

**1997 AND 1998 WILDLIFE STUDIES
JONAH FIELD II
NATURAL GAS DEVELOPMENT PROJECT**

Prepared for

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

and

**Rock Springs Field Office
Rock Springs, Wyoming**

Prepared by

**TRC Mariah Associates Inc.
Laramie, Wyoming
Project 22318**

February 1999

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
2.0 METHODS	3
2.1 RAPTORS	3
2.2 SAGE GROUSE	4
2.3 THREATENED, ENDANGERED, CANDIDATE, AND OTHER WYOMING SPECIES OF CONCERN	4
2.3.1 Black-footed Ferret	5
2.3.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle	5
2.3.3 Mountain Plover	5
2.3.4 Western Burrowing Owl	6
2.3.5 Other TEC&WSC Species	6
2.4 GENERAL WILDLIFE	6
3.0 RESULTS AND PROPOSED MONITORING/PROTECTION MEASURES .	8
3.1 RAPTORS	8
3.1.1 Results	8
3.1.2 Monitoring/Protection Measures	16
3.2 SAGE GROUSE	18
3.2.1 Results	18
3.2.2 Monitoring and Protection Measures	22
3.3 THREATENED, ENDANGERED, CANDIDATE, AND WYOMING SPECIES OF CONCERN	24
3.3.1 Results	24
3.3.1.1 Black-footed Ferret	24
3.3.1.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle	24
3.3.1.3 Mountain Plover	24
3.3.1.4 Western Burrowing Owl	24
3.3.1.5 Other TEC&WSC Species	25
3.3.2 Monitoring and Protection	25
3.3.2.1 Black-footed Ferret	25
3.3.2.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle	26
3.3.2.3 Mountain Plover	26
3.3.2.4 Western Burrowing Owl	28
3.3.2.5 Other TEC&WSC Species	28

TABLE OF CONTENTS (Continued)

	<u>Page</u>
3.3.3 General Wildlife	29
3.3.3.1 Results	29
3.3.3.2 Monitoring and Protection	29
4.0 LITERATURE CITED	32
APPENDIX A: MAPS	
APPENDIX B: DATA FORMS	

LIST OF FIGURES

	<u>Page</u>
Map 1.1 Wildlife Study Area, Jonah II Project, 1998	2

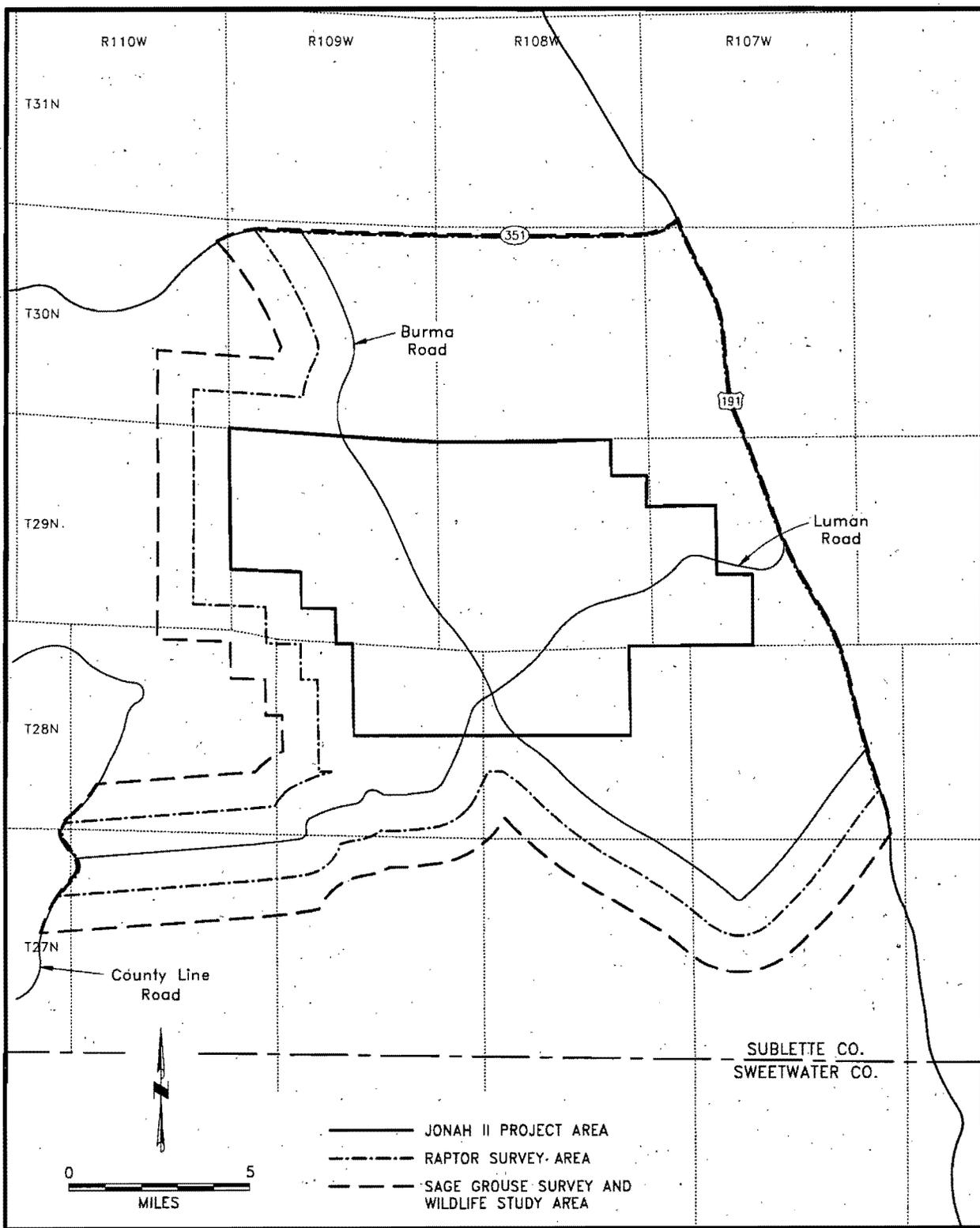
LIST OF TABLES

	<u>Page</u>
Table 3.1 Raptor Nest Locations and Activity Status, 1998, Jonah II Wildlife Study Area	9
Table 3.2 Summary of Active Raptor Nests, Jonah II Wildlife Study Area	12
Table 3.3 Nests and 1996-1998 Activity Status at Ferruginous Hawk Nesting Territories, Jonah II Wildlife Study Area	15
Table 3.4 Summary of Sage Grouse Lek Use, Potential Impacts, and Proposed Monitoring, Jonah II Wildlife Study Area	19
Table 3.5 Sage Grouse Trends, Jonah II Wildlife Study Area, 1992-1998	21

1.0 INTRODUCTION

This report was prepared by TRC Mariah Associates Inc. (TRC Mariah) for McMurry Oil Company, Amoco Production Company, and other Operators (collectively referred to herein as the Operators), in compliance with the U.S. Bureau of Land Management (BLM) Record of Decision (ROD) (BLM 1998, Appendix D). The goals of the ROD Wildlife Monitoring/Protection Plan (WMPP) are to monitor wildlife population trends on and adjacent to the Jonah Field II project area (J2PA) during the course of project development and operations and to avoid and/or minimize adverse impacts to wildlife present on project-affected areas. Implementation of the plan, as presented in this report, will provide land managers and project personnel opportunities to achieve and maintain wildlife productivity and populations on the project area by minimizing and/or avoiding potential adverse impacts to wildlife associated with project development. Wildlife monitoring was initiated in 1997 and continued during 1998. This report is the first provided under the plan.

This report presents the methods and results of 1997 and 1998 wildlife studies on the wildlife study area (WSA), which includes the J2PA and adjacent areas (Map 1.1 and Appendix A). Observational data were collected by BLM, TRC Mariah, and Wyoming Game and Fish Department (WGFD) personnel, and trends across years are noted, where possible. Additionally, potential wildlife disturbance sources are identified and monitoring and protection measures proposed for 1999 are presented.



Map 1.1 Wildlife Study Area, Jonah II Project, 1998.

2.0 METHODS

Inventory and monitoring protocols are identified below for each wildlife species/category. The wildlife species/categories for which specific inventory and monitoring procedures were applied were developed based on management agency (i.e., BLM, U.S. Fish and Wildlife Service [USFWS], WGFD) and individual concerns identified during the preparation of the Environmental Impact Statement for the project (BLM 1997). Specific inventory and monitoring techniques generally follow the methods presented in the WMPP for this project (BLM 1998, Appendix D).

2.1 RAPTORS

Aerial raptor nest surveys of the WSA (see Appendix A) were conducted in 1997 and 1998 by TRC Mariah personnel to determine the locations of raptor nests in the area and their activity status. Both surveys were conducted from a helicopter, with the 1997 survey conducted on May 8, and the 1998 survey conducted on May 29. In 1997, additional ground checks of selected raptor nests were conducted on May 9 to more accurately map raptor nest locations. A Global Positioning System (GPS) was employed during 1998 aerial surveys to provide precise raptor nest locational data.

Raptor nest productivity surveys were also conducted by TRC Mariah in 1997 and 1998 at all active nest locations within 1.0 mi of existing or proposed development areas (see Appendix A). The 1997 productivity survey was conducted on July 3 and the 1998 survey was implemented on July 7. Productivity surveys were conducted on the ground using four-wheel drive vehicles and pedestrian reconnaissance. In the case of nest failure or abandonment, attempts were made to identify potential causative factors. All data collected during raptor activity and productivity surveys were recorded on maps, Raptor Nesting Records, and Raptor Observation Data Sheets (see Appendices A and B).

The boundary of each ferruginous hawk nesting territory was also approximated, based on the location of known nests in the area. No attempts were made to determine the general foraging territories for nesting pairs.

All raptor nest/productivity surveys were conducted using procedures that minimize potential adverse effects to nesting raptors as identified in the ROD (BLM 1998, Appendix D).

2.2 SAGE GROUSE

Sage grouse lek surveys were conducted in 1997 and 1998 to determine the location and extent of sage grouse breeding activities in the WSA (see Map 1.1 and Appendix A). No investigations were conducted at sage grouse lek 16. Surveys were primarily conducted by WGFD and BLM personnel, and included aerial flights of the area to identify lek locations in 1997 and follow-up, ground surveys to determine the extent of lek use in 1997 and 1998. Data on lek attendance and location, and the timing of surveys are provided on the data forms presented in Appendix B.

Specific surveys for sage grouse winter use of the J2PA and surrounding areas were not implemented; however, general sage grouse winter use data were collected by the BLM in association with ongoing activities in the area, and this information may be reviewed at the BLM Pinedale Field Office, in Pinedale, Wyoming.

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

Unless otherwise discussed below, inventory and monitoring of threatened, endangered, candidate, and other Wyoming species of concern (TEC&WSC) were conducted in conjunction with surveys for raptors and sage grouse. Surveys also were implemented by the BLM in conjunction with on-site investigations conducted as components of Application for

Permit to Drill (APD) and/or right-of-way (ROW) application processes, as determined necessary by the BLM and in compliance with the Biological Assessment for the project (BLM 1997, Appendix E). Data collection methods and results/clearances for TEC&WSC species associated with APD and ROW application reviews are not provided herein, but may be obtained from the BLM Pinedale Field Office in Pinedale, Wyoming.

2.3.1 Black-footed Ferret

Two prairie dog colonies on the J2PA were surveyed for black-footed ferrets during 1997 and 1998 (Ultra Petroleum 1997, McMurry Oil Company 1998). Surveys were implemented on prairie dog town (PDT) 1 in 1997 and PDT 2 in 1998 (see Appendix A). Colony number, location, burrow density, and size (i.e., area) were initially described in Anderson Environmental Consulting (1996); however, during black-footed surveys, both PDT 1 and PDT 2 were remapped to more accurately present the current size and location of the colonies. All surveys were conducted using standard nocturnal survey procedures in accordance with USFWS guidelines (USFWS 1989). Further detail on survey methods can be found in Ultra Petroleum (1997) and McMurry Oil Company (1998), which are available for review at the BLM Pinedale Field Office in Pinedale, Wyoming.

2.3.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle

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

2.3.3 Mountain Plover

No formal surveys for mountain plover or mountain plover habitat were implemented during 1997 or 1998. However, suitable mountain plover habitat (i.e., areas with low-growing vegetation less than 6 inches in height) within 0.25 mi of proposed well locations or 300 ft

of proposed roads was surveyed/investigated/cleared by the BLM prior to disturbance in association with APD and ROW application field reviews. Data from these surveys/investigations/clearances are available for review at the BLM Pinedale Field Office, in Pinedale, Wyoming.

2.3.4 Western Burrowing Owl

Prairie dog colonies and other suitable burrowing owl nesting habitats within 0.5 mi of existing and proposed disturbance areas were searched in June and July 1998 by BLM personnel to determine the extent of burrowing owl nesting (see Appendix B, Raptor Nesting Records). Burrowing owl nesting surveys were also conducted in conjunction with black-footed ferret investigations during 1997 and 1998 (see Section 2.3.1). The number of active nests in the area was identified and efforts were made to determine fledgling success for active nests.

2.3.5 Other TEC&WSC Species

Formal surveys for other TEC&WSC were not conducted during 1997 or 1998. However, site-specific investigations were implemented by the BLM in areas of potential habitat within 0.5 mi of proposed disturbance sites during on-site reviews conducted in conjunction with APD and ROW application review processes. This information is not included herein, but may be obtained at the BLM Pinedale Field Office in Pinedale, Wyoming.

2.4 GENERAL WILDLIFE

Observations of general wildlife were obtained in conjunction with the aforementioned species-specific investigations, and data are presented on forms in Appendix B. Additional information was obtained during on-site investigations conducted during APD and ROW

application review processes. Data obtained during these on-site investigations may be reviewed at the BLM Pinedale Field Office in Pinedale, Wyoming.

No formal surveys for pronghorn antelope (i.e., antelope movement/migration studies) or other species/wildlife categories (e.g., waterfowl, predators) were implemented during 1997 or 1998.

3.0 RESULTS AND PROPOSED MONITORING/PROTECTION MEASURES

The following chapter presents the results of 1997 and 1998 wildlife investigations on the WSA. Proposed monitoring/protection measures for 1999 are also identified, and would be implemented by the BLM, WGF, and or Operators as identified below.

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

3.1 RAPTORS

3.1.1 Results

Table 3.1 provides information on the location and activity status of raptor nests on the WSA. Active nests are defined as those that have been used within the last three years. Information on productivity, nearby project features, and proposed protection measures at active nest sites is presented in Table 3.2. Nineteen of 76 known raptor nest sites on and adjacent to the WSA were known to be active between 1996 and 1998. Anderson Environmental Consulting personnel (1996) collected 1996 raptor nest data, and 1997 and 1998 data were collected by TRC Mariah personnel. Most nest sites on the area (45) are ferruginous hawk nests, and of these, 6 were known to be active during the period, and two--nests 14 and 37--were active during two years. American kestrels have 6 known nest sites on the area and 5 of these were active during the period. Other species with known nests on the area include burrowing owl (4 nests, all active), golden eagle (5 nests, 1 active), and prairie falcon (4 nests, 3 active). Additionally, twelve nests of unknown species were identified on the area during pre-1996 surveys; however, of these nests only one was located

Table 3.1 Raptor Nest Locations and Activity Status, 1998; Jonah II Wildlife Study Area.

Nest Number ¹	Activity Status ²	USGS Coordinates	UTM Coordinates ³
AK16	A(1997)	[REDACTED]	[REDACTED]
AK17	I	[REDACTED]	[REDACTED]
AK18	A(1997, 1998)	[REDACTED]	[REDACTED]
AK30	A(1998)	[REDACTED]	[REDACTED]
AK39	A(1997)	[REDACTED]	[REDACTED]
AK52	A(1998)	[REDACTED]	[REDACTED]
BO19	A(1997)	[REDACTED]	[REDACTED]
BO23	A(1997)	[REDACTED]	[REDACTED]
BO75	A(1998)	[REDACTED]	[REDACTED]
BO76	A(1998)	[REDACTED]	[REDACTED]
FH1 (2 nests)	I	[REDACTED]	[REDACTED]
FH2	I	[REDACTED]	[REDACTED]
FH3	I	[REDACTED]	[REDACTED]
FH4	I	[REDACTED]	[REDACTED]
FH5	I	[REDACTED]	[REDACTED]
FH6	I	[REDACTED]	[REDACTED]
FH7	I	[REDACTED]	[REDACTED]
FH8	A(1996)	[REDACTED]	[REDACTED]
FH9	I	[REDACTED]	[REDACTED]
FH10	I	[REDACTED]	[REDACTED]
FH11	I	[REDACTED]	[REDACTED]
FH12 (2 nests)	I	[REDACTED]	[REDACTED]
FH13	I	[REDACTED]	[REDACTED]
FH14	A(1996, 1997)	[REDACTED]	[REDACTED]
FH15	I	[REDACTED]	[REDACTED]
FH20	I	[REDACTED]	[REDACTED]
FH21	I	[REDACTED]	[REDACTED]

Table 3.1 (Continued)

Nest Number ¹	Activity Status ²	USGS Coordinates	UTM Coordinates ³
FH22	I	[REDACTED]	[REDACTED]
FH24	I	[REDACTED]	[REDACTED]
FH25	I	[REDACTED]	[REDACTED]
FH26 (3 nests)	I	[REDACTED]	[REDACTED]
FH28	A(1996)	[REDACTED]	[REDACTED]
FH29	I	[REDACTED]	[REDACTED]
FH37 (2 nests)	A(1997, 1998)	[REDACTED]	[REDACTED]
FH38	I	[REDACTED]	[REDACTED]
FH42	I	[REDACTED]	[REDACTED]
FH43 (2 nests)	I	[REDACTED]	[REDACTED]
FH53	A(1998)	[REDACTED]	[REDACTED]
FH54 (2 nests)	I	[REDACTED]	[REDACTED]
FH55	I	[REDACTED]	[REDACTED]
FH56	I	[REDACTED]	[REDACTED]
FH57 (2 nests)	I	[REDACTED]	[REDACTED]
FH58	I	[REDACTED]	[REDACTED]
FH59 (3 nests)	I	[REDACTED]	[REDACTED]
FH60	I	[REDACTED]	[REDACTED]
FH62	I	[REDACTED]	[REDACTED]
FH64	I	[REDACTED]	[REDACTED]
FH65	I	[REDACTED]	[REDACTED]
FH66 (2 nests)	I	[REDACTED]	[REDACTED]
FH67	I	[REDACTED]	[REDACTED]
FH68	I	[REDACTED]	[REDACTED]
FH69	I	[REDACTED]	[REDACTED]
FH70	I	[REDACTED]	[REDACTED]
FH71	A(1997)	[REDACTED]	[REDACTED]
FH73	I	[REDACTED]	[REDACTED]

Table 3.1 (Continued)

Nest Number ¹	Activity Status ²	USGS Coordinates	UTM Coordinates ³
GE36	I	[REDACTED]	[REDACTED]
GE47 (2 nests)	A(1997, 1998)	[REDACTED]	[REDACTED]
GE48	I	[REDACTED]	[REDACTED]
GE51	I	[REDACTED]	[REDACTED]
GE72	I	[REDACTED]	[REDACTED]
PF27	A(1997)	[REDACTED]	[REDACTED]
PF41	A(1997)	[REDACTED]	[REDACTED]
PF61	A(1997)	[REDACTED]	[REDACTED]
PF63	I	[REDACTED]	[REDACTED]
UN31	I	[REDACTED]	[REDACTED]
UN32	I	[REDACTED]	[REDACTED]
UN33	I	[REDACTED]	[REDACTED]
UN34	I	[REDACTED]	[REDACTED]
UN35	I	[REDACTED]	[REDACTED]
UN40	I	[REDACTED]	[REDACTED]
UN44	I	[REDACTED]	[REDACTED]
UN45	I	[REDACTED]	[REDACTED]
UN46	I	[REDACTED]	[REDACTED]
UN49	I	[REDACTED]	[REDACTED]
UN50	I	[REDACTED]	[REDACTED]
UN74	I	[REDACTED]	[REDACTED]

¹ FH1 = ferruginous hawk nest 1; AK16 = American kestrel nest 16; BO19 = burrowing owl nest 19; PF27 = prairie falcon nest 27; UN31 = unknown species nest 31; GE36 = golden eagle nest 36.

² A(1996) = active in 1996; I = inactive.

³ E = easting; N = northing; NA = not available.

Table 3.2 Summary of Active Raptor Nests, Jonah II Wildlife Study Area.¹

Species/Nest No. ²	Legal Location ³	Nest Condition	Seasonal Buffer Radius	Nest Production ⁴			Nearby Project Features ⁵	Mitigation/Actions ⁶
				Eggs	Nestlings	Fledglings		
AK16	[REDACTED]	Unknown	0.5 mi	U	U	1, 1997	Numerous existing and proposed project features within 1.0 mi.	Continue activity status and productivity monitoring.
AK18	[REDACTED]	Unknown	0.5 mi	U	U	U	Numerous existing and proposed project features within 1.0 mi.	Continue activity status and productivity monitoring.
AK30	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	Continue monitoring for activity status.
AK39	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	None; occurs outside WSA.
AK52	[REDACTED]	Unknown	0.5 mi	U	U	U	Burma Road within 1.0 mi.	Continue monitoring for activity status.
BO19	[REDACTED]	Unknown	0.5 mi	U	U	4, 1997	Numerous existing and proposed project features within 1.0 mi.	Continue monitoring for activity status; conduct additional productivity monitoring in 1999 if active.
BO23	[REDACTED]	Unknown	0.5 mi	U	U	U	Numerous existing and proposed project features within 1.0 mi.	Continue monitoring for activity status; conduct additional productivity monitoring in 1999 if active.
BO75	[REDACTED]	Unknown	0.5 mi	U	U	U	Numerous existing and proposed project features within 0.5 mi.	Continue monitoring for activity status; conduct additional productivity monitoring in 1999 if active.
BO76	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	Continue monitoring for activity status.
FH8	[REDACTED]	Fair	1.0 mi	U	U	U	Numerous existing and proposed project features within 1.0 mi. Alternative suboptimal nest sites occur in territory 6.	Establish ANSs in 1999 if continued monitoring of territory 6 reveals no activity or success.

Table 3.2 (Continued)

Species/Nest No. ²	Legal Location ³	Nest Condition	Seasonal Buffer Radius	Nest Production ⁴			Nearby Project Features ⁵	Mitigation/Actions ⁶
				Eggs	Nestlings	Fledglings		
FH14	[REDACTED]	Good	1.0 mi	3, 1997	U	2, 1997	Numerous existing and proposed project features within 1.0 mi. Limited alternative nest sites available in territory 5.	If territory 5 is not used or successful in 1999 or 2000 as determined during continued monitoring, establish ANSs in 2000.
FH28	[REDACTED]	Good	1.0 mi	1, 1996	U	U	None.	Continue monitoring for activity status.
FH37	[REDACTED]	Good	1.0 mi	3, 1997 2, 1998	U U	U U	None.	Continue monitoring for activity status.
FH53	[REDACTED]	Good	1.0 mi	1, 1998	2, 1998	2, 1998	Burma Road within 1.0 mi.	Continue monitoring for activity status and productivity.
FH71	[REDACTED]	Poor	1.0 mi	3, 1997	1+, 1997	0, 1997	Road and pipeline occur within 1.0 mi.	Continue monitoring for activity status and productivity.
GE47	[REDACTED]	Good	0.5 mi	U	1, 1998	U	None.	Continue monitoring for activity status.
PF27	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	Continue monitoring for activity status.
PF41	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	None; occurs outside WSA.
PF61	[REDACTED]	Unknown	0.5 mi	U	U	U	None.	Continue monitoring for activity status.

¹ See Appendix B, Raptor Nesting Records, for further detail.

² See Appendix A, Wildlife Map.

³ FH = ferruginous hawk (see Table 3.3 for nesting territory); AK = American kestrel; BO = burrowing owl; PF = prairie falcon; GE = golden eagle.

⁴ Presents number of items and year; U = unknown.

⁵ See Appendix A, Project Features Map.

⁶ Seasonal and standard avoidance measures are not included since they would be applied as necessary for all active nests.

during the 1997 and 1998 surveys, and it is likely, based on mapped locations and the inability to relocate the nests, that these nests may not be present within the WSA.

Since many of the active raptor nests on the area occur at distances greater than 1 mi from existing and proposed oil and gas disturbance sites (and thus, productivity monitoring is not required), productivity data are limited (see Tables 3.2 and 3.3). Ferruginous hawk nests in the WSA are known to have produced 2 fledglings during 1997 and 2 during 1998; no productivity data are available for 1996. Ferruginous hawk nest 71 failed in 1997, and in 1998 field investigations at the site revealed one deceased (1997) nestling below the nest (see Appendix B, Raptor Nesting Records). While a definitive cause for nest failure was not identified, the 1997 productivity survey revealed numerous new all terrain vehicle (ATV) tracks at the nest butte.

Nest productivity for other raptor species include one known American kestrel fledgling (1997) and 4 burrowing owl fledglings (1997), and it is likely that additional young were fledged from other ferruginous hawk, American kestrel, and burrowing owl nests in the area which were not monitored for productivity. Golden eagle (1 nestling in 1998) and prairie falcon also likely fledged young during the period.

The approximate locations of ferruginous hawk nest territories present on and adjacent to the WSA are shown on the Wildlife Map in Appendix A and briefly described in Table 3.3. An estimated 10 nesting territories are present on the WSA, six of which have been occupied at least once during the last 3 years (1996-1998). Project features proximal to the active nests in these territories are identified in Table 3.2. No project features/developments on the J2PA are anticipated proximal to active nests in territories 1, 2, 3, 4, 8, 9, and 10. Other activities (e.g., recreational activities/off-road vehicle use, livestock grazing, wildlife/predator interactions, climate) likely occur and will continue to occur in these territories. Additionally, ferruginous hawk nesting territory 7 was not active during the 3-year period and all known nest sites in the territory are at suboptimal locations

Table 3.3 Nests and 1996-1998 Activity Status at Ferruginous Hawk Nesting Territories, Jonah II Wildlife Study Area.¹

Territory	Nests Included in Territory ²	Activity Status ³		
		1996	1997	1998
1	68, 69, 70, 71	U	A (failed)	I
2	62, 64, 65, 66, 67	U	I	I
3 ⁴	51, 56, 57, 58, 59, 60	U	I	I
4	26, 28, 29	A (unknown success)	I	I
5	13, 14, 15	A (unknown success)	A (2 fledged)	I
6 ⁴	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	A (unknown success)	I	I
7	20, 21, 73	U	I	I
8	53, 54, 55	U	U	A (2 fledged)
9	42, 43	U	I	I
10	37, 38	U	A (unknown success)	A (unknown success)

¹ See Appendix A for locations.

² No nesting territory is established for nests 1, 22, 24, and 25.

³ Further detail is provided in Appendix B, Raptor Nesting Record; I = inactive; A = active; U = unknown.

⁴ Possibly two territories.

(i.e., on the ground surface with easy access to predators); therefore, nesting in this territory is unlikely to occur in all but the most active nesting years (i.e., when all other nearby nesting territories are occupied).

Two active ferruginous hawk nesting territories--territories 5 and 6--may be affected within the next few years. Oil and gas development continues on and adjacent to these territories. Mitigation measures as defined in Section 3.1.2 are recommended for territory 6 in 1999, and may be recommended for territory 5 in 2000.

Project facilities are proposed for development within 0.5 mi of 2 active American kestrel nests and 3 active burrowing owl nests (see Table 3.3 and Appendix A). Continued monitoring efforts are proposed for these nest sites (see Section 3.1.2).

3.1.2 Monitoring/Protection Measures

The primary mitigation measure for raptor species on the area is avoidance of active nest locations during the breeding season. Active nests are defined as raptor nests that have been used within the last 3 years. Unless excepted by the BLM during APD and ROW application reviews, all surface-disturbing activities will be restricted from February 1 through July 31 within a 0.5-mi radius of active raptor nests, except ferruginous hawk nests, for which the seasonal buffer will be 1 mi (see Table 3.2). 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, where practical. The seasonal buffer distance and exclusion dates may vary depending on factors such as nest activity status, the species involved, prey availability, natural topographic barriers, and line-of-sight distances.

Nest activity status and productivity monitoring will continue in 1999 as identified in the ROD (BLM 1998, Appendix D). Nest activity status monitoring will be conducted from the

ground. Additionally, unknown nests that are not found in 1999 will be removed from maps and no further monitoring of these sites will occur.

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

Since project development continues on and adjacent to active ferruginous hawk territories 5 and 6, it is recommended that two artificial nesting structures (ANSs) be established in territory 6 in 1999 if the territory remains inactive or unproductive during 1999. Depending on the activity and success of territory 5 in 1999 and 2000, ANSs also may be established on or adjacent to this territory in 2000. Operators will assist the BLM (in consultation with other land users) as necessary in locating appropriate ANS sites and erecting ANSs. It is recommended that ANSs be established outside of existing and known future disturbance areas. The low-lying areas in Section 33, T29N, R107W appear to provide suitable areas for ANS locations in territory 6. ANS construction and maintenance activities will be completed between August 1 and September 15. Operators will be responsible for the annual maintenance of ANSs throughout the life-of-project, and all ANSs on public lands will become the property of the BLM upon completion of the project.

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. 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 development activities to minimize or avoid potential adverse effects.

In cases where existing project features (e.g., well locations) are located within the nest buffers of active raptor nests, no extensive maintenance activities (e.g., workovers) will be allowed during critical periods (i.e., approximately early March through mid-June). The exact dates of exclusion will be determined by the BLM and specified in Conditions of Approval for APD and ROW applications, and will likely vary between nests and from year to year, depending on the species present and variations in weather, nesting chronology, and other factors.

3.2 SAGE GROUSE

3.2.1 Results

Table 3.4 presents a summary of recent sage grouse lek use (1996-1998), nearby project features, and proposed monitoring and other actions for leks on the WSA (see also Appendix B, Sage Grouse Lek Records for further detail). Table 3.5 presents historic information on lek use since 1992. Lek 16 was not surveyed during the period; therefore, no data on lek use are presented.

Of the 16 known leks on the area, leks 1, 2, 3, 7, and 10 continued to have considerable use during the 3-year period, and no notable declines in use were identified (Table 3.4 and Appendix B, Sage Grouse Lek Records); use of leks 1 and 3 may be increasing. Decreasing attendance has been observed at leks 4 and 9, with maximum male attendance at lek 4 decreasing from 15 in 1996 to 4 in 1998 and maximum male attendance at lek 9 down from 50 in 1997 to 26 in 1998. Leks 5, 6, 8, 12, and 15 had limited use (i.e., no more than three males ever observed at the leks and no birds observed at the leks since 1996). No males were observed at leks 11, 13, and 14 (Table 3.5).

Table 3.4 Summary of Sage Grouse Lek Use, Potential Impacts, and Proposed Monitoring, Jonah II Wildlife Study Area¹.

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
1	[REDACTED]	A	Relatively consistent	None	Monitor a minimum of three times in 1999
2	[REDACTED]	A	Relatively consistent	Existing pipeline with 0.25 mi; proposed wells and roads within 1.0 mi	Monitor a minimum of three times in 1999
3	[REDACTED]	A	Increasing since 1996	Proposed wells and road within 1.0 mi	Monitor a minimum of three times in 1999
4	[REDACTED]	A	Decreasing maximum ♂ attendance since 1996	Existing wells, pipelines, and roads within 1.0 mi; new well and road proposed within 0.25 mi	Monitor 4 times in 1999; move proposed well to outside 0.25 mi buffer
5	[REDACTED]	A	Limited (1 ♂ in 1996)	Existing pipeline and road within 0.25 mi; new well proposed within 0.25 mi	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000; move proposed well to outside 0.25 mi buffer
6	[REDACTED]	A	Limited (3 ♂ in 1996)	None	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000
7	[REDACTED]	A	Relatively consistent	None	Monitor a minimum of three times in 1999
8	[REDACTED]	A	Limited (2 ♂ in 1996)	Existing pipeline and road within 1.0 mi	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000
9	[REDACTED]	A	Decreasing maximum ♂ attendance since 1997	Proposed well within 1.0 mi	Monitor a minimum of three times in 1999
10	[REDACTED]	A	Relatively consistent	Proposed well and access road within 1.0 mi	Monitor a minimum of three times in 1999

Table 3.4 (Continued)

Lek No. ²	Approximate Location	Status ³	Use	Nearby Project Features ⁴	Monitoring/Other Actions ⁵
11	[REDACTED]	I	No known use since pre-1994	Proposed wells and roads within 1.0 mi	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000
12	[REDACTED]	A	Limited (1 ♂ in 1996)	None	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000
13	[REDACTED]	I	No known use since pre-1995	None	Pursuant to BLM/WGFD approval, discontinue monitoring
14	[REDACTED]	I	No known use since pre-1992	None	Pursuant to BLM/WGFD approval, discontinue monitoring
15	[REDACTED]	A	Limited (1 ♂ in 1996)	Existing pipeline and road within 0.25 mi; existing wells within 1.0 mi; proposed well and road within 0.25 mi	Monitor 4 times in 1999; search for alternate nearby lek sites in 1999; if no use, discontinue monitoring in 2000; move proposed well to outside 0.25 mi buffer
16	[REDACTED]	U	Unknown	None	Monitor a minimum of three times in 1999

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

² See Table 3.5 for alternate names.

³ A = active (at least once during last 3 years); I = inactive; U = unknown.

⁴ See Appendix A, Project Features Map.

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

Table 3.5 Sage Grouse Trends, Jonah II Wildlife Study Area, 1992-1998¹.

Lek Number	Former Lek Name	History ²						
		1992	1993	1994	1995	1996	1997	1998
1	4-2	NS	NS	9	NS	26	6	31
2	4-6	NS	NS	2	NS	2	17	12
3	Sand Draw Reservoir	NS	NS	NS	NS	16	0	36
4	Clay Hill	NS	NS	16	NS	15	4	4
5	4-8	NS	NS	NS	NS	1	0	0
6	4-9	NS	NS	NS	NS	3	0	0
7	4-7	NS	NS	36	NS	0	16	17
8	4-10	NS	NS	NS	NS	2	0	0
9	Alkali Draw	NS	NS	NS	NS	NS	50	26
10	The Rocks	NS	NS	NS	NS	NS	60	53
11	4-5	NS	NS	0	NS	0	NS	0
12	3-8	1	0	0	0	1	0	0
13	3-6	NS	NS	NS	NS	0	0	0
14	3-7	0	0	0	0	0	0	0
15	Sand Draw	NS	NS	NS	NS	1	0	0
16	Unknown ³	UNK	UNK	UNK	UNK	UNK	UNK	UNK

¹ Further detail is provided in Appendix B, Sage Grouse Lek Records.

² Numbers refer to maximum male attendance; NS = not surveyed; UNK = unknown.

³ Data unavailable.

Reduced attendance levels were noted at leks 4 and 9. Continued monitoring of these leks (see Section 3.2.2) will provide additional information as to whether lek attendance numbers are declining.

3.2.2 Monitoring and Protection Measures

Monitoring and identification of sage leks on the WSA will be continued in 1999 as specified in the Wildlife Monitoring/Protection Plan (BLM 1998, Appendix D). Sage grouse lek 16 will be included in 1999 investigations.

It is recommended that the WGFD or BLM implement aerial (fixed wing) sage grouse lek inventories of the WSA again in 1999 to provide further locational data on sage grouse leks in the area and to identify any new or undiscovered leks. Two aerial surveys should be implemented during March/April at least ten days apart. Further, the limited use of leks 5, 6, 8, 11, 12, and 15 may indicate that alternate lek sites in the vicinity of these leks are being used; therefore, it is recommended that additional efforts be applied in 1999 in the vicinity of these leks to locate new, unmapped leks.

Due to the apparent lack of use over the last few years at leks 5, 6, 8, 11, 12, and 15, it is recommended that these leks be monitored from the ground a minimum of 4 times in 1999 to determine attendance. If no use is found at a lek, then it is recommended that the lek be removed from future monitoring requirements. Further, due to the apparent absence of use of leks 13 and 14, it is recommended that these leks be removed from 1999 and future monitoring requirements.

Attendance monitoring of other known sage grouse leks in the area by the WGFD and/or BLM personnel will continue in 1999 as conducted during past years and specified in the ROD (BLM 1998, Appendix D). Additionally, it is recommended that a GPS be employed at leks to determine precise locations.

As with raptors, the principal protection for sage grouse is avoidance of leks during the breeding season and of probable nesting areas during nesting. Surface disturbance and actions that create permanent and high profile structures such as buildings and storage tanks which are suitable as raptor perches, will not be constructed within 0.25 mi of sage grouse leks on and adjacent to the J2PA. Therefore, the proposed project features (i.e., well locations, roads, pipelines) proximal to leks 4, 5, and 15 should be relocated to sites greater than 0.25 mi from the lek centers. Well location, road, and pipeline construction within 0.25 mi of leks 5 and 15 may be permitted if 1999 lek monitoring activities at the sites reveal no use and the BLM and/or WGFD determine that these lek sites no longer exist.

Operators will restrict construction activities between March 1 and June 30 within a 2.0-mi radius of active sage grouse leks to protect sage grouse nesting. In addition, if an occupied sage grouse nest is identified in an area proposed for disturbance, surface-disturbing activities would be delayed in the area until nesting is completed.

It is recommended that the BLM implement formal sage grouse winter use investigations on the J2PA and a 0.5-mi buffer during late winter (January/February) 2000 to identify sage grouse wintering areas. These surveys can be conducted on the ground, and all data collected can be provided on General Wildlife Observation Data Sheets or other suitable forms (see Appendix B).

3.3 THREATENED, ENDANGERED, CANDIDATE, AND WYOMING SPECIES OF CONCERN

3.3.1 Results

3.3.1.1 Black-footed Ferret

No black-footed ferrets or black-footed ferret sign was observed on the J2PA during the two black-footed ferret surveys conducted on the area during 1997 and 1998. Survey results are presented in Ultra Petroleum (1997) and McMurry Oil Company (1998).

3.3.1.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle

No bald eagles or peregrine falcons were observed on the area during 1997 and 1998 wildlife investigations. Information on ferruginous hawks and golden eagles is provided in Section 3.1.1.

3.3.1.3 Mountain Plover

No mountain plovers were observed on the area during 1997 and 1998.

3.3.1.4 Western Burrowing Owl

Four western burrowing owl nests were observed on the area during 1997 and 1998 (see Tables 3.1 and 3.2 and Appendix B, Raptor Nesting Records). Of these nests, only one is known to have produced young; however, burrowing owl nests 75 and 76 were not monitored for productivity, and these nests may have successfully produced young in 1998.

3.3.1.5 Other TEC&WSC Species

The only other known TEC&WSC noted on the WSA during 1997 and 1998 surveys and on-site investigations conducted during APD and ROW reviews was the loggerhead shrike, and it is likely that the species bred in the area during 1997. No identifiable impacts to the species were noted. The species is no longer considered sensitive by the BLM or USFWS.

3.3.2 Monitoring and Protection

USFWS and/or WGFDD consultation and coordination would be conducted for all necessary mitigation activities relating to TEC&WSC and their habitats implemented during 1999.

3.3.2.1 Black-footed Ferret

If uncleared prairie dog colonies of sufficient size and burrow density for black-footed ferrets are scheduled to be disturbed, black-footed ferret surveys of these colonies will be conducted. Survey protocol will adhere to USFWS guidelines as established in USFWS (1989). Surveys will be conducted by a USFWS-qualified biologist no more than one year prior to proposed disturbance and reports identifying survey methods and results will be prepared and submitted to the USFWS and BLM in accordance with Section 7 of the Endangered Species Act of 1973, as amended, and Interagency Cooperation Regulations. Surveys will be financed by the Operators.

If black-footed ferrets are found within the J2PA, the USFWS will be notified immediately and formal consultations will be initiated to develop strategies that ensure no adverse effects to the species. Before ground-disturbing activities are initiated in black-footed ferret habitat, authorizations to proceed must be received from the BLM, in consultation with the USFWS.

Additional surveys to determine the location, size, and burrow density of prairie dog colonies within the J2PA would be conducted in 1999 only in association with required black-footed ferret surveys. Surveys of all prairie dog colonies (i.e., location, size, burrow density investigations) in the area would be implemented in 2001. However, since disturbance is proposed for PDT 3, it is recommended that burrow density be reassessed in this colony prior to black-footed ferret surveys to determine the suitability of the colony as black-footed ferret habitat as specified in USFWS (1989). Proposed disturbance to PDT 1 and PDT 2 will not adversely affect black-footed ferrets since these colonies were cleared for ferrets in 1997 and 1998, respectively.

3.3.2.2 Bald Eagle, Peregrine Falcon, Ferruginous Hawk, Golden Eagle

Monitoring and protection protocol for bald eagle, peregrine falcon, ferruginous hawk, and golden eagle in 1999 will be as described for raptors (see Section 3.1.2). Additional measures will 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 1999 APD and ROW application reviews.

3.3.2.3 Mountain Plover

The following protocol have been modified from those presented in BLM (1998, Appendix D) to accommodate USFWS changes to mountain plover survey and avoidance protocol.

Mountain plover surveys will be conducted by BLM personnel in association with APD and ROW application field reviews. Surveys will be implemented as deemed necessary by the BLM within suitable plover habitat (e.g., cushion plant communities, playas, shortgrass-dominated sites with vegetation less than 6 inches in height) by a qualified

biologist in accordance with USFWS guidelines. The following survey procedures will be implemented:

- Visual observation of areas within 656 ft (200 m) of proposed disturbance will be made from stationary vehicles and/or ATVs to detect the presence of plovers. If plovers are located, observations will continue long enough to determine if a nest is present.
- Surveys will be conducted no more than 14 days prior to the date that ground-disturbing activities begin. If two surveys are required, they will be conducted at least 14 days apart, with the last survey no more than 14 days prior to the start-up date.
- The number of surveys required to clear a site for mountain plovers depends on the start-up date. One survey is required if activities are planned for March 15 - March 31 or July 1 - August 15. Two surveys are required for activities planned for April 1 - June 30.
- If an active mountain plover nest is found, planned development activities will be delayed at least 37 days or 1 week post-hatching. If a brood of flightless chicks is discovered, activities will be delayed at least 7 days.

Additionally, Operators will minimize road construction and maintenance (i.e., grading) activities in suitable plover habitat from May 25 - June 30, and no surface-disturbing activities will be conducted from April 1 - June 30 within 656 ft of identified mountain plover concentration areas (i.e., areas where broods and/or adults have been observed in the current year or documented in at least 2 of the past 3 years).

3.3.2.4 Western Burrowing Owl

Monitoring and avoidance of prairie dog colonies (see Section 3.3.2.1) and avoidance of active raptor nests during the nesting period (see Section 3.1.2) will continue in 1999. Additional productivity monitoring is also proposed for active burrowing owl nests 19, 23, and 75 due to the extent of existing and proposed developments proximal to these nest sites (see Table 3.2). Additional measures may be applied in future years if burrowing owl nesting and/or productivity in the WSA is noted to be declining. These potential measures will be identified by the BLM.

3.3.2.5 Other TEC&WSC Species

No formal surveys for other TEC&WSC are proposed for 1999; a list of all TEC&WSC species potentially occurring on the WSA is provided in the ROD (BLM 1998, Table D-2.5). If during implementation of surveys for other species or during APD and ROW application field reviews, any TEC&WSC is observed on areas within 0.5 mi of proposed disturbance sites, nests or other crucial features for the observed species, if any, will be avoided. Consultation and coordination with the BLM, USFWS, and WGFD will also be conducted, as necessary. Construction activities in these areas will be curtailed until there is concurrence among Operators, BLM, USFWS, and WGFD on what activities can be authorized. Activities will, in most cases, be delayed until such time that no adverse effects would occur (e.g., after fledging).

No additional protection measures will be applied for other sensitive species potentially present on the WSA; however, it is assumed that the protection protocol specified below for general wildlife will benefit TEC&WSC as well (see Section 3.3.3.2). In addition, if TEC&WSC are observed, efforts will be made to determine the activities of the species on the WSA (e.g., breeding, nesting, foraging, hunting). If any management agency (i.e., BLM,

WGFD, USFWS) identifies a potential for impacts to any TEC&WSC species, additional monitoring and/or protection measures will be implemented as directed by the BLM.

3.3.3 General Wildlife

3.3.3.1 Results

Data on other wildlife species encountered on the WSA during 1997 and 1998 surveys are provided on the forms in Appendix B and in APD and ROW application field review data available at the BLM Pinedale Field Office in Pinedale, Wyoming.

3.3.3.2 Monitoring and Protection

No formal wildlife monitoring for other wildlife is recommended for 1999.

Protection measures primarily designed to minimize impacts to other J2PA resources (e.g., vegetation and surface water resources including wetlands, steep slopes) are identified in BLM (1998), and these measures provide impact mitigation for area wildlife.

All roads on and adjacent to the J2PA that are required for the proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife/vehicle collisions and facilitate wildlife (most notably antelope) movement through the J2PA. Appropriate speed limits will be applied on all J2PA roads, and Operators will advise employees and contractors regarding these speed limits. No roads are proposed for reclamation in 1999.

No road or pipeline ROW fencing is proposed; however, if ROW fencing is required, it will be kept to a minimum and the fences employed will consist of four-strand barbed wire meeting 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 J2PA (most notably, the fence separating the BLM Pinedale Field Office Area from the Rock Springs Field Office Area) are proposed for 1999.

No new wildlife/livestock water sources are proposed for development during 1999.

Potential increases in poaching will be minimized through employee and contractor education regarding wildlife laws. 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 mitigation include the following.

- Reserve, workover, and flare pits potentially hazardous to wildlife will be adequately protected by netting and/or fencing as directed by the BLM to prohibit wildlife access.
- Siphons will be constructed at each reserve pit to collect, as necessary, any undesirable materials that may enter the pits.
- No surface water or shallow groundwater in connection with surface water will be utilized.
- Firearms and dogs will not be allowed on the J2PA during working hours by BLM or Operator employees or their contractors.

-
- If injured wildlife are observed on the J2PA, Operator personnel will contact the BLM Pinedale Field Office and the WGFD Pinedale Office. Under no circumstances will injured wildlife be approached or handled.
 - Wildlife reporting as specified in the ROD (BLM 1998, Appendix D) will be continued in 1999.

4.0 LITERATURE CITED

- Anderson, R.M. 1996. 1996 Prairie Dog, Raptor, and Sage Grouse Inventory of McMurry Oil Company's Expanded Jonah Field Natural Gas Development Project, Sublette County, Wyoming. Prepared for McMurry Oil Company, Casper, Wyoming, by Anderson Environmental Consulting, Casper, Wyoming. 13 pp.
- Bureau of Land Management. 1997. Draft Environmental Impact Statement Jonah Field II Natural Gas Project. U.S. Department of the Interior, Bureau of Land Management, Rock Springs District Office, Pinedale and Green River Resource Areas. BLM/WY/PL-97/015+1310.
- Bureau of Land Management. 1998. Record of Decision for Jonah Field II Natural Gas Development Project Environmental Impact Statement, Sublette County, Wyoming. U.S. Bureau of Land Management, Rock Springs District, Pinedale and Green River Resource Areas. 43 pp + append.
- McMurry Oil Company. 1998. Black-footed Ferret and Burrowing Owl Survey of a Prairie Dog Colony in Portions of Sections 29, 30, 31 and 32, T29N, R108W, Sections 25 and 36, T29N, R109W, Sublette County, Wyoming. Prepared for McMurry Oil Company, Pinedale, Wyoming, by Monarch Wildlife Consultants, Pinedale, Wyoming. 9 pp. + append.
- Ultra Petroleum. 1997. Black-footed Ferret Survey of a Prairie Dog Colony in Portions of Sections 15, 16, 21, and 22, T29N, R108W, Sublette County, Wyoming. Presented to Ultra Petroleum, Pinedale, Wyoming, by TRC Mariah Associates Inc., Laramie Wyoming. 7 pp. + append.
- U.S. Fish and Wildlife Service. 1989. Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. U.S. Fish and Wildlife Service, Denver, Colorado and Albuquerque, New Mexico (April 1989). 10 p. + append.