5, 6]	UB
Sage sparrow	*Amphispiza billineata*	G5/S3B, SZN, PIF Priority	Yes[5, 6]	UB
Amphibians				
Northern leopard frog	*Rana pipiens*	G5/S3, FSR2, NSS4	Yes	P/R
Boreal toad (northern Rocky Mountain population)	*Bufo boreas boreas*	G4T4/S2, FSR2, FSR4, NSS2	Yes	P/R
Spotted frog	*Rana pretiosa*	G4/S2S3, FSR2, FSR4, NSS4	Yes	P/R

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

Table 2.1 (Continued)

[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.
- 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 are 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 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 or its sign documented during wildlife monitoring of the JWSA (TRC Mariah [1999, 2001a, 2001b, 2002a, 2002b, 2003, 2004, 2005a, 2005b] and Appendix B of this document).

[7] Species occurred historically within latitude 42°, longitude 109° (WGFD 1999).

associated with APD, ROW, and Sundry Notice application reviews are not included in this report but are available from the BLM PFO.

2.3.1 Black-footed Ferret

Randall Blake, Larry DeBrey, and Kristy Palmer remapped prairie dog town (PDT) boundaries for PDTs 1, 2A-B, 3A-B, 4, 6, 9A-B, 11, 21, 24, and 25A-E and mapped six newly recorded PDTs (PDT 28-33) in the JWSA (see Appendix A, TEPC&BWS Species/Other Wildlife Map) during the 2005 season to more accurately define the current size and location of the towns. GPS locations were obtained for open burrows deep enough that the below-ground end was not visible and with a diameter ≥ 7 cm; however, no effort was made to obtain a complete census of burrows within the towns because the towns are within areas that have been block-cleared for black-footed ferrets (USFWS 2004). The edge of the town was determined in the field to be the point at which no burrows were observed within approximately 0.25 mi of an outlying burrow. Town boundaries were further refined in the office using GIS data such that burrows along the edge of a town were within at least 660 ft of other burrow(s). Although previous mapping efforts have identified high-density areas (i.e., those areas of a town generally exhibiting densities of ≥ 8.0 burrows per acre or, in several of the towns with lower densities, the central densest portion of the town, if easily distinguished), no such areas were defined in the remapped PDTs because a complete census of burrows was not conducted and the towns are not in an area where black-footed ferret surveys are required (USFWS 2004). Section 3.3.1 and Appendix A (TEPC&BWS Species/Other Wildlife Map) provide the remapping results, as well as current acreages and densities for towns that were not remapped.

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 in Section 2.1.

2.3.3 Mountain Plover

All 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 JIDPA and a 0.5-mi buffer previously recorded as occupied (TRC Mariah 1999, 2001a, 2001b, 2002a, 2004, 2005a) was surveyed. Surveys were conducted by Randall Blake on May 3 and 5, 2005, and by Kristy Palmer on May 5 and 19 and June 8, 2005. Surveyed areas were visited at least three times.

Surveys were conducted in accordance with 2002 USFWS guidelines (USFWS 2002), 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 (May1-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 located, were obtained, and activity, number of individuals, and other pertinent data were recorded.

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

Additional surveys on and proximal to proposed disturbance areas may have been conducted by the BLM prior to surface disturbance in association with APD, ROW application, and/or Sundry Notice field reviews. Data from those investigations, if conducted, are available for review at the BLM PFO.

2.3.4 Western Burrowing Owl

Prairie dog colonies and other suitable burrowing owl nesting habitat within the JIDPA were searched during late spring and summer 2005 by TRC Mariah personnel in association with mountain plover nesting surveys (see Section 2.3.3), prairie dog town mapping efforts (see Section 2.3.1), and raptor nesting activity and productivity monitoring (see Section 2.1) to determine the extent of burrowing owl nesting. Additional monitoring of some burrowing owl nests within the overlap of the JWSA and PAWSA was conducted by Diane Thomas. The number and location of occupied nests in the area were identified, and efforts were made to determine fledgling success for occupied nests. All data collected during burrowing owl nest activity and productivity surveys were recorded on maps, Raptor Observation Data Sheets, and/or Raptor Nesting Records (see Appendix A [Raptor Nest Map], Appendix B, and Appendix C, respectively).

2.3.5 Other TEPC&BWS Species

Formal surveys for TEPC&BWS species were not conducted in conjunction with the Jonah Field wildlife studies during 2005. However, site-specific investigations were implemented by the BLM in areas of potential habitat on and proximal to proposed disturbance areas during on-site reviews conducted in conjunction with APD, ROW application, and Sundry Notice review processes. This information is available for review at the BLM PFO.

A pedestrian investigation of the Sand Draw drainage within the JIDPA was conducted by Diane Thomas on the mornings of August 14, 15, and 16, 2005, to support annual wildlife studies and the Jonah Infill Drilling Project EIS (BLM 2005). The investigation focused on determining the potential presence of pygmy rabbits in the basin big sagebrush habitat and documenting the presence of all wildlife species encountered, including the presence of greater sage-grouse and other sensitive species. All wildlife observations were recorded on General Wildlife Observation Data Sheets (see Appendix B).

Additional surveys for sensitive species were conducted in conjunction with wildlife surveys for EnCana's 3-D VSP project in the southeastern portion of the JIDPA and areas adjacent to and south of the JIDPA (TRC Mariah 2005b). The project included pygmy rabbit surveys of suitable habitat in a number of ephemeral drainages, including tributaries of Bull and Long Draws and Jonah Gulch. The surveys were conducted by traversing suitable habitat within 80 ft of staked source points and mapped drive line routes on foot and/or by all-terrain vehicles (ATVs) and recording any observations of pygmy rabbits or their sign. Sign characteristics were generally as described in *Surveying for Pygmy Rabbits (Brachylagus idahoensis)* (working draft) (Ulmschneider 2004) (i.e., active burrows ranging from 4 to 10 inches in diameter with rabbit scat of 4 to 6 mm in diameter, typically in tall dense sagebrush).

2.4 HABITAT MAP REFINEMENT

TRC Mariah biologists mapped habitat types within the MJ2PA (i.e., the JIDPA minus an approximately 320-acre parcel in the N½ of Section 23, T28N, R109W) in August 2000 to facilitate an analysis of greater sage-grouse habitat quality and quantity in the area. Four habitat types were identified based on relative sagebrush cover and density: 1) dense sagebrush, 2) moderately dense sagebrush, 3) basin big sagebrush, and 4) scattered/no sagebrush. Descriptions of these types are provided in TRC Mariah (2001a). The boundaries of the mapped units within the MJ2PA were confirmed and/or refined in September 2003 using a combination of GPS and hand-mapping of type boundaries. In addition, the mapping of the basin big sagebrush habitat along the entire length of Sand Draw across the JIDPA and the portion of Granite Wash in the vicinity of Wild Horse Reservoir was also refined, and wetlands within the MJ2PA were identified and mapped (see Appendix A, Greater Sage-Grouse Map). In 2004, the dense sagebrush and moderately dense sagebrush habitat types were reclassified as moderate density sagebrush and low density sagebrush, respectively, to more accurately describe the prevalence of sagebrush in the two types; however, mapped boundaries did not change (see Appendix A, Greater Sage-Grouse Map). In spring of 2005, Jan Hart, TRC Mariah, mapped habitat types in the previously unmapped portion of the JIDPA [redacted] and in July 2005, she

mapped habitat types in the portions of EnCana's 3-D VSP project area outside of the JIDPA [redacted].

2.5 GENERAL WILDLIFE

Observations of wildlife were recorded during raptor activity and productivity surveys, species-specific investigations, the pedestrian reconnaissance of Sand Draw (see Section 2.3.5), and other activities associated with the Jonah and Anticline wildlife monitoring studies, site-specific investigations, and the Jonah Infill Drilling Project EIS. Results are presented in Appendix B (General Wildlife Observation Data Sheets). Additional observations were made by BLM personnel during on-site investigations conducted during APD, ROW application, and Sundry Notice review processes, and this information may be reviewed at the BLM PFO. No formal surveys for pronghorn antelope or other species/wildlife categories were conducted during 2005; however, big game observed during the winter aerial greater sage-grouse survey, as well as selected incidental observations made during other monitoring activities, were recorded.

3.0 RESULTS

With the submission of the 2002 annual wildlife monitoring report, Operators 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 DR for the Modified Jonah Field II project (BLM 2000a). However, because operations continue in the JIDPA, Operators voluntarily committed to a continuation of annual wildlife monitoring in 2003, 2004, and again in 2005, with an annual report to be provided to the Pinedale BLM field office in early 2006. The Operators also agreed to continue wildlife monitoring in 2006, with an annual report provided to the BLM PFO in early 2007.

This chapter presents the results of 2005 wildlife investigations on the JWSA, and Chapter 4.0 identifies the proposed monitoring/protection measures proposed for implementation by the BLM, WGFD, and/or an Operator-financed BLM-approved wildlife biologist in 2006.

3.1 RAPTORS

Table 3.1 provides information on the location, recent history, and activity status of known raptor/raven nests in the JWSA. For the purposes of development planning, an active nest is defined as one that has been used by raptors (not ravens) in at least 1 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 1 or more of the 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 for 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 insufficient information is available for these sites to confirm an inactive status (i.e., no seasonal or surface occupancy stipulations required).

Table 3.1 Raptor Nest Locations and Activity Status, Jonah Field Wildlife Study Area, 2005.

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
AK16	A[7]	a[7]	A	A	2005[7]	Unknown	[redacted]	[redacted]
AK17	A[7]	a[7]	A	I	2005[7]	Unknown	[redacted]	[redacted]
AK18	A	a	A	A	2005	Unknown	[redacted]	[redacted]
AK30	A	a (PF)	I	a	2005	Prairie falcons apparently failed	[redacted]	[redacted]
AK39	I	I	I	I	2002	n/a	[redacted]	
AK50	A	I	I	A	2003	n/a	[redacted]	[redacted]
AK52	A	I	A	I	2004	n/a	[redacted]	[redacted]
AK80	I	I	I	I	Pre-1999	n/a	[redacted]	[redacted]
AK88	A	A	A	A	2005	Fledged 3-4	[redacted]	
AK92	A	I	I	a	2003	n/a	[redacted]	[redacted]
AK97	A	I	I	A	2003	n/a	[redacted]	[redacted]
AK142	I	I	I	I	2002	n/a	[redacted]	[redacted]
AK143	I	I	I	I	2002	n/a	[redacted]	[redacted]
AK146	A	a[7]	A	I	2005[7]	Unknown	[redacted]	[redacted]
AK147	A	a[7]	I	I	2005[7]	Unknown	[redacted]	[redacted]
AK181	A	I	A	NR	2004	n/a	[redacted]	[redacted]
AK273	A	I	A	NR	2004	n/a	[redacted]	[redacted]
AK276	A	I	A	NR	2004	n/a	[redacted]	[redacted]
AK292	A	A	NR	NR	2005	Fledged 4	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No. [2,3]	Raptor Activity Status [4]	Activity by Year [1,2]			Most Recent Activity [5]	2005 Productivity	Legal Location	UTM Coordinates [6]
		2005	2004	2003				
AK305	A	A	NR	NR	2005	Unknown	[redacted]	[redacted]
AK330	A	A	NR	NR	2005	Unknown	[redacted]	[redacted]
AK343	A	a	NR	NR	2005	Unknown	[redacted]	[redacted]
AK344	A	a	NR	NR	2005	Unknown	[redacted]	[redacted]
AK345	A	A	NR	NR	2005	Fledged 2+	[redacted]	[redacted]
BO19	I	I	I	I	1997 [8]	n/a	[redacted]	[redacted]
BO76	I	I	I	I	1998 [8]	n/a	[redacted]	[redacted]
BO77	I	I	I	I	2000	n/a	[redacted]	[redacted]
BO86	I	I	I	I	2002	n/a	[redacted]	[redacted]
BO117	I	I	I	I	2001	n/a	[redacted]	[redacted]
BO124	I	I	I	I	2001	n/a	[redacted]	[redacted]
BO136	I	I	I	I	2002	n/a	[redacted]	[redacted]
BO140	I	I	I	I	2002	n/a	[redacted]	[redacted]
BO159	A	I	I	A	2003	n/a	[redacted]	[redacted]
BO166	A	I	I	a	2003	n/a	[redacted]	[redacted]
BO255	A	I	A	A	2004	n/a	[redacted]	[redacted]
BO290	A	A	NR	NR	2005	Fledged 2+	[redacted]	[redacted]
BO298	A	a	NR	NR	2005	Apparently failed	[redacted]	[redacted]
BO302	A	A	NR	NR	2005	Fledged 4-5	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
BO323	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
BO324	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
BO326	A	A	NR	NR	2005	Fledged 5	[redacted]	[redacted]
BO331	A	A	NR	NR	2005	Fledged 6	[redacted]	[redacted]
BO336	A	a[7]	NR	NR	2005[7]	Unknown	[redacted]	[redacted]
BO337	A	a[7]	NR	NR	2005[7]	Unknown	[redacted]	[redacted]
BO339	A	A	NR	NR	2005	Unknown	[redacted]	[redacted]
BO341	A	A	NR	NR	2005	Fledged 3+	[redacted]	[redacted]
BO356	A	A	NR	NR	2005	Fledged 3-4	[redacted]	[redacted]
CR108 (2 nests)	I	I (CR)	I (CR)	I (CR)	2005 (CR)	Ravens fledged 3	[redacted]	[redacted]
CR125	I	I	I (CR)	I	2004 (CR)	n/a	[redacted]	[redacted]
CR144	I	I (CR)	I	I	2005 (CR)	Ravens fledged 5	[redacted]	[redacted]
CR145	I	I (CR)	I (CR)	I (CR)	2005 (CR)	Ravens failed	[redacted]	[redacted]
CR149	I	I	I (CR)	I	2004 (CR)	n/a	[redacted]	[redacted]
CR151	I	I (CR)	I (CR)	I (CR)	2005 (CR)	Ravens fledged 1+	[redacted]	[redacted]
CR162	I	I (CR)	I (CR)	I (CR)	2005 (CR)	Unknown	[redacted]	[redacted]
CR172	I	I	I (CR)	U[9]	2004 (CR)	n/a	[redacted]	[redacted]
CR173	I	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
CR179	U	I	I (CR)	NR	2004 (CR)	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
CR214	U	I (CR)	I (CR)	NR	2005 (CR)	Ravens fledged 5	[redacted]	[redacted]
CR253	U	I	I	NR	U	n/a	[redacted]	[redacted]
CR267	U	I	I	NR	U	n/a	[redacted]	[redacted]
CR291	U	I (CR)	NR	NR	2005 (CR)	Unknown	[redacted]	[redacted]
CR304	U	I (CR)	NR	NR	2005 (CR)	Unknown	[redacted]	[redacted]
CR306	U	I (CR)	NR	NR	2005 (CR)	Ravens apparently failed	[redacted]	[redacted]
CR325	U	I (CR)	NR	NR	2005 (CR)	Ravens fledged 5	[redacted]	[redacted]
CR342	U	I (CR)	NR	NR	2005 (CR)	Ravens fledged 1+	[redacted]	[redacted]
CR355	U	I (CR)	NR	NR	2005 (CR)	Ravens fledged 3	[redacted]	[redacted]
FH1 (2 nests)	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
FH2 (2 nests)	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
FH4	I	I	I	I	2000	n/a	[redacted]	[redacted]
FH5	I	I	I	I	Pre-1996	n/a	[redacted]	[redacted]
FH8	A	a	I	I	2005	Built on, but abandoned early	[redacted]	[redacted]
FH9	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
FH10	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
FH11	I	I	I	I	Pre-1996	n/a	[redacted]	[redacted]
FH12 (2 nests)	I	I	I	I	Pre-1997	n/a	[redacted]	[redacted]
FH14	A	a	a	A	2005	Nest/territory abandoned early	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH21	I	I	I	I	Pre-1997	n/a	[redacted]	
FH25	I	I	I	I	Pre-1998	n/a	[redacted]	
FH26	A	A (GE)	I	I	2005	Golden eagles fledged 1	[redacted]	
FH28	I	I	I	I	U	n/a	[redacted]	
FH37 (2 nests)	A	A	I	I	2005	Fledged 1+?	[redacted]	
FH38	I	I	I	I	2002	n/a	[redacted]	
FH42	I	I	I	I	Pre-1998	n/a	[redacted]	
FH43 (2 nests)	I	I	I	I	Pre-1998	n/a	[redacted]	
FH53	I	I	I	I	1998	n/a	[redacted]	
FH54 (2 nests)	I	I	I	I	Pre-1998	n/a	[redacted]	
FH55	I	I	I	I	Pre-1998	n/a	[redacted]	
FH56	I	I	I	I	Pre-1997	n/a	[redacted]	
FH57 (2 nests)	I	I	I	I	Pre-1997	n/a	[redacted]	
FH59 (3 nests)	A	I	A	I	2004	n/a	[redacted]	
FH60	I	I	I	I	Pre-1997	n/a	[redacted]	
FH62	I	I	I	I	Pre-1997	n/a	[redacted]	
FH66 (2 nests)	I	I	I	I	Pre-1997	n/a	[redacted]	
FH67	I	I	I	I	Pre-1998	n/a	[redacted]	
FH68	I	I	I	I	Pre-1997	n/a	[redacted]	

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH69	I	I	I	I	2000	n/a		
FH71	I	I	I	I	1997	n/a		
FH73	I	I	I	I	Pre-1996	n/a		
FH78	I	I	I	I	Pre-1999	n/a		
FH82	I	I	I	I	U	n/a		
FH85	I	I	I	I	Pre-1999	n/a		
FH87 (2 nests)	A	a (GE)	A (GE)	A (GE)	2005	Built on by GEs, but apparently abandoned early; may have initiated second attempt at FH161		
FH90	I	I	I	I	Pre-2000	n/a		
FH93	I	I	I	I	Pre-2000	n/a		
FH94	I	I	I	I	Pre-2000	n/a		
FH95	I	I	I	I	Pre-2000	n/a		
FH96	I	I	I	I	Pre-1999	n/a		
FH98	I	I	I	I	Pre-2001	n/a		
FH99	I	I	I	I	Pre-2001	n/a		
FH102	I	I	I	I	Pre-2001	n/a		
FH103 (2 nests)	A	A	I	A	2005	Fledged 3		
FH104	I	I	I	I	Pre-1997	n/a		

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH109	I	I	I	I	Pre-2001	n/a	[redacted]	[redacted]
FH112	I	I	I	I	Pre-2001	n/a	[redacted]	[redacted]
FH115	I	I	I	I	Pre-2001	n/a	[redacted]	[redacted]
FH118	I	I	I	I	Pre-2001	n/a	[redacted]	[redacted]
FH126 (ANS)	A	A	I	I	2005	Abandoned early; failed; unknown if eggs were laid	[redacted]	[redacted]
FH128 (ANS)	I	I	I	I	n/a[10]	n/a	[redacted]	[redacted]
FH129	I	I	I	I	Pre-2002	n/a	[redacted]	[redacted]
FH130	I	I	I	I	Pre-2002	n/a	[redacted]	[redacted]
FH132	I	I	I	I	Pre-2002	n/a	[redacted]	[redacted]
FH135	I	I	I	I	Pre-2002	n/a	[redacted]	[redacted]
FH138	I	I	I	I	Pre-2002	n/a	[redacted]	[redacted]
FH148	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]
FH152	A	I	I	A	2003	n/a	[redacted]	[redacted]
FH153	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]
FH154	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]
FH156	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]
FH157	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH161	A	A (GE)	I	I	2005	Golden eagles failed with 2 unhatched eggs; may have been second or late attempt	[redacted]	[redacted]
FH164	A	I	A	I	2004	n/a	[redacted]	[redacted]
FH165	I	I	I	I	Pre-2003	n/a	[redacted]	[redacted]
FH167	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH168	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH170	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH171	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH174	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH176	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH177	U	I	I	U[9]	Pre-2004	n/a	[redacted]	[redacted]
FH178	A	I	I	NR (a?)	2003?	n/a	[redacted]	[redacted]
FH182	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH184	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH185	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH186	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH187	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH188	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH189	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH190	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH191	A	I	A	NR	2004	n/a	[redacted]	[redacted]
FH192	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH193	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH194	A	I	a	NR	2004	n/a	[redacted]	[redacted]
FH195	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH196	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH197	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH198	A	A	I	NR	2005	Failed either with 4 eggs on the nest or shortly after hatch	[redacted]	[redacted]
FH199	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH200	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH202	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH203	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH204	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH205	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH206	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH207	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH208	A	I	a	NR	2005	n/a	[redacted]	[redacted]
FH209	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH210	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH211	A	I	a	NR	Pre-2004	n/a	[redacted]	[redacted]
FH212	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH213	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH215	A	I	a	NR	2004	n/a	[redacted]	[redacted]
FH216	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH220	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH221	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH222	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH223	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH224	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH225	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH226	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH227	A	I	A	NR	2004	n/a	[redacted]	[redacted]
FH228	U	U	I	NR	Pre-2004[8]	Unknown; nest not checked	[redacted]	[redacted]
FH229	U	U	I	NR	Pre-2004[8]	Unknown; nest not checked	[redacted]	[redacted]
FH230	U	U	I	NR	Pre-2004[8]	Unknown; nest not checked	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH231	U	U	I	NR	Pre-2004[8]	Unknown; nest not checked	[redacted]	[redacted]
FH232	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH233	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH234	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH235	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH236	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH237	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH238	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH239	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH240	A	I	A	NR	2004	n/a	[redacted]	[redacted]
FH241	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH242	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH243	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH244	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH245	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH246	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH247	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH248	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH249	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2]			Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
		2005	2004	2003				
FH250	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH251	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH257	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH258	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH259	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH260	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH261	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH263	U	U	I	NR	Pre-2004[8]	Unknown; if active, abandoned early	[redacted]	[redacted]
FH264	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH265	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH269	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH270	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH271	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH272	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
FH276	U	I	I?	NR	U	n/a	[redacted]	[redacted]
FH278	A	A	NR	NR	2005	Newly built, but abandoned early, probably prior to egg-laying	[redacted]	[redacted]
FH279	A	a	NR	NR	2005	Built on, but abandoned early/not used	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH280	U	I	NR	NR	Pre-2005	n/a		
FH281	A	a	NR	NR	2005	Built on, but abandoned early/not used		
FH282	U	I	NR	NR	Pre-2005	n/a		
FH283	U	I	NR	NR	Pre-2005	n/a		
FH284	U	I	NR	NR	Pre-2005	n/a		
FH285	U	I	NR	NR	Pre-2005	n/a		
FH286	U	I	NR	NR	Pre-2005	n/a		
FH287	A	a	NR	NR	2005	Newly built, but abandoned in favor of FH198		
FH288	U	I	NR	NR	Pre-2005	n/a		
FH289	A	A	NR	NR	2005	Failed, probably prior to hatching		
FH295	U	I	NR	NR	Pre-2005	n/a		
FH296	U	I	NR	NR	Pre-2005	n/a		
FH297	A	A	NR	NR	2005	Fledged 2		
FH299	U	I	NR	NR	Pre-2005	n/a		
FH300	A	a	NR	NR	2005	Apparently newly built in 2005, but abandoned prior to egglaying		
FH301	U	I	NR	NR	Pre-2005	n/a		
FH303	A	A	NR	NR	2005	Failed with 2 punctured (raven predated?) eggs		

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH307	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH308	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH311	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH313	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH314	A	a	NR	NR	2005	Considerably built on, but abandoned early	[redacted]	[redacted]
FH315	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH316	U	U	NR	NR	Pre-2005[8]	Unknown; if active, abandoned early	[redacted]	[redacted]
FH317	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH318	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH319	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH320	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH321	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH322	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH332	A	a	NR	NR	2005	If used, abandoned or failed early	[redacted]	[redacted]
FH334	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH338	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH340	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH346	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
FH347	U	U	NR	NR	Pre-2005[8]	If used, abandoned or failed early	[redacted]	[redacted]
FH348	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH349	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH350	U	U	NR	NR	Pre-2005[8]	If used, abandoned or failed early	[redacted]	[redacted]
FH352	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH357	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
FH358	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
GE36	I	I	I	I	2002	n/a	[redacted]	[redacted]
GE47	A	I	A	A	2004	n/a	[redacted]	[redacted]
GE48	I	I	I	I	Pre-1996	n/a	[redacted]	[redacted]
GE51	A	A	I	A	2005	Fledged 2	[redacted]	[redacted]
GE72	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
GE74	I	I	I	I	2002	n/a	[redacted]	[redacted]
GE218	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
ME100	I	I	I	I	U[11]	n/a	[redacted]	[redacted]
ME120	I	I	I	I	U[11]	n/a	[redacted]	[redacted]
ME121	I	I	I	I	U[11]	n/a	[redacted]	[redacted]
ME122	I	I	I	I	U[11]	n/a	[redacted]	[redacted]
ME134	I	I	I	I	2002	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
ME293	A	A	NR	NR	2005	Fledged 2-3+	[redacted]	[redacted]
NH354	A	A	NR	NR	2005	Fledged 4	[redacted]	[redacted]
OS158	A	A	A	A	2005	Failed prior to hatching	[redacted]	[redacted]
PF27	I	I	I	I	1997[8]	n/a	[redacted]	[redacted]
PF41	A	a	I	I	2005	If used, abandoned or failed early	[redacted]	[redacted]
PF61	I	I	I	I	1997	n/a	[redacted]	[redacted]
PF63	I	I	I	I	Pre-1998	n/a	[redacted]	[redacted]
PF79	I	I	I	I	1999	n/a	[redacted]	[redacted]
PF81	A	I	I	A	2003	n/a	[redacted]	[redacted]
PF113	A	I	A	I	2004	n/a	[redacted]	[redacted]
PF123	I	I	I	I	Pre-2001	n/a	[redacted]	[redacted]
PF163	A	I	I	A	2003	n/a	[redacted]	[redacted]
PF169[12]	A	A	I	U[9]	2005	Fledged 3	[redacted]	[redacted]
PF219	A	I	A	NR	2004	n/a	[redacted]	[redacted]
PF268	A	A	A	NR	2005	Failed late in incubation	[redacted]	[redacted]
PF294	A	A	NR	NR	2005	Fledged 3-4	[redacted]	[redacted]
PF329	A	A	NR	NR	2005	Fledged 3	[redacted]	[redacted]
PF353	A	A	NR	NR	2005	Fledged 3+	[redacted]	[redacted]
RT160	A	I	A	A	2004	n/a	[redacted]	[redacted]

Table 3.1 (Continued)

Nest No.[2,3]	Raptor Activity Status[4]	Activity by Year[1,2] 2005	2004	2003	Most Recent Activity[5]	2005 Productivity	Legal Location	UTM Coordinates[6]
RT217	A	A	A	NR	2005	Fledged 2-3	[redacted]	[redacted]
RT277	A	I (CG)	A	A	2004	Used by Canada geese	[redacted]	[redacted]
SE274	A	U	a	A	2004[8]	Unknown	[redacted]	[redacted]
SE335	A	a	NR	NR	2005	Unknown	[redacted]	[redacted]
UN133	I	I	I	I	Pre-2002	n/a	[redacted]	
UN275	U	I	I	NR	Pre-2004	n/a	[redacted]	[redacted]
UN327	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]
UN328	U	I	NR	NR	Pre-2005	n/a	[redacted]	[redacted]

1 A = active; a = likely active (e.g., individual[s] may have been observed during only one visit and may not have exhibited defensive behavior, but the bird[s] were present in the territory; or individual[s] were observed late in the nesting season with no young but with an apparent affinity for the immediate area. This designation is often used in association with cavity-nesting birds, where it may be difficult to determine the presence of a bird on the nest, particularly if the number of nest visits is limited or if the nest is abandoned or the nesting attempt fails early in the nesting sequence, as often is the case with ferruginous hawks.); I = inactive; NR = nest had not yet been recorded; U = unknown. Species codes in parentheses indicate the nest was used by a species other than that designated in the nest code. I(CG) and I(CR) indicate that the nest was used by Canada geese and common ravens, respectively, but was not active with raptors in that year.

2 AK = American kestrel; BO = burrowing owl; CG = Canada goose; CR = common raven; FH = ferruginous hawk; GE = golden eagle; ME = merlin; NH = northern harrier; OS = osprey; PF = prairie falcon; RT = red-tailed hawk; SE = short-eared owl; UN = unknown species.

3 Information for nests that have been removed from monitoring and listed as historic is provided in Table 3.3.

4 Overall activity status is based on the BLM definition of an active nest as one that 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 not used by raptors in any of the past 3 years are deemed inactive (I).

5 Column denotes most recent activity by a raptor species unless otherwise indicated. (CR) following the date indicates that common ravens most recently used a nest for which no history of raptor use has been recorded.

6 1983 NAD (Zone 12); E = easting; N = northing.

7 One of the two nests (i.e., AK16 or AK17; AK146 or AK147; and BO336 or BO337) was likely active in 2005.

8 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.

9 Nest was newly recorded in the fall of 2003; thus, activity for that year is unknown.

10 Artificial nest structure erected in September 2001. No prior nest history exists.

11 One of the four existing ME nests (ME100, ME120, ME121, ME122) was active in 2001, but the exact nest was undetermined.

12 Reclassified as PF169 from CR169 in 2005.

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 Jonah Infill Drilling Project Area, 2005.

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
AK16	A[8]	[redacted]	U, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	Roads within 825 ft; one existing and three proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK17	A[8]	[redacted]	U, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	Roads within 825 ft; one existing and one proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK18	A	[redacted]	U, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Roads within 825 ft; one proposed well location and existing road within 0.5 mi	Continue activity status and productivity monitoring
AK146	A[8]	[redacted]	Excellent, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	One proposed well location and existing roads within 0.5 mi	Continue activity status and productivity monitoring
AK147	A[8]	[redacted]	Excellent, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	Road within 825 ft; one existing well location and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK273	A	[redacted]	Excellent, 2005	0.5 mi	≥4, 2004	≥4, 2004	4, 2004	Existing road within 0.5 mi	Continue activity status and productivity monitoring
AK343	A	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Road within 825 ft; one existing well location and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK344	A	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Road within 825 ft; one existing well location and associated roads within 0.5 mi	Continue activity status and productivity monitoring
AK345	A	[redacted]	U, 2005	0.5 mi	2+, 2005	2+, 2005	2+, 2005	Two existing and four proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
BO166	A	[redacted]	Good, 2005	0.5 mi	U, 2003	U, 2003	U, 2003	Existing resource roads within 825 ft; four existing and five proposed well locations and associated resource and collector roads within 0.5 mi	Continue activity status and productivity monitoring
BO290	A	[redacted]	Excellent, 2005	0.5 mi	≥2+, 2005	≥2+, 2005	2+, 2005	One existing well location and several roads within 825 ft; additional numerous existing and two proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO298	A	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U (failed?), 2005	One proposed well and several existing roads within 825 ft; additional three existing and four proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO323	U	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	One proposed well within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO324	U	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	One existing well and several roads within 825 ft; additional numerous existing and four proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO326	A	[redacted]	Excellent, 2005	0.5 mi	≥5, 2005	≥5, 2005	5, 2005	Roads within 825 ft; one existing and four proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO331	A	[redacted]	Excellent, 2005	0.5 mi	≥6, 2005	≥6, 2005	6, 2005	Roads within 825 ft; three existing and five proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
BO336	A[8]	[redacted]	Excellent, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	Six existing and six proposed well locations and associated roads within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO337	A[8]	[redacted]	Good, but dug out by the end of season, 2005	0.5 mi	U, 2005[8]	U, 2005[8]	U, 2005[8]	One existing and three proposed well locations and associated roads within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO339	A	[redacted]	Excellent, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Four proposed well locations and an existing road within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
BO356	A	[redacted]	Excellent, 2005	0.5 mi	≥3-4, 2005	≥3-4, 2005	3-4, 2005	Existing roads within 825 ft and additional roads within 0.5 mi	Continue activity status and productivity monitoring
CR325	U	[redacted]	Fair, 2005	0.5 mi	≥5 (CR), 2005	≥5 (CR), 2005	5 (CR), 2005	Roads within 825 ft; four proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
CR342	U	[redacted]	Fair, 2005	0.5 mi	1+ (CR), 2005	1+ (CR), 2005	1+ (CR), 2005	One existing well location and associated road within 825 ft; additional one existing and three proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
CR355	U	[redacted]	Good, 2005	0.5 mi	≥3 (CR), 2005	≥3 (CR), 2005	3 (CR), 2005	One existing and two proposed well location and associated roads within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
FH8	A	[redacted]	Excellent and newly built on, 2005	1.0 mi	U, 2005	0, 2005	0, 2005	Four proposed well locations and existing road within 1,000 ft; numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH14	A	[redacted]	Fair, 2005	1.0 mi	U, 2005	0, 2005	0, 2005	Numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH126	A	[redacted]	Excellent and newly built on, 2005	1.0 mi	0, 2005	0, 2005	0, 2005	Existing roads within 1.0 mi	Continue activity status and productivity monitoring
FH215	A	[redacted]	Good, 2005	1.0 mi	U, 2004	0, 2004	0, 2004	Existing road within 1,000 ft; three existing well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH246	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	One proposed well location and existing roads within 1,000 ft; additional five existing and two proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH247	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH248	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH249	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH250	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
FH251	U	[redacted]	Very poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH276	U	[redacted]	Fair, 2005	1.0 mi	U	U	U	Road within 1,000 ft; numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH288	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	Numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH296	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	Four existing and five proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH301	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	Existing roads within 1.0 mi	Continue activity status and productivity monitoring
FH303	A	[redacted]	Excellent and newly built on, 2005	1.0 mi	2, 2005	0, 2005	0, 2005	Four existing and two proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH332	A	[redacted]	Fair, 2005	1.0 mi	0, 2005	0, 2005	0, 2005	Two existing and three proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH334	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	Two existing and one proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
FH338	U	[redacted]	1 nest-fair to poor, 1 nest-very poor, 2005	1.0 mi	U	U	U	Two existing and five proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH340	U	[redacted]	Fair to poor, 2005	1.0 mi	U	U	U	Two existing and seven proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH346	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	Five existing and 10 proposed well location and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH347	U	[redacted]	Possibly built on, 2005	1.0 mi	0, 2005	0, 2005	0, 2005	Two existing and 10 proposed well locations and associated roads within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH352	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	One existing and two proposed well locations within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring
FH358	U	[redacted]	Poor, 2005	1.0 mi	U	U	U	One proposed well location within 1,000 ft; additional numerous existing and proposed well locations and associated roads within 1.0 mi	Continue activity status and productivity monitoring

Table 3.2 (Continued)

Species/ Nest No.[1,2]	Activity[3]	Legal Location	Nest Condition[4]	Seasonal Buffer Radius	Most Recent Nest Production[5]			Nearby Project Features[6]	Mitigation/ Actions[7]
					Eggs	Nestlings	Fledglings		
SE274	A	[redacted]	U, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Existing roads within 825 ft and additional road within 0.5 mi	Continue activity status and productivity monitoring
SE335	A	[redacted]	U, 2005	0.5 mi	U, 2005	U, 2005	U, 2005	Three proposed well locations and several roads within 825 ft; additional numerous existing and proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring
UN275	U	[redacted]	Fair, but small, 2005	0.5 mi	U	U	U	Existing roads within 825 ft; three existing and three proposed well locations and associated roads within 0.5 mi	Continue activity status and productivity monitoring

1 See Appendix A, Raptor Nest Map, for nest locations.

2 AK = American kestrel; BO = burrowing owl; CR = common raven; FH = ferruginous hawk; SE = short-eared owl; UN = unknown raptor.

3 Active nests (A) are 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 2 years) are assigned an unknown (U) activity status. See Appendix C, Raptor Nesting Records, for further detail.

4 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).

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

6 Based on GIS analysis of Appendix A, Project Features Planning Map. Map was developed from best current data available from the BLM PFO aliquot database (accessed December 2005) and 2005 Operator-provided data on proposed 2006 well locations. The BLM data may not include all existing wells because of an AFMSS (Automated Fluid Minerals Support Systems) backlog (personal communication, December 19, 2005, with Bill Lanning, BLM PFO). Column excludes pipelines, which are not long-term aboveground features and for which no reliable database is currently available. Some of the abovementioned roads may be two-track roads not associated with oil and gas development in the area because roads in the BLM road database are not all classified as to type.

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

8 Either AK16 or AK17 was occupied in 2005, but probably not both; either AK146 or AK147 was occupied in 2005, but probably not both; and either BO336 or BO337 was occupied in 2005, but probably not both.

Eighty-one raptor/raven nests were newly recorded in 2005 (see Tables 3.1 and 3.2): six American kestrel nests (AK292, 305, 330, and 343-345); twelve burrowing owl nests (BO290, 298, 302, 323, 324, 326, 331, 336, 337, 339, 341, and 356); six common raven nests (CR291, 304, 306, 325, 342, and 355); 49 ferruginous hawk nests (FH278-289, 295-297, 299-301, 303, 307-322, 332-334, 338, 340, 346-352, and 357-358); one merlin nest (ME293); one northern harrier nest (NH354); three prairie falcon nests (PF294, 329, and 353); one short-eared owl nest site (SE335); and two unknown raptor/raven nests (UN327 and 328).

Five of the newly recorded nests (i.e., FH309, 310, 312, 333, and 351) were immediately listed as historic nests. All five nests were in very poor condition at the time of recordation but were recorded to assist in determining ferruginous hawk territory boundaries and to provide an indication of where nests might be rebuilt in future years. Two raven nests (CR183 and 252) also were listed as historic in 2005; both nests had deteriorated to the point that little to no nest material remained. An additional 52 previously recorded nests have been listed as historic nests as of the end of the season in 2005. Ten of the 52 are unknown raptor nests obtained from BLM overlays that have never been located; three are duplicate codes for currently monitored nests. The remaining 39 are nests that have deteriorated or no longer exist. All 59 historic nests are depicted with red labels on the Raptor Nest Map in Appendix A and are listed in Table 3.3. Once a nest is listed as historic, it is no longer automatically monitored; however, many of these nests/nest sites are easily observed in the course of ongoing surveys, and monitoring generally is continued in case the nest is rebuilt or a new nest is constructed nearby.

Three nests previously listed as historic were relisted in 2005. CR144 was rebuilt and used by ravens. FH66 and 130 may have had minimal material added since being listed as historic in 2003, and although they remain in poor condition, they were relisted.

Three hundred intact nests/nest sites were recorded in the JWSA in 2005 (see Table 3.1). Fifty-one (17.0%) of the 300 raptor/common raven nests on and adjacent to the JWSA were used by raptors in 2005; however, this number includes multiple ferruginous hawk nests in several territories (i.e.,

Table 3.3 Raptor Nest Locations Removed from Inventory (i.e., Listed as Historic), Jonah Field Wildlife Study Area, 2005.

Nest Number[1]	Most Recent Raptor Activity	Legal Location	UTM Coordinates[2]	Comments
BO23	1997[3]	[redacted]	[redacted]	Area disturbed; burrow not located for several years; listed as a historic nest in 2003
BO75	1998	[redacted]	[redacted]	Exact location never mapped; pipeline ROW constructed through the area; listed as a historic nest in 2002
CR105	2003[4]	[redacted]	[redacted]	Well tanks and stairs removed; nest destroyed; listed as a historic nest in 2004
CR106	2003[4]	[redacted]	[redacted]	Well tanks and stairs removed; nest destroyed; listed as a historic nest in 2004
CR107	2001[3, 4]	[redacted]	[redacted]	Well tanks and stairs removed; nest destroyed; listed as a historic nest in 2004
CR111	2001[4]	[redacted]	[redacted]	Nest gone and listed as historic in 2002
CR114	2001[4]	[redacted]	[redacted]	Nest gone and listed as historic in 2002
CR116	2003[4]	[redacted]	[redacted]	Nest fallen to the ground; listed as a historic nest in 2004
CR127	2001[4]	[redacted]	[redacted]	Nest gone and listed as historic in 2002
CR131	2002[4]	[redacted]	[redacted]	Nest fallen to the ground in 2003 and not rebuilt in 2004; listed as a historic nest in 2004
CR139	2002[4]	[redacted]	[redacted]	Nest gone in late summer of 2002; listed as a historic nest the same year
CR150	Pre-2003[4]	[redacted]	[redacted]	Nest removed in midsummer of 2003; listed as a historic nest the same year
CR155	2003[4]	[redacted]	[redacted]	Conveyor belt removed; nest gone and listed as historic in 2004
CR183	2004[4]	[redacted]	[redacted]	Nest gone and listed as historic in 2005

Table 3.3 (Continued)

Nest Number[1]	Most Recent Raptor Activity	Legal Location	UTM Coordinates[2]	Comments
CR252	U	[redacted]	[redacted]	Nest gone and listed as historic in 2005
CR254	2004[4]	[redacted]	[redacted]	Nesting attempt in 2004 fell before use; listed as a historic nest in 2004
FH3	U	[redacted]	[redacted]	Not found 1999-2000; nest gone and listed as historic in 2001; not shown on map in Appendix A because location is not certain
FH6	Pre-1998	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH7	Pre-1998	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH13	Pre-1998	[redacted]	[redacted]	Nest gone and listed as historic in 2002
FH15	1999	[redacted]	[redacted]	Nest gone and listed as historic in 2002
FH20	Pre-1997	[redacted]	[redacted]	Nest nearly gone in 2001; listed as a historic nest in 2002
FH22	Pre-1998	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH24	2000	[redacted]	[redacted]	Nest gone in 2001; listed as a historic nest in 2003
FH29	U	[redacted]	[redacted]	Nest gone and listed as historic in 2001
FH58	Pre-1997	[redacted]	[redacted]	Nest is the same as FH56;only the FH58 nest code has been listed as a historic nest
FH64	Pre-1997	[redacted]	[redacted]	Nest gone and listed as historic in 2003
FH65	Pre-1997	[redacted]	[redacted]	Nest gone and listed as historic in 2002
FH70	Pre-1998	[redacted]	[redacted]	Nest gone and listed as historic in 2003
FH83	Pre-1999	[redacted]	[redacted]	Nest gone and listed as historic in 2002

Table 3.3 (Continued)

Nest Number [1]	Most Recent Raptor Activity	Legal Location	UTM Coordinates [2]	Comments
FH84	Pre-1999	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH89	Pre-2000	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH91	2002	[redacted]	[redacted]	Nest is the same as GE74; only the FH91 nest code has been delisted
FH101	Pre-2001	[redacted]	[redacted]	Only a few sticks left in 2003; listed as a historic nest the same year
FH110	Pre-1998	[redacted]	[redacted]	Nest in very poor condition in 2002; listed as a historic nest in 2003
FH119	Pre-1999	[redacted]	[redacted]	Nest is the same as FH96; only the FH119 nest code has been delisted
FH137	Pre-2002	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2003
FH141	Pre-2002	[redacted]	[redacted]	Nest gone and listed as historic in 2004
FH175	Pre-2003	[redacted]	[redacted]	Nest on ground and listed as historic in 2003
FH180	Pre-2004	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2004
FH201	Pre-2004	[redacted]	[redacted]	Nest in poor condition and run over by seismic line; sticks scattered; listed as a historic nest in 2004
FH256	Pre-2004	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2004
FH262	Pre-2004	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2004
FH266	Pre-2004	[redacted]	[redacted]	Nest in very poor condition and listed as historic in 2004
FH309	Pre-2005	[redacted]	[redacted]	Nest in very poor condition when recorded in 2005; listed as a historic nest immediately
FH310	Pre-2005	[redacted]	[redacted]	Nest in very poor condition when recorded in 2005; listed as a historic nest immediately

Table 3.3 (Continued)

Nest Number[1]	Most Recent Raptor Activity	Legal Location	UTM Coordinates[2]	Comments
FH312	Pre-2005	[redacted]	[redacted]	Nest in very poor condition when recorded in 2005; listed as a historic nest immediately
FH333	Pre-2005	[redacted]	[redacted]	Nest in very poor condition when recorded in 2005; listed as a historic nest immediately
FH351	Pre-2005	[redacted]	[redacted]	Nest in very poor condition when recorded in 2005; listed as a historic nest immediately
UN31	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN32	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN33	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN34	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN35	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN40	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN44	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN45	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN46	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located
UN49	U	n/a[5]	n/a	Nest obtained from BLM overlays, never located

[1] BO = burrowing owl; CR = common raven; FH = ferruginous hawk; UN = unknown species.
[2] 1983 NAD (Zone 12); E = easting; N = northing; n/a = not available.
[3] 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.
[4] Denotes date of last raven activity; raptor use has not been recorded.
[5] Original location data from BLM overlays could not be field-verified and may have been incorrect.

FH278, 279, 281, and 300 in Territory 12; FH198 and 287 in Territory 24; and FH126 and 303 in Territory 27; each group of which was likely built on by the same nesting pairs). If only one active nest is counted per ferruginous hawk nesting territory/nesting pair, 46 (15.3%) of the 300 nests were used by raptors in 2005, compared with 30 of 223 (13.5%) in 2004, 19 of 134 (14.2%) in 2003, and 17 of 129 (13.2%) in 2002. Twelve (4.0%) additional nests were used by common ravens in 2005--10, nine, and four nests were used by ravens in 2004, 2003, and 2002, respectively (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 2005 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 restriction buffer (i.e., 1.0 mi for ferruginous hawks and 0.5 mi for all other raptor species) from project activities (i.e., where raptor productivity monitoring is not required); thus, productivity data for those nests may not be available (see Appendix C).

The addition of 49 newly recorded ferruginous hawk nests in 2005 resulted in the addition of one new ferruginous hawk nesting territory (Territory 28) and the merging of two previously separate territories (Territories 18 and 23) into one single territory (Territory 18/23); thus, the the number of nesting territories defined within the JWSA remained 27 as in 2004 (see Appendix A, Raptor Nest Map and Table 3.4). At least 15 (56%) of the 27 territories have been occupied by ferruginous hawks at least once during the last 3 years (2003-2005), and 3-year activity status for an additional seven (26%) territories is unknown because complete data for the past 3 years are not available for at least some of the nests in each of those territories (i.e., either the nests were not checked in at least 1 of the last 3 years or the nests were newly recorded and do not yet have 3 years of nest history). The only territories for which no known activity is recorded in the past 3 years are Territories 2, 3, 4, 9, and 14, and nests in two of those territories (i.e., Territories 4 and 9) were used by golden eagles in 2005.

Twelve (44%) of the ferruginous hawk territories were active in 2005, and status for an additional three territories was undetermined (see Table 3.4). Nine of 27 (33%) known territories were recorded as active in 2004, and three of 16 territories (19%) were confirmed active in 2003, with status of an

Table 3.4 2003-2005 Activity Status of Ferruginous Hawk Nesting Territories, Jonah Field Wildlife Study Area. [1]

Territory	Nests Included in Territory [2]	Activity Status [3] 2005	2004	2003
1	68-69, **70**, 71, 99, 118, 129, 216 (also includes Anticline nests **FH7**, 8, 49, and 50 located outside of the JWSA) [4]	A (Anticline nest FH49 failed prior to hatching)	I	I
2	62, **64-65**, 66-67, **84**-85, 90, 96, **101**, 102, 130, **137**	I	I	I
3	56-57, 60, **83**, **180**	I	I	I
4	26, 93-95, 112	I (FH26 used by GEs)	I	I
5	**13**, 14, **15**, **141**	a (FH14 nest/territory active but abandoned early)	a (FH14 failed)	A (FH14 failed)
6	8-12, 346-347	a (FH8 built on but abandoned early) U (FH347 may have been active and abandoned early)	U (no record for FH346 and FH347)	U (no record for FH346 and FH347)
7	**20**, 21, **22**, 73, 98, 332, **333**, 334, 338, 340	a (FH332 if used, was abandoned or failed early)	U (no record for FH332-334 and 338-340)	U (no record for FH332-334 and 338-340)
8	53-55, 82, 109, **110**, 289	A (FH289 failed, probably prior to hatching)	U (no record for FH289)	U (no record for FH289)
9	42-43, 148, 161	I (FH161 used by GEs)	I	I
10	37-38, 132	A (FH37 fledged 1+?)	I	I
11	59, 103-104	A (FH103 fledged 3)	A (FH59; failed early)	A (FH103 fledged 2)

Table 3.4 (Continued)

Territory	Nests Included in Territory[2]	Activity Status[3] 2005	2004	2003
12	1, 138, 194, 278-286, 299-301(also includes Anticline nest FH53 located outside of JWSA)	A (FH278 newly built but abandoned early, probably prior to egglaying) a (FH279 and FH281 were built on and FH300 may have been newly built, but all three were abandoned early, possibly in favor of FH278)	U (no record for FH278-286 and 299-301)	U (no record for FH278-286 and 299-301)
13	28, **29**, 152, 164	I	A (FH164; fledged 1; one dead egg also on nest)	A (FH152 fledged 1)
14	153, 154, 157	I	I	I
15	135, 156, 182	I	I	U (no record for FH182)
16	25, 170, 171, 174, **175**, 176, 177	I	I	U (no record for any of the nests but FH25)
17	244-245	I	I	U (no record for either of the nests)
18/23	178, 184-193, 210-213, 307-308, **309-310**, 311, **312**, 313-315	a (FH314 likely built on but abandoned early)	A (FH211; appears to have been active and failed early) A (FH191; newly built but abandoned prior to completion)	a? (FH178; appears to have been active in 2003 based on nest condition and eggshell in 2004)
19	233-235, 258-261, **262**, 263-265, 316	U (FH263 activity unknown; if active, abandoned/failed early) U (FH316 activity unknown; if active, abandoned/failed early)	U (no record for FH316)	U (no record for any of the nests)
20	236-243, **266**, 349-350	U (FH350 activity unknown; if active, abandoned/failed early)	A (FH240; failed early)	U (no record for any of the nests)

Table 3.4 (Continued)

Territory	Nests Included in Territory[2]	Activity Status[3] 2005	2004	2003
21	220-225, 269-272, 295, 317-322	I	U (no record for FH295 and FH317-322)	U (no record for any of the nests)
22	226-231	U (FH228-231 not checked)	A (FH227; failed early)	U (no record for any of the nests)
23	See Territory 18/23 above	See Territory 18/23 above	See Territory 18/23 above	See Territory 18/23 above
24	195-200, **201**, 202-209, **256**, 287	A (FH198 failed either with 4 eggs on nest or shortly after hatch) a (FH287 built on but abandoned early in favor of FH198)	a (FH208; nest likely active but abandoned before egglaying)	U (no record for any of the nests)
25	232, 257, 297	A (FH297 fledged 2)	U (no record for FH297)	U (no record for any of the nests)
26	**7**, 78, 246-251	I	I	U (no record for FH246-251)
27	2, **3**, 4-5, **6**, 115, 126, 128, 215, 288, 303, 352	A (FH126 built on but either abandoned prior to egglaying [in favor of FH303?] or failed very soon after egglaying) A (FH303 failed with 2 punctured eggs on the nest)	A (FH215; nest newly built, but abandoned or failed early)	U (no record for FH288, 303, or 352)
28	348, 357	I	U (no record for either nest)	U (no record for either nest)

1 See Appendix A, Raptor Map, for locations. FH = ferruginous hawk; GE = golden eagle.

2 Nests in bold type have been listed as historic nests and are no longer regularly monitored (see Table 3.3). No nesting territory is established for nests **FH24**, 87, **89**, 165, 167, 168, 276, 296, **351**, and 358. Nest **FH58** is the same structure as FH56, **FH91** is the same structure as GE74, and **FH119** is the same structure as FH90.

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). Nests number in parentheses indicates which nest in the territory was active.

4 Nests indicated as Anticline nests are located outside of the JWSA and are not shown on the map in Appendix A, nor are they included in the analyses of this report, unless indicated.

additional territory undetermined. The apparent increase in activity in 2004 and 2005 may, in part, be a result of the large number of nests newly recorded during those years, providing a more complete overall indication of ferruginous hawk activity within the JWSA. In addition, surveys in 2005 were initiated in April (i.e., a month earlier than 2003 and 2004 surveys) and thus nests/territories that were active but were abandoned or failed early in the season were more likely to be recorded as having been active. Territory 5 has been occupied and failed in each of the past 3 years. Territory 11 was occupied in each of the past 3 years, fledging young in 2003 and 2005. Territory 13 was occupied and productive in 2003 and 2004 but apparently was not occupied in 2005. Territory 18/23 appears to have been occupied at least early in the season in each of the past 3 years, but no young are known to have fledged from the territory during that time. Territory 24 has been occupied in at least two of the past 3 years but was abandoned early in 2004 and failed during incubation or shortly after hatching in 2005. Activity status for all territories for the past 3 years is provided in Table 3.4.

FH24, 87, 89, 165, 167, 168, 276, 296, 351, and 358 are apparently isolated nests and have not been assigned territories. FH24 was last used by ferruginous hawks in 2000 and was listed as a historic nest in 2003. FH89 was listed as a historic nest in 2003; FH165, 167, and 168 were newly recorded in the fall of 2003 and were unoccupied in 2004 and 2005; FH276 was newly recorded in 2004 and has not been used in the past 2 years; FH296 and 358 were newly recorded as unoccupied nests in 2005; and FH351 was newly recorded and listed as a historic nest in 2005. FH87 was used by golden eagles from 2002 to 2005 but failed during the incubating or nestling stage in each of the 4 years.

Overall, 195 intact ferruginous hawk nests occur within the JWSA, and an additional 33 ferruginous hawk nests have been listed as historic nests (see Tables 3.1 and 3.3 and Appendix C). Sixteen of the 195 intact nests (8.2%) were occupied by ferruginous hawks in 2005, and occupancy for an additional eight (4.1%) nests (i.e., FH228, 229, 230, 231, 263, 316, 347, and 350) is unknown. Ten of 149 (6.7%) of ferruginous hawk nests were occupied by hawks in 2004. The 16 occupied ferruginous hawk nests in 2005 likely represented 11 nesting pairs. FH278 and 300 were apparently newly built in Territory 12, and FH279 and 281 also were built on in that territory; however, no eggs or indication of incubation was

observed, and the territory appears to have been abandoned early in the season. FH287 was built on but eventually abandoned for FH198 in Territory 24, but the nest failed either with four eggs on the nest or shortly after hatching. FH126 was built on early in the season but appears to have been abandoned in favor of FH303, which subsequently failed with two punctured (possibly raven-predated?) eggs on the nest. FH8, 314, and 332 were built on but abandoned early in the season, probably prior to egglaying. FH289 was newly built in the badlands east of Burma Road and failed during incubation. During a followup visit, fresh dirt bike and ATV tracks were observed in close proximity to the nest. It is possible that recreational activity in the area contributed to the abandonment/failure of the nest. FH14 was not constructed on in 2005; however, early in the season, there appeared to be the start of a new nest immediately adjacent to the original nest. Although hawks were observed in the territory on a number of occasions, no nest activity was confirmed at any location within the territory, and the FH14 nest and adjacent area were not used. By season's end, it appeared that woodrats had scattered the sticks at the location adjacent to the original nest, and the territory apparently failed. The remaining three nesting attempts produced a total of at least six fledglings. FH37, on a badland butte at the southern tip of Ross Butte, produced at least one fledgling. FH297 was newly constructed on a well tank stairs adjacent to a previously recorded common raven nest. The nest is the first recorded instance of ferruginous hawks both constructing a nest and successfully nesting on well facilities in the JWSA, with two young fledging from the nest. FH103 is located on a badland butte north of the Jonah field. The nest fledged three young. The increased intensity in raptor activity and production monitoring in 2005 (i.e., monthly surveys from April through August), as well as recent efforts to locate new nests in areas of the JWSA where intensive nest surveys had not previously been recorded, have resulted in more complete productivity data for 2004 and 2005. Table 3.5 presents the nest productivity data by species for 2001 through 2005 for comparison among recent years.

Twenty-three of the nests with an active or unknown 3-year status (i.e., FH8, 14, 126, 215, 246-251, 276, 288, 296, 301, 303, 332, 334, 338, 340, 346-347, 352, and 358) are within 1.0 mi of the JIDPA. Existing project features proximal to active ferruginous hawk nests and nests with unknown activity status are identified in Table 3.2 and Appendix A. Project features/developments on the JIDPA exist and are further planned proximal to nest Territories 5, 6, 7, 26, and 27. Other activities (e.g., recreational

Table 3.5 Nest Productivity by Species, Jonah Wildlife Study Area, 2001-2005.[1]

Species/Parameter	2005	2004	2003	2002	2001
American Kestrel					
Total # Nesting Attempts	10	9	7	6	2
Total # Recorded Fledged in JWSA	9-10+	20+	Unk	Unk	Unk
# Nesting Attempts with Known Outcome[2]	3	5	0	0	0
# Fledglings/Nest with Known Outcome	3.0-3.3+	4.0+	n/a	n/a	n/a
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	3 (100%)	5 (100%)	0 (n/a)	0 (n/a)	0 (n/a)
# Fledglings/Productive Nest	3.0-3.3+	4.0+	n/a	n/a	n/a
Burrowing Owl					
Total # Nesting Attempts	9	1	2	3	3
Total # Recorded Fledged in JWSA	23+	Unk	Unk	1+	2+
# Nesting Attempts with Known Outcome[2]	7	0	0	1	2
# Fledglings/Nest with Known Outcome	3.3+	n/a	n/a	1.0+	1.0+
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	6 (86%)	0 (n/a)	0 (n/a)	1 (100%)	2 (100%)
# Fledglings/Productive Nest	3.8+	n/a	n/a	1.0+	1.0+
Common Raven					
Total # Nesting Attempts	12	10	9	4	8
Total # Recorded Fledged in JWSA	23+	20+	18+	2	2+
# Nesting Attempts with Known Outcome[2]	9	8	8	4	2
# Fledglings/Nest with Known Outcome	2.6+	2.5+	2.3+	0.5	1.0+
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	7 (78%)	7 (88%)	6 (75%)	1 (25%)	1 (50%)
# Fledglings/Productive Nest	3.3+	2.9+	3.0+	2.0	2.0+

Table 3.5 (Continued)

Species/Parameter	2005	2004	2003	2002	2001
Ferruginous Hawk					
Total # Nesting Attempts	11[4]	10	3	1	0
Total # Recorded Fledged in JWSA	6+	1	3	0	0
# Nesting Attempts with Known Outcome[2]	11	10	3	1	n/a
# Fledglings/Nest with Known Outcome	0.5+	0.1	1.0	0.0	n/a
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	3 (27%)	1 (10%)	2 (67%)	0 (0%)	n/a (n/a)
# Fledglings/Productive Nest	2.0+	1.0	1.5	n/a	n/a
Golden Eagle					
Total # Nesting Attempts	4[5]	2	3	4	2
Total # Recorded Fledged in JWSA	3	0	1	1-2	1
# Nesting Attempts with Known Outcome[2]	3	2	3	4	2
# Fledglings/Nest with Known Outcome	0.8	0.0	0.3	0.3-0.5	0.5
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	2 (50%)	0 (0%)	1 (33%)	1 (25%)	1 (50%)
# Fledglings/Productive Nest	1.5	n/a	1.0	1.0-2.0	1.0
Merlin					
Total # Nesting Attempts	1	0	0	1	1[6]
Total # Recorded Fledged in JWSA	2-3+	0	0	1+	1+
# Nesting Attempts with Known Outcome[2]	1	0	0	1	1
# Fledglings/Nest with Known Outcome	2.0-3.0+	n/a	n/a	1.0+	1.0+
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	1 (100%)	n/a (n/a)	n/a (n/a)	1 (100%)	1 (100%)
# Fledglings/Productive Nest	2.0-3.0+	n/a	n/a	1.0+	1.0+

Table 3.5 (Continued)

Species/Parameter	2005	2004	2003	2002	2001
Northern Harrier					
Total # Nesting Attempts	1	0	0	0	0
Total # Recorded Fledged in JWSA	4	0	0	0	0
# Nesting Attempts with Known Outcome[2]	1	n/a	n/a	n/a	n/a
# Fledglings/Nest with Known Outcome	4.0	n/a	n/a	n/a	n/a
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	1 (100%)	n/a (n/a)	n/a (n/a)	n/a (n/a)	n/a (n/a)
# Fledglings/Productive Nest	4.0	n/a	n/a	n/a	n/a
Osprey					
Total # Nesting Attempts	1	1	1	0	0
Total # Recorded Fledged in JWSA	0	0	0	0	0
# Nesting Attempts with Known Outcome[2]	1	1	1	n/a	n/a
# Fledglings/Nest with Known Outcome	0.0	0.0	0.0	n/a	n/a
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	0 (0%)	0 (0%)	0 (0%)	n/a (n/a)	n/a (n/a)
# Fledglings/Productive Nest	n/a	n/a	n/a	n/a	n/a
Prairie Falcon					
Total # Nesting Attempts	7	3	2	1	1
Total # Recorded Fledged in JWSA	12-14	7+	10-11	5-6	2+
# Nesting Attempts with Known Outcome[2]	7	2	2	1	1
# Fledglings/Nest with Known Outcome	1.7-2.0	3.5+	5.0-5.5	5.0-6.0	2.0+
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	4 (57%)	2 (100%)	2 (100%)	1 (100%)	1 (100%)
# Fledglings/Productive Nest	3.0-3.5	3.5+	5.0-5.5	5.0-6.0	2.0+

Table 3.5 (Continued)

Species/Parameter	2005	2004	2003	2002	2001
Red-tailed Hawk					
Total # Nesting Attempts	1	2[4]	1	0	1
Total # Recorded Fledged in JWSA	2-3	4	2	0	0
# Nesting Attempts with Known Outcome[2]	1	2	1	n/a	1
# Fledglings/Nest with Known Outcome	2.0-3.0	2.0	2.0	n/a	0.0
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	1 (100%)	1 (50%)	1 (100%)	n/a (n/a)	0 (0%)
# Fledglings/Productive Nest	2.0-3.0	4.0	2.0	n/a	n/a
Short-eared Owl					
Total # Nesting Attempts	2	1	1	0	0
Total # Recorded Fledged in JWSA	n/a	n/a	3	0	0
# Nesting Attempts with Known Outcome[2]	0	0	1	0	0
# Fledglings/Nest with Known Outcome	n/a	n/a	3.0	n/a	n/a
# Productive Nesting Attempts (% Nest Attempts Productive)[3]	n/a (n/a)	n/a (n/a)	1 (100%)	n/a (n/a)	n/a (n/a)
# Fledglings/Productive Nest	n/a	n/a	3.0	n/a	n/a

[1] Based on TRC Mariah (2001b, 2002a, 2004, 2005a).

[2] Nesting attempts for which productivity is known or estimated based on at least a partial count--this number is used to calculate the number of fledglings per nest attempt.

[3] A subset of the number of nesting attempts with known outcome. The percentage of nests with a known outcome that fledged at least one young (i.e., were productive) is provided in parentheses.

[4] Number of nesting attempts adjusted from number of active nests to reflect instances where one pair was active at more than one nest (e.g., a nest was built on but abandoned before egglaying and another nest in the territory was subsequently used).

[5] Two of the golden eagle nesting attempts in 2005 may have been by the same pair (i.e., at FH87 and FH161).

[6] Nest was initially recorded as a sharp-shinned hawk nest in TRC Mariah (2001b).

activities/off-road vehicle use, livestock grazing, predator/prey interactions, climate) will continue to occur in these and other territories as well.

The location of the nest on an elevated and/or relatively inaccessible substrate is a common denominator of all three successful ferruginous hawk nests in 2005. Although several of the nests that failed in 2005 also were located on this type of substrate (e.g., FH14, FH126), many of the nest failures were of nests located on low ridges or on the ground in rolling terrain (e.g., FH198, 278, 279, 281, 287, 300, 314). These nests are highly susceptible to predation and also may be more readily abandoned should threats to the eggs, young, or adults be perceived. Two ANSs (i.e., FH126 and FH128) were erected in Territory 6 south of the JIDPA in the fall of 2001 (territory boundaries were subsequently revised, and the area is now Territory 27). Additional nest material was attached to the platforms in the summer of 2002 to attract a nesting pair to the area. Despite its subsequent abandonment/failure, the use of FH126 in 2005 is evidence that, once the birds become acclimated to using these structures, ANSs may provide a desirable (and even preferred) nest location. This may be particularly true in the southeastern portion of the JWSA, where, despite the lack of topographic relief, a large concentration of ferruginous hawk nests has been recorded in recent years, none of which has successfully fledged young since the nests were recorded.

It is possible that nests and nest territories adjacent to gas field activities will remain unused or will have limited success during the life of the Jonah Field. Mitigation measures as defined in Section 4.1 are recommended for ferruginous hawks in 2006.

Ten (42%) of the 24 American kestrel nests (i.e., AK16 or 17, 18, 88, 146 or 147, 292, 305, 330, 343, 344, and 345) in the JWSA were occupied by kestrels in 2005, compared to nine of 18 nests (50%) in 2004 and seven of 15 nests (47%) in 2003. Productivity for seven of the nests is unknown; the remaining three active nests produced a total of 9-10+ fledglings (see Table 3.5). Twenty (83%) of the kestrel nests currently recorded within the JWSA are listed as active, and the remaining four are listed as inactive. Nine of the kestrel nests with an active status are within 0.5 mi of the JIDPA (see Table 3.2 and Appendix A [Project Features Planning Map]).

Twenty-three burrowing owl nest sites are currently recorded in the JWSA, and two additional sites have been listed as historic nests. Of the 23 known nest sites, nine (39%) were occupied in 2005, compared to one of 11 (9%) in 2004, two of 10 (20%) in 2003, and three of nine (33%) in 2002. Productivity for two of the burrowing owl nest sites (BO336 or 337 and BO339) is unknown. BO298 was apparently active but failed, with one adult persisting in the area throughout late summer. The remaining six nest sites (BO290, 302, 326, 331, 341, and 356) produced a total of 23+ young, with the number fledged per nest ranging from two or more to six young. Thirteen of the burrowing owl nests have been used within the past 3 years, and the status for an additional two nest sites is unknown. Nine of the burrowing owl nest sites with an active status and both nest sites with an unknown status are within 0.5 mi of the JIDPA.

Seven golden eagle nests (two active, four inactive, and one with an unknown activity status) are recorded within the JWSA. One (14%) of the nests (GE51) was occupied by golden eagles in 2005; however, three ferruginous hawk nests (FH26, 87, and 161) also were used by golden eagles. Two nests in the JWSA were used by golden eagles in 2004, and three were used by eagles in 2003. GE51 produced two fledglings in 2005, and one eagle fledged from FH26. FH87 was built on by golden eagles in early spring of 2005 but had been abandoned by April 19. This marks the fourth consecutive year that the nest has failed early, with all but one of the four nest attempts (in 2004) apparently failing prior to hatching. The nest is on a south-facing badland butte and is relatively inaccessible to ground predators. There is no identifiable significant human disturbance in the area, and the cause of the repeated nest failure is unknown. A golden eagle was observed incubating two eggs at FH161 (approximately 2.6 mi south/south-southwest of FH87) on May 15, 2005. The nest failed, with no sign of eggs or adults observed on June 24. Average hatch date for golden eagles in the Rock Springs area approximately 70 mi south of the JWSA from 1981 to 1985 was April 19, with hatch dates for 37 active nests during that time period ranging from April 3 to May 6 (Berry and Kamber1993). Thus, FH161 likely represented either a late initial nesting attempt or a renesting attempt. It is possible, if FH87 failed or was abandoned very early in the nesting process, that FH161 represented a second nesting attempt by the pair that abandoned FH87. No active golden eagle nest occurs within 0.5 mi of the JIDPA.

Six merlin nests (ME100, 120-122, 134, and 293) representing the territory of one pair are recorded within the JWSA. One of the six (ME293) was occupied in 2005, fledging at least two (and possibly three or more) young. This nest is the only one of the six that has been used in the past 3 years. In 2003 and 2004, the pair was not observed during any of the visits to the territory, and none of the known nests was occupied. Given the aggressive defense of occupied nests displayed in 2001 and 2002, the pair apparently did not nest in the vicinity of the known nests in 2003 or 2004. None of the six nests are within 0.5 mi of the JIDPA.

One northern harrier (NH354) was newly recorded within the JWSA in 2005. The nest was observed at North Sublette Meadow Spring on August 13, with four newly fledged young in the vicinity. NH354 is the only recorded northern harrier nest within the JWSA, and it is more than 0.5 mi from the JIDPA.

One osprey nest is just outside the western edge of the JWSA, but because of its close proximity to monitored nests and the ease with which it can be checked in the course of scheduled surveys, it was added to the list of monitored nests. The nest is an ANS erected in 2003 on private land adjacent to the New Fork River. As in 2003 and 2004, the nest was occupied in 2005 but was abandoned prior to hatching (i.e., by the May 15 nest visit). The nest is more than 0.5 mi from the JIDPA.

Fifteen prairie falcon nest sites (10 active and five inactive) occur within the JWSA. Six (40%) of the nests were occupied in 2005, compared to three of 11 (27%) known nests in 2004, two of nine (22%) in 2003, and one of eight (13%) in 2002. In addition, AK30 apparently was used by prairie falcons in 2005. The nesting attempts at AK30 and in the vicinity of PF41 appear to have failed early. PF268 is confirmed to have failed during incubation. The nest is in a crevice on a badland butte along Blue Rim that is susceptible to slope failure resulting from heavy rain or snow, as well as dripping of rain and snowmelt onto the nest surface. On the May 15, 2005, visit to this nest site, it was noted that recent rain and snow events had, in fact, been heavy enough to cause portions of nearby butte slopes to collapse. In addition, although one falcon was observed incubating during that visit, the second adult was not observed. Since both birds of this pair typically exhibit aggressive defense of the active nest, it is possible that the second adult may have

been injured or killed, contributing to the nest failure. The remaining four active nests (PF169, 294, 329, and 353) produced a total of 12-14 young (see Table 3.5). None of the prairie falcon nests is within 0.5 mi of the JIDPA.

Three red-tailed hawk nests (all active status) are recorded within or just outside the JWSA. One of the nests (RT217) was occupied by red-tailed hawks in 2005, fledging two or three young. RT277 is on the New Fork River and, in the past, was monitored as part of the Pinedale Anticline wildlife studies under the designation of RT108. Since the nest is outside the PAWSA but within the JWSA, the nest was renamed under the Jonah nest numbering system in 2004. The nest was used by Canada geese in 2005. All three of the red-tailed hawk nests are more than 0.5 mi from the JIDPA.

Two potential short-eared owl nest sites were monitored in 2005. The first (SE274) was recorded in 2004 along Sand Draw during a pedestrian reconnaissance of the drainage. The exact location of the nest is undetermined, but 2005 was the third consecutive year the owl(s) were observed in the immediate vicinity. In 2003, three young were observed with an adult in the area. In 2004, at least one adult was observed. In 2005, although no owls were observed during nest site activity checks, one (and possibly two) individual(s) were observed at the site during a pedestrian reconnaissance of the drainage on August 14. Thus, a pair may have nested in the area, although nest success and productivity are unknown. The second short-eared owl possible nest site was newly recorded in 2005. One adult was observed in the area on June 23. Although no nest was located and no young were seen, the site was recorded as a potential nest site because of the defensive and persistent behavior of the adult and the presence of numerous downy body feathers (molted) in the area, suggesting that the bird(s) spent more than occasional time in the area. Short-eared owls nest on the ground, and their nests consist of shallow hollows sparsely lined with vegetation (Baicich and Harrison 1997), making observation of the nest itself difficult. Continued monitoring of both potential nest sites may provide information as to the activity and productivity of short-eared owls in the area. Both sites are within the JIDPA.

Four nests of an undetermined species (UN133, 275, 327, and 328) are known to occur within the JWSA, and an additional 10 nests of undertermined species have been permanently listed as historic nests (see Appendix C). UN133 has been recorded as unoccupied since 2002 and is more than 1.0 mi from the JIDPA. UN275 was newly recorded in 2004 during a pedestrian reconnaissance of Sand Draw and is within the JIDPA. The nest is a small structure atop a basin big sagebrush along the drainage channel, and it was not recorded as occupied in 2004 or 2005. It is most likely a common raven or American crow nest. UN327 and 328 were newly recorded in 2005. Neither nest was occupied, and both nests are more than 1.0 mi from the JIDPA. UN327 is a stick nest built in a crevice on a badland butte. The nest is in fair to good condition and appears to have been built by ravens; however, it is also suitable for use by prairie falcons. The walls of the crevice were fouled with whitewash, indicating use in recent years. UN328 is a stick platform constructed in a badland butte pothole with a rock overhang. The nest is in fair to good condition and may have been used by prairie falcons or golden eagles in past years. During an aerial survey in 2004, a prairie falcon flushed from the immediate vicinity; however, the nest was not observed at that time, and no active nest was confirmed. A prairie falcon persisted in the area again in 2005; however, the bird was likely associated with PF41 or another nearby location. A new (green) bough of greasewood on the nest was likely added by golden eagles, which often utilize this species in nest construction. Golden eagles apparently failed at the nearby FH87 nest in 2005. Common ravens also often use greasewood branches in the construction of their nests, but ravens were not observed in the area during any of the nest checks, and the heavy fouling of the nest area characteristic of active raven nests was not observed.

Nineteen intact common raven nests were recorded within the JWSA in 2005, and an additional 14 have been listed as historic nests (see Appendix C). Sixteen (84%) of the 19 have been used by ravens in the past 3 years. Twelve (63%) of the nests--CR108, 144, 145, 151, 162, 214, 291, 304, 306, 325, 342, and 355--were occupied by ravens in 2005, compared with 10 of 15 nests (67%) in 2004 and nine of 15 nests (60%) in 2003. Productivity at CR162, 291, and 304 is unknown. CR145 and 306, both built on windmills, failed in 2005--CR145 fell from the windmill, and CR306 apparently was intentionally removed, with no material remaining at or below the nest. The remaining seven nests occupied by ravens

produced a total of 23+ fledglings (see Table 3.5). Three raven nests with an unknown 3-year raptor activity status are within 0.5 mi of the JIDPA (see Table 3.2).

3.2 GREATER SAGE-GROUSE

In the past several years, an effort has been made by TRC Mariah, Wyoming COOP, and BLM personnel to obtain GPS perimeter data for greater sage-grouse leks; however, past data were collected using several different GPS models with varying precision capabilities and, in some cases, several different projections were used. On November 22, 2004, personnel from WGFD, BLM PFO, and TRC Mariah met to address and correct locational discrepancies among sage-grouse lek location databases. Duplicate, outdated, and incorrect lek locations were deleted from the database, and a final GIS master database was created with input from biologists with on-the-ground knowledge of the lek locations and those who had collected most of the GPS data. In 2005, BLM and/or WGFD updated perimeters for the following leks within 2.0 mi of the JWSA: Little Fred, Sand Draw #3, Sand Draw Reservoir, and Alkali Draw. The updated UTMs for each lek (i.e., the center point for leks with GPS polygons) are provided in the Greater Sage-Grouse Lek Records (Appendix D). Approximate legal locations for leks within the JWSA are provided in Table 3.6. The correct location for Little Fred Satellite lek has not yet been verified; thus, buffers have been placed around each of the three alternate locations until the actual lek location is confirmed.

During the aforementioned 2004 meeting, WGFD, in consultation with BLM, also removed a number of previously monitored lek locations from consideration as leks because either 1) they never initially met WGFD lek criteria or 2) they appear to represent areas where birds had been observed after departure from an established lek. These historic lek locations are identified in TRC Mariah (2005a), but have been removed from Table 3.6 and Appendix D in this annual report. During the meeting, there also was some question as to whether Sand Draw Reservoir and Sand Draw #4 were two separate leks or if they represented the same lek. Data for the areas were previously combined in annual reports (TRC Mariah 1999, 2001a, 2001b, 2002a, 2004, 2005a). During the 2005 season, it was confirmed that the

Table 3.6 Summary of Greater Sage-Grouse Lek Use and Nearby Project Features for Occupied Leks Within 2.0 Mi of the Jonah Field Wildlife Study Area and Proposed Monitoring for 2006.[1, 2]

Lek Name	Approximate Location	Use	Nearby Project Features[3]	Monitoring/Other Actions[4]
Alkali Draw	[redacted]	Consistent use; not surveyed in 1996 but active all 9 of the years since then	One existing well location and associated roads within 1.0 mi; additional numerous existing and proposed well locations and associated roads within 2.0 mi	Monitor attendance three times in 2006
Alkali Draw 2[5]	[redacted]	Newly recorded lek in 2005	One proposed well location and existing roads within 1.0 mi; additional two existing and four proposed well locations and associated roads within 2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006
Antelope State	[redacted]	Active once when first recorded in 2000; not used in 2001-2004 and not surveyed in 2005; insufficient data to determine trend	One existing and five proposed well locations and associated roads within 1.0 mi; additional numerous existing and proposed well locations and associated roads within 2.0 mi	Monitor attendance three times and reGPS lek perimeter in 2006
Big Fred Satellite	[redacted]	Active the first year recorded (1998); not surveyed any of the other years since; insufficient data to determine trend	Three existing and six proposed well locations and associated roads within 1.0 mi; additional several existing and proposed well locations within 2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006
Blue Alkali[5]	[redacted]	Newly recorded lek in 2005	Two proposed and one existing well locations and associated roads within 1.0 mi; additional proposed well location and roads within 2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006
Blue Rim[5]	[redacted]	Newly recorded lek in 2005	Two proposed and one existing well locations and associated roads within 1.0 mi; additional two proposed well locations and roads within 2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006
Buckhorn Well 1	[redacted]	Consistent limited use from when first recorded in 1999 to 2001; inactive in 2002, 2004, and 2005; checked one time in 2003, with no birds observed; downward trend implied	Numerous existing and proposed well locations and associated roads within 1.0 mi; additional proposed and existing well locations, and roads within 1.0-2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006

Table 3.6 (Continued)

Lek Name	Approximate Location	Use	Nearby Project Features[3]	Monitoring/Other Actions[4]
Clay Hill Well		Decreasing maximum male attendance since 1996; active 6 of the last 10 years, with only one male observed in 2000, 2001, and 2003	Three existing and two proposed well locations and associated roads within 0.25 mi; additional numerous existing and proposed well locations and roads within 2.0 mi	Monitor attendance three times and verify lek perimeter in 2006
Little Fred		Fairly stable attendance since 1998; 1997 was the last year this lek was recorded inactive	Numerous existing and proposed well locations and associated roads within 2.0 mi	Monitor attendance three times in 2006
Little Fred Satellite[6]		Active in 3 of the 5 years surveyed since 1996; downward attendance trend implied	Three existing and six proposed well locations within 1.0 mi; Highway 351 and an additional several existing and proposed well locations within 2.0 mi	Monitor attendance three times, determine which of the three points is correct, and GPS the lek perimeter in 2006 if active
Prairie Dog		First located in 2000; active 3 of the 5 years surveyed; not surveyed in 2003; inactive in 2004 and 2005; downward attendance trend implied	Two proposed well locations within 1.0 mi; roads within 2.0 mi	Monitor attendance three times and GPS lek perimeter in 2006
Sand Draw #3		Consistent use; occupied all 9 years surveyed since 1996; not surveyed in 2002	Two proposed well locations and associated roads within 0.25 mi; additional numerous existing and proposed well locations and roads within 2.0 mi	Monitor attendance three times and verify lek perimeter using correctable GPS in 2006
Sand Draw Reservoir/Sand Draw #4		Consistent use; occupied all 9 of the years surveyed (three visits/year) since 1996; in 1997, only one visit was made to the lek and no males were observed	One proposed well location within 0.25 mi; additional one existing and two proposed well locations and associated roads within 1.0 mi; several proposed and existing well locations and roads within 1.0-2.0 mi	Monitor attendance three times in 2006
Sand Springs Draw		Not surveyed 1995, 1997, 2001, 2003, and 2005; lek not found in 2002; two males attending in 2004	Roads within 2.0 mi	Monitor attendance three times and verify GPS lek perimeter in 2006

Table 3.6 (Continued)

Lek Name	Approximate Location	Use	Nearby Project Features [3]	Monitoring/Other Actions [4]
Shelter Cabin Reservoir	[redacted]	Consistent heavy use since first located in 1999; active all 7 years surveyed since lek was recorded	Roads within 0.25 mi; three existing and one proposed well locations and existing collector road within 1.0 mi; additional numerous existing and proposed well locations and resource roads within 1.0-2.0 mi	Monitor attendance three times in 2006
Stud Horse Butte East	[redacted]	Consistent use, but decreasing trend of maximum male attendance; occupied in each of the last 10 years	Roads within 0.25 mi; five existing and six proposed well locations and associated roads and a BP injection/disposal well within 1.0 mi; numerous additional roads and well locations and the Haliburton yard 1.0-2.0 mi from lek	Monitor attendance three times in 2006
The Rocks	[redacted]	Consistent use but downward attendance trend; active all 9 of the years surveyed since 1996	Five existing and four proposed well locations and associated roads within 1.0 mi; additional existing and proposed well locations, roads, and the Falcon Compressor Station 1.0-2.0 mi from lek	Monitor attendance three times in 2006
Yellowpoint Ridge South	[redacted]	Consistent use but downward attendance trend; active 7 of the 9 years surveyed since 1996; not active in 2005	One proposed well location and existing roads within 0.5 mi; additional two existing well locations and roads within 1.0 mi; numerous existing and proposed well locations and roads and the Luman and Yellowpoint Compressor Stations 1.0-2.0 mi from lek	Monitor attendance three times in 2006

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

[2] Occupied status is based on the criteria described in BLM (2004) (i.e., occupied leks are those that have been active during at least one strutting season in the last 10 years).

[3] Based on GIS analysis of Appendix A, Project Features Map. Map was developed from best current data available from the BLM PFO aliquot database (accessed December 2005) and 2005 Operator-provided data on proposed well locations. The BLM data may not include all existing wells because of an AFMSS (Automated Fluid Minerals Support Systems) backlog (personal communication, December 19, 2005, with Bill Lanning, BLM PFO). Column excludes pipelines, which are not long-term aboveground features and for which no reliable database is currently available. Some of the above-mentioned roads may be two-track roads not associated with oil and gas development in the area because roads in the BLM road database are not all classified as to type.

[4] Seasonal and standard avoidance measures are not included since they would be applied as necessary for all occupied leks and leks with an undetermined occupancy status.

[5] Lek newly recorded from the air in 2005; exact location not ground-truthed (personal communication, January 6, 2005, with Lisa Solberg, BLM PFO biologist).

[6] Because the correct location for this lek could not be verified, all three alternate locations are treated as leks (e.g., afforded protective buffers) until the correct location can be confirmed or the lek is listed as unoccupied.

areas represent the same lek (WFGD 2005); thus, data are presented for the Sand Draw Reservoir/Sand Draw #4 location as in previous years.

The Wyoming BLM has outlined new management guidance for greater sage-grouse (BLM 2004) that establishes the current definitions of and criteria for occupied, unoccupied, and undetermined lek status. An occupied lek is one that has been active during at least one strutting season within the last 10 years. Management protection is afforded to occupied leks. Leks that have not been active during a consecutive 10-year period are considered unoccupied and are not afforded management protection. Any lek that has not been documented as active within the past 10 years but for which insufficient data are available to assign the lek an unoccupied status (i.e., the lek was not monitored or the monitoring was insufficient to assign an inactive annual status in at least one of the 10 years) is considered to have an undetermined occupancy status. Management protection will be afforded leks with an undetermined status until an unoccupied status is confirmed.

Table 3.6 presents a summary of greater sage-grouse lek activity at occupied leks on the JWSA 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 3.7 presents information on lek use from 1996 through 2005. The Little Fred, Little Fred Satellite, Big Fred Satellite, and Sand Springs Draw leks are adjacent to but outside the JWSA--only their 2.0-mi buffers occur within the JWSA. Available data for these leks are included in Tables 3.6 and 3.7.

Three new leks (i.e., Alkali Draw 2, Blue Alkali, and Blue Rim) were recorded in 2005 as a result of aerial surveys of the area by BLM personnel. All three are within 2.0 mi of the JIDPA and are located between Blue Rim and North Alkali Draw. The number of birds at each lek was estimated from the air, and the locations were obtained using helicopter GPS for at least one of the leks; thus, the 2005 data may lack accuracy (personal communication, January 6, 2005, with Lisa Solberg, BLM biologist). Perimeters of all three leks should be obtained in 2006, and formal count surveys also should be initiated at that time.

Table 3.7 Greater Sage-Grouse Lek Attendance Trends, Jonah Field Wildlife Study Area, 1996-2005. [1]

Lek Name(s)	Most Recent Known Male Attendance	History[2]										Trend[3]
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Alkali Draw	2005	NS	~50	26	62	47	45	46	36	13	26	D
Alkali Draw 2	2005	NR	NR	NR	NR	NR	NR	NR	NR	NR	UNK[4]	?
Antelope State	2000[5]	NR	NR	NR	NR	9	0	0	0	0	NS	?
Big Fred Satellite	1998[5]	NR	NR	4	NS	NS	NS	NS	NS	NS	NS	?
Blue Alkali	2005	NR	NR	NR	NR	NR	NR	NR	NR	NR	UNK	?
Blue Rim	2005	NR	NR	NR	NR	NR	NR	NR	NR	NR	UNK	?
Buckhorn Well 1	2001[5]	NR	NR	NR	5	3	3	0	0?	0	0	D
Clay Hill Well	2003	15	4	4	0	1	1	0	1	0	0	D
Little Fred	2005	0	0	37	29	28	32	27	26	18+	25	--
Little Fred Satellite	2001[5]	UNK	UNK	4	≥1	NS	5	NS	NS	0	0	D
Prairie Dog	2002[5]	NR	NR	NR	NR	9	22	7	NS	0	0	D
Sand Draw #3	2004[5]	2	17	12	7	14	16	NS	6	7	10	N
Sand Draw Reservoir/ Sand Draw #4[6]	2005	16	0?	36	26	22	27	17	23	15	59	N
Sand Springs Draw	2004[5]	0	NS	NS	0	0	NS	NL	NS	2	NS	?
Shelter Cabin Reservoir	2005	NR	NR	NR	6[7]	90	73	43	43	30	38	D
Stud Horse Butte East	2005	26	6	31	25	22	12	10	14	13	11+	D
The Rocks	2005	NS	60	53	79	64	62	47	25	16	24	D
Yellowpoint Ridge S.	2004	0	16	17	11	9	6	NS	3+	2	0	D

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; ? = no males were observed on the lek, but the lek was visited less than three times during that breeding season; NR = lek not yet recorded.

3 General indication of 10-year trend: D = downward trend; -- = stable trend; ? = insufficient data to indicate trend; N = no trend implied.

4 The lek may have been active more recently than indicated because data are lacking for at least 1 year since the last known activity.

5 Counts for these three leks were made from the air in 2005 and may lack accuracy (personal communication, January 6, 2005, with Lisa Solberg, BLM PFO biologist). Alkali Draw 2 had approximately 35+ unclassified grouse when observed from the air in 2005. Blue Alkali had approximately three unclassified grouse on the lek. Blue Rim had approximately 50+ unclassified grouse on the lek.

6 Sand Draw Reservoir and Sand Draw #4 were determined to be the same lek in 2005 (WGFD 2005).

7 Lek may have had higher maximum male attendance, as a total of 50 unclassified birds was observed on April 17, 1999 (WGFD 2005).

Based on the above criteria, all 18 of the leks within 2.0 mi of the JWSA are occupied. Antelope State, Big Fred Satellite, and Sand Springs Draw leks were not surveyed in 2005. The three newly identified leks discussed above were recorded in May and thus only visited once. The remaining 12 leks were monitored at least three times from the ground, and seven of the 12 were active in 2005 (see Table 3.7). Of the four leks within the JIDPA, three (Stud Horse Butte East, Sand Draw #3, and Sand Draw Reservoir/Sand Draw #4) were used in 2005. Clay Hill Well was not used. Due to the extent of nearby project development, this lek may continue to have low use or no use throughout the remainder of field development.

Peak male attendance recorded at the seven active leks ranged from a high of 59 at Sand Draw Reservoir/Sand Draw #4 to a low of 10 at Sand Draw #3. In general, attendance at many of the leks within the JWSA appears to be declining over the past 10 years, with the most striking decreases at The Rocks, Alkali Draw, and Shelter Cabin Reservoir leks, all north of the JIDPA and within the Pinedale Anticline project area. Maximum male attendance in 2005 for these leks was 24, 26, and 38, down from 10-year highs of 79, 62, and 90, respectively (see Table 3.7). However, 2005 maximum male attendance for The Rocks, Alkali Draw, Shelter Cabin Reservoir, and Sand Draw Reservoir/Sand Draw #4 leks appeared to rebound somewhat from 2004, with increases of 50% (from 16 to 24), 100% (from 13 to 26), 27% (from 30 to 38), and 293% (from 15 to 59), respectively. These increases may represent a population response to increased precipitation (particularly snowfall) in 2004 or an influx of males from other leks that continue to demonstrate declining attendance. The decline in attendance observed at some of the historic leks in the area also may be a result of birds abandoning those leks in favor of one of the three new leks in the area north of the JIDPA.

Thirty-five greater sage-grouse nests were located by WWC and University of Wyoming COOP personnel during site- and species-specific activities and ongoing studies within the JWSA in 2005 (WWC data provided by J. Dahlke, January 2006; COOP data provided by Rusty Kaiser, December 15, 2005). No attempt was made to locate all sage-grouse nests in the area. Documented nests generally were located in the north and northeastern portions of the JIDPA (nine nests) and in the northeastern portion of the

JWSA (26 nests). Fewer (10) sage-grouse nests were documented in 2004, but the nests that were recorded were similarly distributed-- three in Sand Draw in the northern portion of the JIDPA, one in the southern portion of the J2PA, and six in the northeastern JWSA (see Appendix A, Greater Sage-Grouse Map). Hens with broods were noted five and nine times along the Sand Draw drainage in 2004 and 2005, respectively, and those observations all were recorded during pedestrian reconnaissance of the drainage for pygmy rabbits and other sensitive species. With the exception of Sand Draw, where three nests were recorded in 2004 but none were noted in 2005, observations of hens with broods in both years were generally recorded in areas where sage-grouse nests were documented.

A total of 3,027 greater sage-grouse was documented during the February 11-14, 2005, wintering grouse aerial survey of the combined JWSA and PAWSA, compared to a total of 3,850 recorded in the February 9-12, 2004, survey (see Appendix A, Greater Sage-Grouse Map). In 2005, 2,017 of the documented grouse were observed in the JWSA, with 170 (8%) occurring in the J2PA and none in the JIDPA, whereas in 2004, 1,934 of the documented grouse were observed in the JWSA, with 238 (12%) occurring in the J2PA and 14 (<1%) in the JIDPA. All 14 grouse observed within the JIDPA during the 2004 winter survey were in Sand Draw. The tall vegetation along the draw likely remains exposed even during the most severe winters, thereby affording both winter forage and suitable roost sites/thermal cover for greater sage-grouse during those times. The number of individuals per observation was highly variable in both years, ranging from two to 300 grouse (mean = 64) in 2005 and from one to 250 (mean = 34) in 2004.

The majority of grouse documented within the JWSA in 2005 occurred northwest of the JIDPA and north and west of the J2PA. All of the 170 grouse recorded in the J2PA in 2005 were observed in Granite Wash [redacted] Grouse documented in the rest of the JWSA occurred primarily in the North Alkali Draw (790 individuals [39% of grouse recorded in the JWSA]), Alkali Creek (413 individuals [20%]), the Blue Rim area (380 individuals [19%] below the Blue Rim badlands east of the Burma Road and 209 individuals [10%] on the Blue Rim plateau south of Blue Rim Road), and ephemeral drainages west and northwest of Teakettle Butte (55 individuals [3%]). An additional 40 grouse

were observed in Alkali Creek just outside the JWSA boundary. Two areas of grouse tracks and/or sign (i.e., no birds were observed) were recorded in 2005, compared to 28 in 2004. Fresh snowfall on February 12 and 14, 2005, obscured tracks and likely contributed to the paucity of grouse sign observed in that year.

Overall, grouse were documented in similar locations in 2004 and 2005, with several notable exceptions that may have been related to differences in snow cover and distribution and weather in the two years. Although 39% of the grouse recorded in the JWSA in 2005 were observed in the western portion of North Alkali Draw, no grouse were documented in this area in 2004. Similarly, 19% of the grouse surveyed in 2005 were observed below the Blue Rim badlands east of the Burma Road, but no grouse were recorded using this area in 2004. In contrast, 19% of the grouse observed in the JWSA, as well as abundant grouse tracks/sign, were recorded in an area between Shelter Cabin Reservoir, Sand Springs Draw, and the eastern extension of Blue Rim in 2004; however, no grouse were documented using this area in 2005. Finally, few sage-grouse (25 individuals) were observed in the easternmost portion of North Alkali Draw and its associated tributaries in 2005, whereas 552 grouse (29% of the grouse documented in the JWSA) were documented in this area in 2004.

Although complete snowfall data are not available for Pinedale and the surrounding area in 2004 and 2005 (Western Regional Climate Center 2005), at the time of the 2005 survey, snow cover (based on a visual estimate) was noticeably lower than that observed during the 2004 survey. Snow cover was estimated from the air in 2005 and was assigned one of four categories described in Section 2.2. Because the categories are defined by the proportion of vegetation visible (and therefore accessible) above the snow, the categories more accurately describe forage availability than absolute snow cover. Overall, snow cover in 2005 generally was moderate in the JIDPA and J2PA except along the drainages, where it often was minimal. However, in the southern portion of the JWSA, snow cover was moderate to high with the exception of several drainages with minimal snow cover. Throughout the JWSA, sage-grouse in 2005 were most often observed in areas of moderate (57% of observations) or minimal (29% of observations) snow cover.

As in 2004, grouse surveyed in 2005 were most often observed in or associated with ephemeral drainages (80% of observations), where vegetation is generally taller and, therefore, more accessible in deep snow conditions. Grouse also appeared to prefer flat or rolling terrain (96% of observations) rather than moderate and steep slopes (see Appendix A, Greater Sage-Grouse Map).

One hundred and forty-two greater sage-grouse individuals were observed during the 2005 Sand Draw investigations, compared with 46 recorded in 2004. Observations included 50 juveniles, 29 adult females and 63 unclassified birds. Winter roost scat piles were found beneath basin big sagebrush plants at several locations along the corridor, primarily beneath plants occurring at the edge of the basin big sagebrush habitat.

3.3 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND OTHER BLM WYOMING SENSITIVE SPECIES

3.3.1 Black-footed Ferret

Whitetail PDTs (potential habitat for black-footed ferret) within the J2PA initially were mapped by Anderson Environmental Consulting (Anderson 1996), and selected towns within the JWSA have been remapped and censused since then to determine whether they meet the black-footed ferret habitat density criteria (i.e., ≥ 8 burrows per acre) established in the USFWS (1989) guidelines. In 2005, boundaries for a number of PDTs were remapped, but the towns were not re-censused, nor were high-density areas identified, because the JIDPA and most of the surrounding JWSA have been block-cleared for black-footed ferrets by USFWS (i.e., surveys for ferrets are not required in the area because USFWS has concluded that their presence in the area is unlikely) (USFWS 2004). Thus, the density of the towns within block-cleared areas is no longer critical information. The most current data on PDTs within the JWSA are presented in Table 3.8. Refined PDT boundaries are presented in Appendix A (TEPC&BWS Species/Other Wildlife Map). PDTs 28-33 were newly identified and mapped in 2005. A number of additional PDTs, including several large towns, are also known to occur within the JWSA (particularly in

Table 3.8 Whitetail Prairie Dog Towns, Jonah Field Wildlife Study Area, 2005.

Prairie Dog Town [1]	Location (Status)[2]	Most Recent Mapping Effort	Acreage [3]	Number of Open Burrows [3]	Burrow Density (burrows/acre) [3, 4]
1	JIDPA (C)	2005	347	Not recorded	Not recorded
2A	JIDPA (C)	2005	156	Not recorded	Not recorded
2B	JIDPA (C)	2005	65	Not recorded	Not recorded
2C	JIDPA (C)	2004	(5)	(58)	(10.6)
3A	JIDPA (C)	2005	2	Not recorded	Not recorded
3B	JIDPA (C)	2005	26	Not recorded	Not recorded
4	JIDPA (C)	2005	114	Not recorded	Not recorded
5	JWSA (NC)	2000	106	Not recorded	Not recorded
6A	JIDPA (C)	2005	637	Not recorded	Not recorded
6B	JIDPA (C)	2005	4	Not recorded	Not recorded
6C	JIDPA (C)	2005	17	Not recorded	Not recorded
6D	JIDPA (C)	2005	8	Not recorded	Not recorded
7	JWSA (C)	2000	800	Not recorded	Not recorded
8	JWSA (C)	2000	1,131 (131)	5,090 [5] (1,860) [6]	4.5 (14.2) [6]
9A	JIDPA (C)	2005	112	Not recorded	Not recorded
9B	JIDPA (C)	2005	166	Not recorded	Not recorded
10	JWSA (NC)	2000	39	Not recorded	Not recorded
11	JWSA (C)	2005	90	Not recorded	Not recorded
12	JWSA (C)	2000	79	Not recorded	Not recorded
13	JWSA (C)	2000	86	Not recorded	Not recorded
14	JWSA (C)	2000	105	Not recorded	Not recorded
15	JWSA (C)	2000	189	Not recorded	Not recorded
16	JWSA (C)	2000	214 (52)	1,477 [5] (718) [6]	6.9 [5] (13.8) [6]
17	JWSA (C)	2000	108 (30)	702 [5] (468) [6]	6.5 [5] (15.6) [6]
18	JWSA (C)	2000	328 (55)	1,345 [5] (913) [6]	4.1 [5] (16.6) [6]
19	JWSA (C)	2000	10	Not recorded	Not recorded
20	JWSA (C)	2000	9	Not recorded	Not recorded
21	JWSA (NC)	2005	126	Not recorded	Not recorded
22	JWSA (NC)	2003	474	1049	2.2
23A	JWSA (NC)	2003	(758)	(6,599) [7]	(8.7) [7]
23B	JWSA (NC)	2001	14	36	2.6

Table 3.8 (Continued)

Prairie Dog Town [1]	Location (Status)[2]	Most Recent Mapping Effort	Acreage [3]	Number of Open Burrows [3]	Burrow Density (burrows/acre) [3, 4]
24	JWSA (NC)	2005	2	Not recorded	Not recorded
25A	JIDPA (C)	2005	33	Not recorded	Not recorded
25B	JIDPA (C)	2005	2	Not recorded	Not recorded
25C	JWSA (C)	2005	<1	Not recorded	Not recorded
25D	JWSA (C)	2005	1	Not recorded	Not recorded
25E	JWSA (C)	2005	<1	Not recorded	Not recorded
26	JIDPA (C)	2005	37	Not recorded	Not recorded
27	JIDPA (C)	2004	(162)	(16)	(10.4)
28	JIDPA (C)	2005	169	Not recorded	Not recorded
29	JIDPA (C)	2005	7	Not recorded	Not recorded
30	JIDPA (C)	2005	12	Not recorded	Not recorded
31	JIDPA (C)	2005	8	Not recorded	Not recorded
32	JIDPA (C)	2005	46	Not recorded	Not recorded
33	JIDPA (C)	2005	6	Not recorded	Not recorded

[1] See Appendix A, TEPC&BWS Species/Other Wildlife Map, for location. Not all PDTs within the JWSA have been mapped.

[2] JIDPA = within 0.5 mi of the JIDPA; JWSA = greater than 0.5 mi from the JIDPA; C = USFWS block-cleared for black-footed ferrets; NC = not USFWS block-cleared for black-footed ferrets (i.e., ferret surveys may be required prior to surface disturbance) (per USFWS [2004]).

[3] 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. Not recorded indicates that the latest mapping effort did not entail census of the town. Data for PDTs 8 and 16-18 are from Schlumberger Geco-Prackla (2000); data for PDTs 5, 7, 10, 12-15, and 19-20 are from TRC Mariah (2001a); data for PDT 23B are from TRC Mariah (2001b); data for PDT 22 and 23A are from TRC Mariah (2003); data for PDTs 2C and 27 are from TRC Mariah (2005a); and data for PDTs 1, 2A-B, 3A-B, 4, 6A-D, 9A-B, 11, 21, 24, 25A-E, 26, and 28-33 are from TRC Mariah 2005 field data.

[4] Burrow density numbers, particularly for smaller towns, may not exactly match number of burrows divided by acreage given on the table due to rounding error.

[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).

[7] Estimate based on a census of approximately 27% of the PDT (TRC Mariah 2003 unpublished field data).

the western and southwestern JWSA), but they have not been mapped at this time because they are in areas relatively distant from existing and proposed development.

3.3.2 Bald Eagle, Ferruginous Hawk, and Golden Eagle

No bald eagles were observed within the JWSA during 2005 wildlife investigations, nor are any bald eagle nests known to occur within the JWSA. Information on ferruginous hawks and golden eagles is provided in Section 3.1.

3.3.3 Mountain Plover

In late July 2005, one adult mountain plover with at least one chick was observed in PDT6 along a reclaimed ROW in Section 36. This is the first recorded observation of mountain plover within the JIDPA since wildlife monitoring was implemented in 1997. Plover also have been observed within the J2PA in PDT 5 (one individual each in 2000 and 2002) and in the vicinity of PDTs 9A and 9B just south of the JIDPA (seven individuals in 2002, two in 2003, four in 2004, and 16 in 2005), and it is likely that they nest in the area.

In addition, a large area of suitable nesting habitat occurs just south of the JIDPA in the vicinity of [redacted]. Portions of the habitat closest to the JIDPA and a 0.5-mi buffer were mapped by TRC Mariah personnel in 2004, but the full extent of the area has not been mapped. A total of 30 plover observations was recorded in this vicinity by TRC Mariah and WWC personnel during the 2004 nesting season, including 18 adults and 12 chicks (see Appendix A, TEPC&BWS Species/Other Wildlife Map). Four adult plover were recorded in the area in late June of 2005.

Other locations where plover have been recorded within or adjacent to the JWSA include 1) the Alkali Creek area in the western portion of the JWSA (14 individuals in 1999 and one each in 2000, 2001, and 2003); 2) PDT 21 (nine individuals in 2001); 3) PDT 23A (one individual in 2001); 4) north of

Highway 351 [redacted] (two in 2001 and seven in 2002); 5) north of Highway 351 by the New Fork River crossing (at least eight individuals in 2001); and 6) just west of Highway 191 [redacted], in a tributary of Long Draw (one individual in 2004) (see Appendix A, TEPC&BWS Species/Other Wildlife Map). The individual recorded in the Long Draw area was likely passing through, as habitat is not conducive to mountain plover nesting and the bird was recorded by vocalization only and appeared to be in flight.

3.3.4 Western Burrowing Owl

Results of burrowing owl surveys are presented in Section 3.1.

3.3.5 Other TEPC&BWS Species

Of the TEPC&BWS species listed in Table 2.1 as potentially occurring in the JWSA, greater sage-grouse, whitetail prairie dog, western burrowing owl, ferruginous hawk, and mountain plover are discussed elsewhere in this report. Additional observations of TEPC&BWS species may have been recorded during APD, ROW application, and Sundry Notice reviews. Those data are available for review at the BLM PFO.

Several areas of pygmy rabbit activity were identified during 2003 and 2004, with rabbit activity documented at several locations along Sand Draw and its tributaries (including just west of the JIDPA), as well as in the Blue Rim area (see TRC Mariah 2005a, Appendix A, TEPC&BWS Species/Other Wildlife Map). In 2005, a number of new areas of pygmy rabbit activity were documented during project-specific studies. Nine rabbits were observed and 18 additional areas with sign (burrows and/or pellets) were recorded along Sand Draw corridor during the Sand Draw pedestrian reconnaissance. One live and one dead pygmy rabbit were observed in [redacted], near the base of rocky outcrops, and five rabbits and four areas of sign were recorded during 3-D VSP project-specific surveys of tributaries of Long and Bull Draws and Jonah Gulch south of the JIDPA (see Appendix A, TEPC&BWS

Species/Other Wildlife Map). In addition, WWC (2005 unpublished data) recorded more than 20 observations of pygmy rabbits within the JIDPA and numerous areas of pygmy rabbit sign (i.e., burrows, pellets). These observations were recorded primarily in the Blue Rim area (as noted in 2004), south of Square Top Reservoir and approximately 2 mi northeast of the JIDPA, and southwest of Mud Hole Draw approximately 1.5-2.0 mi east of the JIDPA. Locations of pygmy rabbits and their sign recorded in 2004 and 2005 are shown on the TECP&BWS Species/Other Wildlife Map in Appendix A.

In addition, loggerhead shrike, sage thrasher, sage sparrow, and Brewer's sparrow were observed at various locations throughout the JWSA in 2005, particularly in the basin big sagebrush habitat along Sand Draw, although not all observations were recorded (see Appendix B, General Wildlife Observation Data Forms). Based on observations of nest-building, nestlings, and newly fledged young, these species breed in the JIDPA and surrounding JWSA. The basin big sagebrush habitat provides more cover and higher stature vegetation (shrub heights are 15 ft at some locations) than adjacent habitats; therefore, it provides unique habitat characteristics (e.g., nesting sites, hiding cover, thermal cover) within the JIDPA. The habitat also likely serves as a corridor for wildlife movement across the JIDPA, since development is precluded within 300 ft either side of the Sand Draw channel.

3.4 HABITAT MAP REFINEMENT

Results of habitat mapping within the JIDPA are presented in Appendix A, Greater Sage-Grouse Map. Areas mapped south of the JIDPA in conjunction with EnCana's 3-D VSP project were mapped using the same habitat types/descriptions as those used for the JIDPA.

3.5 GENERAL WILDLIFE

Locations of big game (i.e., pronghorn, mule deer) observed during the winter greater sage-grouse aerial survey of the combined JWSA and PAWSA provide a snapshot of big game use in the area during the winter months. Appendix A (Big Game Crucial Winter Ranges and Winter Observations Map) provides

the locations and number of individuals of all big game recorded during the 2004 and 2005 aerial winter surveys.

Of the pronghorn recorded during the aerial survey, six of 22 observations (representing 208 individuals) were within the JWSA. The six groups ranged from four to 70 individuals and two of the six (a total of 88 individuals) were located [redacted], just northwest of the eastern portion of Blue Rim, where 80 pronghorn were observed in the 2004 winter survey. The remainder of the observations were scattered throughout the JWSA, with only two of the six observations (74 individuals) located in areas identified as pronghorn crucial winter range.

Four observations of mule deer totaling 16 individuals were recorded within the JWSA during the 2005 aerial survey, compared to 12 observations totaling 166 individuals in 2004. Two of the observations were along the New Fork River in the northeastern corner of the JWSA and two were south of the Ross Butte area. Deer in 2004 were observed primarily in the western quarter of the JWSA (see Appendix A, Big Game Crucial Winter Ranges and Winter Observations Map). Because of the timing of previous wildlife monitoring studies (i.e., excluding the fall and winter seasons), these are the only recorded observations of mule deer (live individuals) within the JWSA during the 9 years of wildlife monitoring conducted since 1997.

Thirty-one wildlife species and/or their sign were observed in the basin big sagebrush-dominated areas along Sand Draw in 2005, compared to 35 species in 2004. In addition to pygmy rabbit, species observed included short-eared owl, merlin, northern harrier, savannah sparrow, chipping sparrow, American robin, and northern flicker, all of which either have not been recorded in the JIDPA or have been recorded only uncommonly within the JWSA. Species observed in 2003 and 2004 that have not been recorded or have been uncommonly recorded outside of the Sand Draw basin sagebrush habitat include dark-eyed junco, Townsend's solitaire, solitary vireo, fox sparrow, American pipit, lark bunting, Say's phoebe, green-tailed towhee, and song sparrow.

Limited additional data on other wildlife species observed on the JWSA during 2005 surveys are provided in Appendix B and in APD, ROW, and Sundry Notice application field review data available at the BLM PFO. Table 3.9 provides a comprehensive list of species recorded within the JWSA by TRC Mariah personnel during wildlife monitoring from 1997 through 2005.

Table 3.9 List of Species Observed Within the Jonah Field Wildlife Study Area During Wildlife Monitoring, 1997-2005.

Common Name	Scientific Name
Birds	
Eared grebe	*Podiceps nigricollis*
Great blue heron	*Ardea herodias*
Turkey vulture	*Cathartes aura*
Canada goose	*Branta canadensis*
Gadwall	*Anas strepera*
American wigeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Blue-winged teal	*Anas discors*
Cinnamon teal	*Anas cyanoptera*
Northern shoveler	*Anas clypeata*
Northern pintail	*Anas acuta*
Lesser scaup	*Aythya affinis*
Ruddy duck	*Oxyura jamaicensis*
Osprey	*Pandion haliaetus*
Northern harrier	*Circus cyaneus*
Cooper's hawk	*Accipiter cooperii*
Swainson's hawk	*Buteo swainsonii*
Red-tailed hawk	*Buteo jamaicensis*
Ferruginous hawk[1]	*Buteo regalis*
Golden eagle	*Aquila chrysaetos*
American kestrel	*Falco sparverius*
Merlin[2]	*Falco columbarius*
Prairie falcon	*Falco mexicanus*
Greater sage-grouse[1]	*Centrocercus urophasianus*
Sandhill crane	*Grus canadensis*
Killdeer	*Charadrius vociferus*
Mountain plover[1]	*Charadrius montanus*
American avocet	*Recurvirostra americana*
Willet	*Catoptrophorus semipalmatus*
Spotted sandpiper	*Actitis macularia*
Wilson's phalarope	*Phalaropus tricolor*
Mourning dove	*Zenaida macroura*
Great horned owl	*Bubo virginianus*

Table 3.9 (Continued)

Common Name	Scientific Name
Burrowing owl [1]	*Athene cunicularia*
Short-eared owl	*Asio flammeus*
Common nighthawk	*Chordeiles minor*
Northern flicker	*Colaptes auratus*
Say's phoebe	*Sayornis saya*
Loggerhead shrike [1]	*Lanius ludovicianus*
Blue-headed (formerly Solitary) vireo	*Vireo solitarius*
Clark's nutcracker [2]	*Nucifraga columbiana*
Black-billed magpie	*Pica pica*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Horned lark	*Eremophila alpestris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Cliff swallow	*Petrochelidon pyrrhonota*
Barn swallow	*Hirundo rustica*
Rock wren	*Salpinctes obsoletus*
Ruby-crowned kinglet [2]	*Regulus calendula*
Mountain bluebird	*Sialia currucoides*
Townsend's solitaire	*Myadestes townsendi*
Swainson's thrush	*Catharus ustulatus*
American robin	*Turdus migratorius*
Sage thrasher [1]	*Oreoscoptes montanus*
American pipit	*Anthus rubescens*
Wilson's warbler	*Wilsonia pusilla*
Green-tailed towhee	*Pipilo chlorurus*
Chipping sparrow	*Spizella passerina*
Brewer's sparrow [1]	*Spizella breweri*
Vesper sparrow	*Pooecetes gramineus*
Lark sparrow	*Chondestes grammacus*
Sage sparrow [1]	*Amphispiza belli*
Lark bunting	*Calamospiza melanocorys*
Savannah sparrow	*Passerculus sandwichensis*
Fox sparrow	*Passerella iliaca*
Song sparrow	*Melospiza melodia*

Table 3.9 (Continued)

Common Name	Scientific Name
Dark-eyed junco [2]	*Junco hyemalis*
Red-winged blackbird	*Agelaius phoeniceus*
Western meadowlark	*Sturnella neglecta*
Brown-headed cowbird	*Molothrus ater*
Gray-crowned rosy-finch	*Leucosticte tephrocotis*
House finch	*Carpodacus mexicanus*
American goldfinch	*Carduelis tristis*
Mammals	
Badger	*Taxidea taxus*
Coyote	*Canis latrans*
Red fox [3]	*Vulpes vulpes*
Bobcat [3]	*Lynx rufus*
Whitetail prairie dog [1]	*Cynomys leucurus*
Wyoming ground squirrel	*Spermophilus elegans elegans*
Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*
Least chipmunk	*Tamias minimus*
Northern pocket gopher [3]	*Thomomys talpoides*
Deer mouse	*Peromyscus maniculatus*
Vole sp.	--
Whitetail jackrabbit	*Lepus townsendii*
Desert cottontail	*Sylvilagus auduboni*
Pygmy rabbit [1]	*Brachylagus idahoensis*
Wild horse	*Equus caballus*
Mule deer	*Odocoileus hemionus*
Moose	*Alces alces*
Pronghorn	*Antilocapra americana*
Reptiles/Amphibians	
Eastern short-horned lizard	*Phrynosoma douglassi brevirostre*

[1] BLM Wyoming sensitive species list, September 20, 2002 (BLM 2002).

[2] Species was observed only on the forested northern side of Ross Ridge outside the JIDPA. This habitat type is found only in this area of the JWSA.

[3] Actual individuals not observed; only sign (e.g., tracks, diggings, scat).

4.0 MONITORING AND PROTECTION MEASURES

The following wildlife protection measures were developed specifically for potentially impacted wildlife resources on and adjacent to the JIDPA and J2PA. The principal protection measure for most wildlife species is avoidance of sensitive/crucial habitats (e.g., raptor nests, greater sage-grouse leks), where practical. Additional efforts/mitigative actions may be identified in association with the final EIS for the Jonah Infill Drilling Project (BLM 2005) and as a result of the review of the effectiveness of currently implemented mitigation measures.

4.1 RAPTORS

The primary mitigation measure for raptor species in the JWSA is avoidance of active nest locations during the breeding season. 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 and bald eagle 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 (1,000 ft for ferruginous hawks and 2,640 ft for bald eagles) (BLM 1998a, 2000b, 2005). Bald eagles are afforded additional seasonal protection within 1.0 mi of winter roosts from November 1 through April 1, and within 2.5 mi of winter foraging areas from November 15 through April 1. Facility construction in these areas will require specific approval from the BLM.

The Operators have committed to continue monitoring nest activity status and productivity in 2006 within the JWSA as identified in past BLM approvals and the Jonah Infill Drilling Project Drilling Project EIS (BLM 1998a: Appendix E, 2000b, 2005). Nest activity status will be monitored primarily from the ground, and new nests will be photographed and locations recorded with a handheld correctable Trimble

GeoExplorer 3 GPS unit. As time allows, efforts to locate new nests will be increased in areas of the JWSA that have received less focus during past ground surveys and have the greatest potential for containing suitable nesting habitat, particularly for ferruginous hawks. Identification of new nests in the JWSA provides valuable information on raptor nesting trends and spatial use of areas within and adjacent to the JIDPA.

Raptor nest activity and productivity for all known raptor nests and ferruginous hawk nesting territories located on or within 1.0 mi of the JIDPA will be monitored monthly from late March/early April through August 2006, or until occupied nests have failed or young have fledged. 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, the appropriate 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 state 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 is projected to continue on and adjacent to ferruginous hawk Territories 5, 6, 7, 26, and 27, two ANSs were established in the area in 2001. The erection of two additional ANSs was previously recommended in the vicinity of ferruginous hawk Territory 5 (see Appendix A, Raptor Nest Map); however, given the amount of current development and the potential for future development in the area of Territory 5, the recommendation of ANS placement was withdrawn in the 2004 annual report (TRC Mariah 2005a) and, instead, it was recommended that two ANSs be constructed in one of the territories south or southeast of the JIDPA in coordination with the BLM and the leaseholder(s). During consultation with Lisa Solberg and Steve Belinda (BLM biologists, PFO) in July 2005, it was decided that no ANSs were advised in the JIDPA or surrounding areas at this time; thus, no additional ANS structures are recommended in 2006. Operators are responsible for the annual maintenance of existing ANSs throughout the life-of-project, and all ANSs on public lands will become the property of the BLM upon

completion of the project. Additional mitigation for nesting raptors may be required 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.

4.2 GREATER SAGE-GROUSE

Eighteen greater sage-grouse leks currently are present within 2.0 mi of the JWSA (see Tables 3.6 and 3.7), and all 18 are currently designated occupied. Monitoring and identification of greater sage-grouse leks within the JWSA and a 2.0-mi buffer will continue in 2006, as specified by the BLM (1998a, 2000b, 2005).

Monitoring (ground surveys) of leks in 2006 will be conducted by WGFD, BLM, and/or COOP personnel, with limited assistance from TRC Mariah personnel, as needed, to ensure that all leks in the JWSA are monitored. In the absence of agency support, all leks within 2.0 mi of the JIDPA would be monitored by

TRC Mariah, pending approval by the BLM PFO. Gaps in monitoring data are the single biggest problem in determining lek occupancy status and attendance trends, so it is of the utmost importance that all known leks be scheduled for monitoring and visited at least three times during the strutting/mating season.

Inaccurate mapping of leks also may hinder determination of lek activity and occupancy status. It is imperative to obtain accurate GPS perimeter data for leks currently lacking reliable GPS locational data because development plans are affected by seasonal and no surface occupancy stipulations associated with occupied leks. In November 2004, WGFD, BLM, and TRC Mariah personnel addressed redundancy and inadequacy in the existing sage grouse lek locational data and compiled an updated GIS shapefile for leks in the JWSA. As of the end of the 2005 season, seven greater sage-grouse leks within the JWSA and a 2.0-mi buffer lack GPS perimeter data, and perimeter data for four additional leks need verification (i.e., perimeters either were obtained using noncorrectable GPS units, which lack accuracy or they were screen-digitized). In 2006, GPS perimeter data will be obtained for these leks, if possible (i.e., if any of the leks are not active in 2006, personnel familiar with where strutting activity has occurred in the past must be available to accurately define the lek boundaries). BLM, WGFD, and/or COOP personnel will use correctable GPS equipment in 2006, in tandem with the knowledge of the people who are most familiar with the leks and their boundaries to obtain reliable boundaries for these leks. If agencies lack time or resources to complete this task, TRC Mariah personnel will provide support as requested by the BLM PFO.

No further wintering greater sage-grouse aerial surveys are proposed in 2006; however, data gathered in 2004 and 2005 surveys may be used by BLM and/or WGFD to assist in identifying areas that likely provide the most important winter cover and foraging habitat, particularly during severe winters (i.e., substantial snow cover over a large percent of an area for a prolonged period of time).

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 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 the Yellowpoint Ridge South lek south of the JIDPA (BLM 2000b) (see Appendix A, Greater Sage-Grouse Map). 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 occupied 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 portions of Granite Wash within the J2PA) (see Appendix A, Greater Sage-Grouse Map) 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 occupied 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 grouse strutting period (March 1-May 15) within 1.0 mi of occupied leks (BLM 2000a, 2000b). In addition, prior to the start of surface-disturbing activities during the nesting season (March 1-July 15) in potential greater 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, 2005). If nesting grouse are not found, 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 15 or until nesting is completed.

4.3 SAND DRAW AND BASIN BIG SAGEBRUSH HABITAT

The Sand Draw drainage provides unique wildlife habitat that shelters several sensitive wildlife species, as well as a number of species not observed elsewhere within the JIDPA. Alkali Draw and portions of

Granite Wash provide similar habitat outside of the JIDPA but within the adjacent J2PA. It is recommended that the 600-ft wide protection buffer (300 ft either side of the channel) be maintained along Sand and Alkali Draws and portions of Granite Wash within the J2PA as indicated on the TEPC&BWS Species/Other Wildlife Map (Appendix A). This recommendation is based on 1) the unique nature of the basin big sagebrush habitat within the J2PA (i.e., denser and much taller vegetative structure than surrounding areas); 2) the known presence of numerous wildlife species that use the habitat, including a number of BLM-sensitive species (e.g., pygmy rabbit, greater sage-grouse, sage thrasher, sage sparrow, Brewer's sparrow); 3) the apparent use of this relatively unobstructed corridor of habitat for animal movements; and 4) the extent of existing and potential disturbance in the JIDPA.

It is further recommended that limited investigations of the Sand Draw drainage channel and other potential pygmy rabbit habitat (i.e., tall dense sagebrush in areas of deep soils suitable for digging burrows) within the JIDPA be implemented in 2006 as a component of sensitive species investigations and to supplement general wildlife observations within the JIDPA and adjacent study area.

4.4 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND BLM WYOMING SENSITIVE SPECIES AND OTHER WILDLIFE SPECIES

Limited investigations of Sand Draw and other areas of potential pygmy rabbit habitat in 2006 as described in Section 4.3 will provide information on the presence and distribution of some of the TEPC&BWS and other wildlife species within the JIDPA, and it is assumed that the protection measures specified in Section 4.4.5 and primarily designed to minimize impacts to other area resources (e.g., vegetation and surface water resources including wetlands, steep slopes) will benefit TEPC&BWS species as well.

If, during implementation of surveys or during APD and ROW application field reviews, any TEPC&BWS species are observed on areas within 0.5 mi of proposed disturbance sites, nests or other crucial features for the observed species will be avoided, and consultation and coordination with the BLM, USFWS, and

WGFD will be conducted, as necessary. Construction activities in these areas will be curtailed until there is concurrence among Operators, BLM, USFWS, and WGFD as to 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). In addition, if TEPC&BWS species are observed, efforts will be made to determine the activities of the species on the JWSA (e.g., breeding, nesting, foraging, hunting). If any management agency (i.e., BLM, WGFD, USFWS) identifies a potential for impacts to any TEPC&BWS species, additional monitoring and/or protection measures may be implemented as directed by the BLM. USFWS and/or WGFD consultation and coordination will be conducted as deemed necessary by BLM for all mitigation activities relating to TEPC&BWS species and their habitats implemented during 2006.

Whitetail prairie dogs are a BLM Wyoming sensitive species, and their colonies provide habitat and/or forage for a number of TEPC&BWS species (e.g., black-footed ferret, mountain plover, ferruginous hawk, and western burrowing owl); thus, monitoring of active PDTs is an important component of sensitive species monitoring. Twenty-three PDTs occur within the JIDPA and a 0.5-mi buffer, and boundaries of all 23 of those towns were last updated in 2004 or 2005 (see Table 3.8). Eight of the remaining 22 towns in the JWSA have been remapped between 2003 and 2005. Fourteen of the towns were last mapped in 2000 or 2001. PDT5 is within the J2PA, is occupied mountain plover habitat, and is in an area not block-cleared for black-footed ferrets (USFWS 2004); thus, it is recommended that this town be remapped and censused in 2006. It is further recommended that an area within the J2PA along the Burma Road ([redacted] where several prairie dogs were observed in 2005 be investigated in 2006 to determine if a town exists in the area.

Numerous ferruginous hawk nests and territories have been newly recorded in the southeastern portion of the JWSA in the past two years, and during the raptor nesting surveys in 2004 and 2005, new unmapped areas of prairie dog activity were noted (see Appendix A, TECP&BWS Species/Other Wildlife Map). It is recommended that new areas of prairie dog activity be noted (but boundaries not mapped) in 2006 to supplement prairie dog distribution data in the southeastern JWSA. There appears to be a high correlation between ferruginous hawk nesting territories and prairie dog towns (i.e., prey base) in the area,

and identification of current prairie dog distribution in this portion of the JWSA will provide valuable data pertinent to ferruginous hawk nesting activity in the area.

4.4.1 Black-footed Ferret

If black-footed ferrets or their sign are found within the J2PA but outside the JIDPA, 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 JIDPA, 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.

Furthermore, any project-related disturbance in PDTs occurring outside the JIDPA but within T29-30N, R109-110W, in the JWSA (i.e., areas not block-cleared for black-footed ferrets) will require black-footed ferret surveys if PDTs/portions of PDTs of sufficient size and burrow density for black-footed ferret habitat exist. Currently, mapped PDTs within those townships and ranges include PDTs 5, 10, 21, 22, 23A-B, and 24. Identification and investigation of areas to be disturbed would be required on a site-specific basis, as not all PDTs within the JWSA may be currently mapped, and mapped PDT boundaries may not accurately reflect current PDT town locations and extents (see Table 3.7). Consultation with USFWS would be conducted to determine the need for ferret surveys in prairie dog towns/colonies in these areas.

Black-footed ferret surveys, if required, will be conducted by a USFWS-qualified biologist in adherence to USFWS guidelines as established in USFWS (1989). Surveys will be conducted 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.

4.4.2 Bald Eagle, Ferruginous Hawk, and Golden Eagle

Monitoring and protection protocol for bald eagle, ferruginous hawk, and golden eagle in 2006 will be the same as described for raptors (see Section 4.1). 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 2006 APD, ROW application, and Sundry Notice reviews.

4.4.3 Mountain Plover

The mountain plover was proposed for listing as a federally threatened species in 1999. The USFWS withdrew the listing in September 2003 because new information indicated that the threats to mountain plover as identified in the listing were not as significant as initially believed. However, any federally proposed or candidate species withdrawn from USFWS consideration is initially included on BLM's Wyoming sensitive species list (BLM 2002).

Formal surveys for mountain plover will be conducted in 2006 in areas within 0.5 mi of the JIDPA where plover have been previously recorded (i.e., occupied mountain plover habitat) (personal communication, January 2004, with Keith Andrews, Wildlife Biologist, BLM PFO). Three areas within 0.5 mi of the JIDPA (i.e., the vicinities of PDT 9A-B and PDT28, PDT 6A, [redacted]) are considered occupied mountain plover habitat based on this criterion.

The following protocol has been modified from that presented in BLM (1998a: Appendix E) 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, 2006, mountain plover surveys will be conducted by an Operator-financed BLM-approved biologist in accordance with USFWS guidelines (USFWS 2002) on occupied

nesting habitat within 0.5 mi of the JIDPA (personal communication, January 2004, with Keith Andrews, Wildlife Biologist, BLM PFO). Survey procedures will be as described in Section 2.3.3.

If breeding mountain plover are observed within 0.25 mi of proposed surface disturbance, 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 post-survey completion and 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 plover are nesting in the area, the Operators will delay development activities until nesting is complete.

The nest success and productivity of all mountain plover nests found within the JIDPA 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).

If removal of mountain plover nesting habitat is unavoidable, loss would be minimized by creation of additional nesting habitat; many of the existing and proposed pipeline reclamation areas on the JIDPA likely provide suitable plover breeding habitat. 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.

4.4.4 Western Burrowing Owl

Monitoring and avoidance of prairie dog colonies (i.e., suitable burrowing owl nesting habitat) is discussed above, and Section 4.1 describes general raptor monitoring and mitigation measures, which would be applied to burrowing owls. Additional measures may be applied in future years if burrowing owl nesting and/or productivity in the JWSA appears to be declining. These potential measures will be identified by the BLM.

4.4.5 Other BLM Wyoming Sensitive and General Wildlife Species

Since loggerhead shrike, Brewer's sparrow, sage sparrow, and sage thrasher, as well as pygmy rabbit, have been observed in the area (see Appendix B, General Wildlife Observation Data Sheets), special attention to these species is recommended for APD, ROW application, and Sundry Notice field reviews. No additional protection measures have been identified at this time for other sensitive species potentially present on the JWSA; however, it is assumed that the protection protocol specified below for general wildlife will benefit TEPC&BWS species as well.

Additional protection measures primarily designed to minimize impacts to other area resources (e.g., vegetation and surface water resources including wetlands, steep slopes) have been identified by 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 BLM 1997: Appendix B, 1998a, 1998b).

Operators will continue to advise project personnel regarding appropriate speed limits (i.e., 35 mph or less, as posted) in the project area to minimize wildlife mortality due to vehicle collisions. 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.

Project-related travel will be restricted to established project roads to protect plant populations and wildlife habitat. 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 may 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 conduct greater sage-grouse nest location or winter concentration area surveys). Operators will enforce existing drug, alcohol, and firearms policies.
- If injured wildlife are observed within the J2PA, Operator personnel will contact the BLM PFO and/or the WGFD Pinedale Office. Under no circumstances will injured wildlife be approached or handled.

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