

NORTH BUTTE ISL PROJECT
1994 WILDLIFE MONITORING

Prepared for:

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INTRODUCTION

Since 1992, Pathfinder Mines Corporation has contracted Powder River Eagle Studies Inc. (PRES, wildlife consultants) to complete wildlife monitoring requirements of the North Butte ISL Project permit. In 1994, PRES conducted the following surveys:

- * a wintering big game aerial survey,
- * sage grouse (*Centrocercus urophasianus*) strutting ground censuses and lek searches, and
- * nesting raptor surveys.

Surveys are described below by animal group, and results are summarized.

METHODS

BIG GAME

A winter aerial survey for big game, primarily pronghorn (*Antilocapra americana*), was conducted on the North Butte ISL Project permit area and one-mile perimeter on 4 March 1994. The survey was flown in a high-wing, light plane (Cessna 206). The 16 mi² study area was covered by flying nine north-south transects spaced at half-mile intervals. The survey began over the eastern-most transect and progressed to the west. Flight speed and altitude were approximately 90-95 mph and 300-350 feet, respectively.

A navigator/recorder sat beside the pilot, and two biologists sat in the rear seat. The observers counted big game and raptors within a 1/4-mile wide strip on either side of the flight path. All sightings were recorded on a 1:24000 topographic map. Data recorded included the number and species of animals seen, location to quarter-section, habitat type, and activity.

SAGE GROUSE

Two sage grouse leks were located in the North Butte ISL Project area during previous studies. One lek, "North Butte", was within one mile of the permit area, in Section 18, T44N, R75W. The second lek, "Gilbertz III", was located just beyond the one-mile perimeter in Section 21, T44N, R75W (Map 1).

Grouse were counted at known leks on four mornings in spring 1994. Birds were counted at least twice during each lek visit to account for individuals that may have been obscured by sagebrush or topography. North Butte lek was checked at first light, or within one-half hour after sunrise, on 11 and 12 April, and 4 and 5 May. Gilbertz lek was examined for grouse within the same time parameters on 11 and 12 April, and 4 May.

After recording an accurate count at known leks, observers searched for additional leks on the North Butte ISL permit area and one-mile perimeter on 11 and 12 April, and 4 and 5 May. Searches for displaying grouse were conducted by slowly driving oil-field, ranch, and county roads in the survey area. Frequent stops were also made at vantage points to scan and listen for strutting birds. Each morning search lasted until approximately 1.5 hours after sunrise.

RAPTORS

Raptor nest searches and production checks were conducted on 12 April, 4 May, 13 June, and 8 July 1994. The raptor survey area included the North Butte ISL Project area and its one-mile perimeter (Map 1). Guidelines recommended by Grier and Fyfe (1987) were followed to prevent nest abandonment and injury to eggs or young.

On 12 April and 4 May, efforts were concentrated on checking previously identified nests for raptor breeding activity. Field personnel viewed nests with a spotting scope from a parked vehicle. Nests were not approached on foot on these dates. While traveling between nests, the biologist scanned for pairs or individual adult birds. All birds spotted were watched until it could be determined if they were breeding in the area.

On 13 June, two biologists visited all known nest sites and surveyed for new nests along North Pumpkin Butte. The entire perimeter of the butte top was walked. The biologists also looked for nests in trees along the slopes of the butte and walked Willow Creek through the south part of the area.

On 8 July, a biologist returned to North Pumpkin Butte and walked the entire perimeter of the butte again to determine productivity of breeding pairs observed earlier. During all surveys, the species, number, and behavior of all raptors seen were recorded in field notes; the locations of nests and raptor sightings were plotted on a 1:24000 topographic map.

RESULTS

BIG GAME

Weather during the 4 March aerial survey was good. The sky had 40% high, thin cloud cover, and a moderate north wind was blowing. Snow cover was 10% over most of the area, with slight accumulations in draws and on north slopes. Snow cover was greatest over the two eastern-most flight lines. Visibility during the aerial survey was rated as good to excellent.

Sightings are summarized in Table 1 and shown on Map 1. Thirteen big game sightings were made during the survey: nine herds of pronghorn and four herds of mule deer (*Odocoileus hemionus*). A total of 235 pronghorn (14.7 animals/mi²) were seen, with herd size ranging from

TABLE 1
 1994 North Butte ISL Project Wildlife Monitoring
 4 MARCH 1994 BIG GAME AERIAL SURVEY

<u>No. of Animals</u>	<u>1/4 Sec</u>	<u>TWP</u>	<u>RNG</u>	<u>Habitat</u>	<u>Activity</u>
74P	NE20	44	75	SBG	ST
6P	SW20	44	75	G	ST
36P	SW17	44	75	G	BE
51P	NE18	44	75	SBG	ST
35P	NE30	44	75	G	BE
5P	NW19	44	75	G	ST
5P	NE13	44	75	G	BE
8MD*	NE24	44	76	SBG	ST
11MD	SE24	44	76	SBG	ST
3P	NW13	44	76	G	ST
20P	NE35	44	76	SBG	BE
9MD	NE14	44	76	G	ST
7MD	NE14	44	76	G	BE
1GE	SW14	44	76	RB	FL

*Denotes animals seen within the North Butte permit area.

SUMMARY

235 Pronghorn

145 in Sagebrush-grassland (62%)

90 in Grassland (38%)

35 Mule Deer

1 Golden eagle

Species
 P = Pronghorn
 MD = Mule deer
 GE = Golden eagle

Habitat
 SBG = Sagebrush-grassland
 G = Grassland
 RB = Rough breaks

Activity
 ST = Standing
 BE = Bedded
 FL = Flying

3 to 74. Additional animals were apparently using the area during winter 1994; 18 pronghorn and 16 mule deer were observed just outside of the survey area to the north and south, respectively.

Table 2 presents the number and density of pronghorn observed in the area during aerial surveys completed from 1992 through 1994. The number of pronghorn seen during the winter 1994 survey was four times larger than the number (56) observed during the 1993 survey, but just slightly more than half the number (434) recorded during the 1992 survey.

The differences in observed pronghorn abundance among years can be partially attributed to varying weather conditions. The area was mostly clear of snow during almost the entire winters of 1992 and 1994. In 1993, relatively deep snow covered much of the area in February. The deeper snow in 1993 undoubtedly forced many animals to move off the area. In fact, a herd of approximately 60 pronghorn was seen just southeast of the survey area during the February 1993 flight, and numerous pronghorn tracks were evident in the snow along the south end of the survey area. An additional factor that may affect the number of pronghorn observed on any given day is the relatively small size of the survey area. The area is only 16 mi² and animals could easily move on and off the survey area in a short period of time, potentially affecting the number of animals observed during an aerial survey.

Six of the nine pronghorn herds (174 animals) observed during the 4 March 1994 survey were in the northern half of the area. All pronghorn were observed in the north part of the survey area in 1993, while animals were widely distributed throughout the entire area in 1992.

Sagebrush-grassland is the predominant vegetation in the North Butte area, and most of the pronghorn observed during the last three winter surveys have been in that habitat type. In 1994, 62% of the pronghorn seen were in sagebrush-grassland; the remainder of the pronghorn

TABLE 2

1994 North Butte ISL Project Wildlife Monitoring

PRONGHORN WINTER AERIAL SURVEY OBSERVATIONS, 1992-1994

<u>Year</u>	<u>Date</u>	<u>Total Number</u>	<u>Density (#/mi²)¹</u>	<u>Conditions</u>
1992	24 Feb	434	27.1	Excellent: ground mostly snow-free; sky clear
1993	23 Feb	56	3.5	Fair/Poor (south)-Excellent (north): 100% snow cover in north 3/4, 60-70% in south 1/4; sky clear
1994	4 Mar	235	14.7	Good-Excellent: snow cover 10% over most of area (especially eastern 2 lines), accumulation in draws and north slopes; sky 40%, high, thin

were in grassland. All pronghorn observed during the 1993 flight were seen in sagebrush-grassland, and 95% of those seen in 1992 were recorded in that habitat.

The number of mule deer (35) observed during the 4 March 1994 survey was considerably greater than that seen in 1993 (7), but less than the number (49) recorded in 1992. Because the aerial surveys are designed primarily to count pronghorn, it is likely that additional mule deer were in the area during all years, but not seen during the flights. Only eight of the mule deer seen were on the North Butte permit area; the other 27 were in the perimeter.

SAGE GROUSE

No grouse were seen displaying at the Gilbertz III lek during any of the three morning checks in spring 1994. One grouse was observed flying over the general lek area before dawn on 11 April, but it did not land at Gilbertz III. Wyoming Game and Fish Department (WGFD) records indicate that more than 60 males attended Gilbertz III in 1979. Grouse attendance at the lek declined in subsequent years. In 1988, only 11 males were seen at this lek. No birds were observed there in 1989, and none have been observed on the lek from 1992 through 1994. Apparently, Gilbertz III is no longer an active sage grouse lek.

Male grouse were seen at North Butte lek on all four mornings the lek was checked this spring. The number of males observed ranged from a high of 17 on 11 April to a low of 9 on 5 May, with an average of 14 grouse seen per lek visit. Females were observed during both April visits, but not in May. Seventeen females were counted on 11 April; a minimum of 10 were seen on 12 April. Breeding at leks in northeast Wyoming usually peaks in early April, and by mid-April few females are still attending leks. One copulation was observed during the four observation mornings.

The number of grouse recorded at North Butte lek in 1994 exceeded that noted in 1993, but was similar to 1992 observations. Ten males and no females were observed during one of two morning checks in 1993. The peak counts of 17 males and 17 females in 1994 were similar to the highs of 16 males and 14 females recorded in 1992. More birds were observed at the lek later into the season in 1994 than in the previous two years.

In 1988, North Butte lek was mapped in NE/4 SW/4 Section 18, T44N, R75W; WGFD records give the lek location as SE/4 NE/4, Section 18, T44N, R75W. From 1992 through 1994, North Butte lek was in SE/4 NW/4, Section 18, T44N, R75W (Map 1). Apparently the lek site has shifted in recent years, or the lek location was inaccurately mapped during original surveys.

No new leks were found on the permit area or in the perimeter during five hours of ground searches spread over four mornings in April and May 1994. Search efforts in 1992 and 1993 also failed to locate new lek sites in the survey area.

NESTING RAPTORS

The locations of all raptor nests in the North Butte survey area are listed in Table 3, along with a summary of their status and productivity from 1992 through 1994. At the end of the 1993 breeding season, there were 12 known intact raptor nests in the survey area. In 1994, two previously unrecorded red-tailed hawk (*Buteo jamaicensis*) nests (RTH1b, RTH2, Map 1) were discovered during ground searches along Willow Creek; two additional prairie falcon (*Falco mexicanus*) eyrie sites (PF6, PF7, Map 1) were also located on North Butte. Thus, there were 16 known intact nests in the area at the end of the 1994 breeding season. A potential American kestrel nest (*Falco sparverius*) was identified in a snag near PF4 (Map 1) in 1994.

TABLE 3
1994 North Butte Wildlife Monitoring
RAPTOR NEST LOCATIONS AND PRODUCTIVITY

<u>Nest No.</u>	<u>Code</u>	<u>1/4</u>	<u>1/4</u>	<u>Sec</u>	<u>TWP</u>	<u>RNG</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
PF1	C	SE	SE	11	44	76	A,3,3	1	1
PF2	C	SE	SW	11	44	76	A,2,2	1	1
PF3	C	NW	NW	14	44	76	A,2,2	1	1
PF4	C	SW	NE	14	44	76	A,2,2	1	A,4,4
PF5	C	NE	NE	14	44	76	---	A,4,4	1
PF6	C	NW	SE	11	44	76	---	---	A,3,3
PF7	C	SE	SE	11	44	76	---	---	A,2,2
TOTALS							4,7,7*	1,4,4	3,9,9
GE1	C	NE	SE	11	44	76	A,1,1	1	1
GE2a ¹	PP	NE	NE	23	44	76	1	1	1
GE2b ¹	PP	NE	NE	23	44	76	1	1	1
GE2c ¹	C	NW	SW	13	44	76	---	1	1
GE2d ¹	C	NW	SW	13	44	76	---	1	1
GE2e ¹	C	NW	SW	13	44	76	---	1	1
TOTALS							1,1,1	0,0,0	0,0,0
RT11a*	SN	SE	NW	25	44	76	A,1,0	1	1
RT11b	CW	NW	SW	25	44	76	---	---	1
RT112	CW	NE	SW	26	44	76	---	---	1
TOTALS							1,1,0	0,0,0	0,0,0
AX1	SN	SW	NE	14	44	76	---	---	A,2,2
TOTALS							0,0,0	0,0,0	1,2,2
GRAND TOTALS							6,9,8*	1,4,4	4,9,9*

* Denotes nests on the North Butte ISL Project permit Area.
¹ Possible alternate to GE1.

TABLE 3 (continued)

1994 North Butte Wildlife Monitoring

RAPTOR NEST LOCATIONS AND PRODUCTIVITY

X, #, # = Status, number of young hatched, number of young fledged.

In TOTALS rows #, #, # = total active nests, total young hatched, and total young fledged.

<u>Species Codes</u>	<u>Nest Substrate Codes</u>	<u>Nest Status Codes</u>
PF = Prairie falcon	C = Cliff face	A = Active
GE = Golden eagle	PP = Ponderosa pine	I = Inactive
RTH = Red-tailed hawk	SN = Snag	--- = Undiscovered
AK = American kestrel	CW = Cottonwood	

In July, a male kestrel vigorously defended the snag. Although no young were seen it is likely that kestrels had a nest in a cavity in the snag.

As in previous years, prairie falcons were the most common breeding raptor in the North Butte area in 1994. This year, three separate groups of young prairie falcons were observed during the July productivity check. One group was observed at an eyrie (PF4, Map 1) that was originally found along the south end of the butte in 1992; two other groups were seen at previously unmarked locations (PF6 and PF7, Map 1) at the north end of the butte. All three groups were perched or flying among the rocks, ledges, and trees in the cliff face. Four young, but no adults were seen at PF4. The three young birds at PF6 were accompanied by two adults, one of which was out of view during most of the observation period. The second adult brought food to the fledglings at the PF6 site on one occasion. The two young at PF7 (Map 1) were not attended by an adult during the July visit. Neither of the two new sites was spotted during the 13 June check, nor were any adults observed near those sites at that time. After observing the two groups of young at the north end of the butte in July, the biologist doubled back to PF4 to verify that three distinct groups were present on North Butte.

No golden eagles (*Aquila chrysaetos*) nested in the North Butte survey area in 1994, nor were any new eagle nests located this year. Golden eagles also did not nest in the area in 1993, but one young fledged from GE1 (Map 1) in 1992. Six golden eagle nests have been found along the east face of North Butte since 1992. One nest is on the northeast face of the butte, and the remaining five nests are on the southeast face. The two groups were initially differentiated as two territories, but it is possible that all of the nests are within a single territory. One immature golden eagle was observed soaring over SW Section 13, T44N, R76W on 13 June, near the southeast face of North Butte.

Red-tailed hawk nest RTH1a (Map 1) is in a snag along Willow Creek just downstream from where the proposed facilities access road crosses the creek. In 1992, the adults hatched at least one chick in RHT1a; for unknown reasons, the young died in the nest before fledging. A pair of adult red-tailed hawks were seen in the vicinity of RTH1a in 1993, but they apparently did not lay any eggs. Two adults were observed in the vicinity of RTH1a in April 1994, but they did not breed. Neither of the two red-tailed nests located along Willow Creek in 1994 were active when discovered, and they apparently had not been used during this breeding season. At least one of these nests (RTH1b, Map 1) is probably within the same territory as RTH1a. The other nest (RTH2, Map 1) may be in another territory. One adult red-tailed hawk was observed soaring in SE Section 27, T44N, R76W, within one-half mile of RTH2, on a couple of occasions in 1994.

LITERATURE CITED

Grier, J. W. and R. W. Fyfe. 1987. Preventing research and management disturbance. Pages 173-182 in B. A. Pendleton, B. A. Millsap, K. W. Cline, and D. M. Bird, eds. Raptor management techniques manual. Natl. Wildl. Fed., Washington, D. C.