

**ANADARKO PETROLEUM CORPORATION
ATLANTIC RIM PROJECT AREA
Wildlife SURVEY REPORT 2009**



**Report Prepared for
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Rawlins Field Office
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ABSTRACT

Anadarko Petroleum Corporation (Anadarko) is developing gas resources within the Atlantic Rim Natural Gas Project Area (ARPA) in south-central Wyoming. Due to potential impacts of gas field development on wildlife resources (BLM 2007), the Bureau of Land Management – Rawlins Field Office (BLM), requested surveys be conducted to determine activity status of seven Greater Sage-grouse (*Centrocercus urophasianus*) leks, presence/absence of mountain plover (*Charadrius montanus*) at 26 previously delineated potential habitat patches, and nest inventories and nesting status of raptor species at 114 known nest sites within the ARPA. Surveys were conducted by Grasslands Consulting, Inc during the appropriate survey timelines for each species. Three surveys for Greater Sage-grouse were conducted from April 27 – May 28, 2009. Grouse were detected at one of the seven leks (Pipeline lek) on two separate occasions. Three surveys for mountain plover were conducted from May 26 – June 18, 2009, no mountain plover were detected during morning or evening surveys. During the 2009 survey season, 15 active nest sites were occupied by 6 raptor species. The active raptor nest sites within the project area included 4 Prairie Falcons (*Falco mexicanus*), 4 Burrowing Owls (*Athene cunicularia*), 3 Red-tailed Hawks (*Buteo jamaicensis*), 2 Ferruginous Hawks (*Buteo regalis*), 1 Great-horned Owl (*Bubo virginianus*), and 1 American Kestrel (*Falco sparverius*) the remaining 127 nest sites were not occupied by reproducing raptors or these nests were determined to be removed or could not be located.

INTRODUCTION

Anadarko Petroleum Corporation currently is developing gas resources within the Atlantic Rim Natural Gas Project Area, located in Carbon County, Wyoming (Figure 1). The project area includes lands administered by the Bureau of Land Management – Rawlins Field Office (BLM), State lands, and private lands. Potential impacts of gas field development to threatened, endangered, or sensitive species, and impacts to important wildlife habitats were identified during the preparation of the Atlantic Rim Natural Gas Project EIS (BLM 2007). In compliance with the Wildlife Monitoring Plan in the EIS, Anadarko contracted Grasslands Consulting, Inc (Grasslands) to conduct wildlife surveys and monitoring within the ARPA project area. Because the ARPA encompasses such a large area (approximately 310,600 acres) and is the focus of several wildlife research projects, the BLM has assigned specific Greater Sage-grouse leks to Anadarko and Grasslands for monitoring. In 2009, Grasslands was assigned monitoring of seven Greater Sage-grouse leks (Table 1, Figure 2). In addition to sage grouse lek monitoring, Anadarko requested Grasslands conduct nesting raptor surveys within 1.0 miles of existing and proposed development areas and presence/absence surveys for mountain plover 0.25 miles of existing and proposed development areas.

STUDY AREA

The ARPA comprises approximately 310,600 acres of mixed federal, state and private lands. Land ownership is divided between federal (64 percent), state (5 percent), and private landowner (31 percent; Figure 1). The eastern boundary of the ARPA is approximately seven miles west of the town of Rawlins, Wyoming. The physiognomy of ARPA is characterized by various large parallel ridges in the northern portion of the project area and deep valleys surrounded by plateaus and isolated mountains in the southern (Figure 1). Vegetation tends to generally follow an elevation gradient with more drought tolerant species occurring at lower elevations and more mesic communities at higher elevations.

The Wyoming Basin ecoregion is described as a broad intermontane basin dominated by arid grasslands and shrublands, and interrupted by high hills and low mountains. The Southern Rockies ecoregion is characterized by steep mountains or high-elevation plateaus dominated by forest patches bounding intermontane depressions and open meadows. The Wyoming Basin and Southern Rockies are divided into Level IV ecoregions to better

describe local diversity. Three Level IV ecoregions occur within the ARPA, Rolling Sagebrush Steppe (18a), Salt Desert Shrub Basin and Slopes (18e), and Foothills Shrublands (21d; Chapman et al. 2004).

Rolling Sagebrush Steppe (18a) dominates ARPA and is characterized by semiarid, rolling plains, alluvial and outwash fans, hills, cuernas, mesas, and terraces. Sagebrush (*Artemisia* spp.) and bunchgrasses (*Agropyron* and *Festuca* spp.) are the dominant vegetation. Elevation, aridity, slope, aspect, snow accumulation, prevailing winds, and other factors all affect the species composition, morphology, and density of sagebrush communities. Utah Juniper (*Juniperus osteosperma*) and Limber Pine (*Pinus flexilis*) woodlands occur on rocky soils along ridge crests. Streams in the project area typically have low gradients, are ephemeral or weakly intermittent, and have sand or shale substrates (EPA 2003, 2004).

Salt Desert Shrub (18e) is limited within ARPA and is characterized by plains, terraces, rolling alluvial fans, and isolated sand dunes. Soils tend to be more alkaline and less permeable than soils in the Rolling Sagebrush Steppe, and vegetation is composed of a sparse cover of xeric-adapted species such as shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and Gardner's saltbush (*Atriplex gardneri*). Areas with stabilized sand dunes are dominated by alkali cordgrass (*Spartina gracilis*), Indian ricegrass (*Achnatherum hymenoides*), alkali wildrye (*Leymus simplex*), and needle-and-thread (*Hesperostipa comata*). This arid region is sensitive to grazing pressure, which may promote the invasion of invasive weeds such as Russian thistle (*Salsola kali*), cheatgrass (*Bromus tectorum*), and halogeton (*Halogeton glomeratus*). Streams are incised and flow into depressions which usually have high levels of soluble salts. Substrate is commonly fine textured material or platy shale gravels (EPA 2003, 2004).

Foothill Shrublands (21d) also is very limited within ARPA and occurs along a transitional zone between the higher mountain ranges of the Rockies and the arid grasslands and sagebrush steppe of the Wyoming Basin. The rolling and irregular terrain is semiarid and dominated by mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*), antelope bitterbrush (*Purshia tridentate*), mountain mahogany (*Cercocarpus montanus*), and serviceberry (*Amelanchier alnifolia*). In addition, Aspen (*Populus tremuloides*) stands occur at higher elevations on deeper soils of north- and east-facing slopes where wind-blown snow accumulates. Riparian vegetation includes willows (*Salix* spp.) and narrowleaf cottonwood (*Populus angustifolia*) (EPA 2003, 2004).

METHODS

Grasslands biologists William Lukins, Johnathan Sexauer, Nick Hall, Dan Hamilton, Jason Sutter, Jay Slocum, and Matt Kelahan conducted wildlife surveys within the ARPA in 2009. Wildlife surveys were conducted in accordance to approved survey protocols.

Greater Sage-grouse

Greater Sage-grouse lek monitoring surveys were conducted on three occasions during April and May, 2009 at each of the seven known lek locations (Table 1, Figure 2). Surveys were conducted from a pickup or all terrain vehicle (ATV) visually observing with binoculars and listening for displaying males. Surveys of the Doty Mountain lek were conducted on foot because of limited vehicle access and topography at this location. All observations and pertinent information were recorded on Annual Sage-Grouse Lek Observation Forms provided by the BLM. If no grouse were observed, a biologist would conduct a ground check at the lek location to identify sign of strutting activity such as droppings and/or feathers.

Mountain Plover

Presence/absence surveys for mountain plover were conducted from during May and June, 2009, at 26 previously delineated habitat patches (Table 2, Figure 3). Surveys were conducted from a pickup or ATV stopping approximately every 0.25 miles within the habitat patch. A biologist would stay in or on the vehicle

visually observing using binoculars and listening for mountain plover. Wildlife observations and pertinent information were recorded on Trimble® Juno™ ST Global Positioning System (GPS) units using ArcPad 7.1 software for data collection, editing, and navigation. All spatial analyses were performed and cartographic products were created using ArcGIS™ 9.2 (Environmental Systems Research Institute, Inc.; Redlands, CA).

Raptors

Raptor nest inventories and nesting status surveys were conducted from May through June, 2009 at 114 known nest locations. Raptor nest locations were loaded onto Trimble® Juno™ ST Global Positioning System (GPS) units running ArcPad 7.1 for data collection, editing, and navigation. All spatial analyses were performed and cartographic products were created using ArcGIS™ 9.2 (Environmental Systems Research Institute, Inc.; Redlands, CA). A Grasslands biologist visited each nest location to document the activity status and associated characteristics of each nest. A set of photographs for many of the nests were recorded including a landscape photograph that captures the nest substrate and the surrounding habitats, and a close - up photograph that documents the general nest condition (Appendix A).

RESULTS

GREATER SAGE-GROUSE

Greater Sage-grouse were observed on two occasions at the Pipeline lek, seven males and two other grouse (unknown sex) were observed on April 27, approximately 0.25 miles east of the documented lek center-point. One male was observed on May 19 at approximately the lek center-point. No grouse were observed at the other leks during three surveys conducted on April 27, May 19, and May 27. Survey locations, dates, and observations are presented in (Table 1, and Figure 2). Ground checks for sign of breeding grouse were conducted at each lek location. Sage grouse sign consisting of old droppings and tar droppings, were observed at the East Dry Cow, East Dad Road, and Dad Basin 1 leks. Sage grouse sign observed at these locations was not fresh and does not indicate use of these areas for breeding in 2009. Ground checks at the West J.O., Sandhills Road, and Doty Mountain leks did not reveal any sign that grouse had used the area in 2009.

Mountain Plover

Surveys for mountain plover were conducted at 26 previously delineated habitat patches during thirteen survey periods (eight evening and five morning). No mountain plover were detected during these surveys. Habitat patch sizes ranged from 8.19 acres to 1,472.17 acres, with a mean patch size of 153.39 acres, and a total of 3,988.25 acres surveyed (Table 2, Figure 3). Many of the previously delineated habitats are poor habitat for mountain plover or at least in 2009, were not suitable for the species.

Raptors

Raptor nest surveys were conducted from May through June, 2009. These surveys were conducted to determine the status of known raptor nesting locations. Grasslands biologists conducted pedestrian surveys within 1-mile of existing and proposed development areas. In addition to surveying known nest locations, observations of new or previously unrecorded nest sites were documented.

In addition to the previously identified 114 nests within 1-mile of development areas, Grasslands located 28 previously undocumented nest sites for a total of 142 surveyed nest locations. Fifteen raptor nest sites were active during the 2009 nesting season (Table 3; Figure 5). The remaining 127 nest sites were inactive. Of these inactive nesting locations, several were in a deteriorated or unsuitable condition for nesting raptors and several are not present (Table 4; Figure 6). Six of the 142 nest sites were occupied at some point by raptor species based on sign (e.g., substantial fresh whitewash observed at the nest site, but no adults or young present at the time of the survey). These nests were inactive at the time of the survey.

Of the 15 active nest sites, 3 were occupied by Red-tailed Hawks, 2 were occupied by Ferruginous Hawks, 4 were occupied by Prairie Falcons, 4 were occupied by Burrowing Owls, and American Kestrel, and Great-horned Owls occupied 1 site each (Table 1; Figure 5).

DISCUSSION

Greater Sage-grouse lek monitoring is done to determine if a known lek is active or inactive in any given year. Consistent yearly monitoring allows managers the opportunity to look at trends in activity at specific leks and across the landscape. Grasslands Consulting, Inc was requested to survey seven leks within the ARPA in 2009 (Table 1, Figure 2).

According to data from Wyoming State Sage-Grouse database, the Pipeline lek, has been consistently monitored since 1998, with birds observed nine out of eleven years. Surveys at the Sandhills Road lek have only occurred six times since 1989 with birds only detected in 1989 and 1991. Based on these data and field observations, Grasslands suggests that either the location for this lek is inaccurate or this location is not a lek. This lek is situated at the head of a reservoir in the bottom of a drainage, which would be an unusual breeding location. The East Dad Road lek has been surveyed from 2003-2009 with no birds having been recorded at this location. The West J.O. lek has been surveyed sporadically from 1979-2009 with birds detected on 7 occasions. The East Dry Cow lek has been surveyed 12 times since 1985 with birds detected 7 times prior to 1996. The Dad Basin 1 lek has been observed sporadically from 1978-2009 with birds detected twice prior to 1990. The Doty Mountain lek has had limited surveys from 1978-2009 with no birds detected since 1982.

In recent years concern for greater sage grouse has increased significantly. The species has been petitioned for listing under the Endangered Species Act with the United States Fish and Wildlife Service. We recommend that efforts be taken to ensure that the most accurate lek locations are recorded within the Wyoming Game and Fish Departments Lek Database as well as with the BLM. We also recommend consistency in the monitoring of these lek locations. This will allow resource managers the ability to make informed management decisions when it comes to placing development restrictions and timing stipulations on oil and gas developers.

Suitable mountain plover nesting habitat is very dynamic in that it can vary from year to year depending on land use practices and weather conditions. Plover primarily select for short grass prairie habitats with 30% or more bare ground and slopes of 10 degrees or less for nesting. Delineating habitats that fit these criteria can be difficult especially in precipitous years. Many of the habitat patches surveyed during the 2009 season within the ARPA constituted moderately suitable to non suitable mountain plover nesting habitat. To ensure that future surveys are conducted within suitable habitats, increasing the probability of plover detection, mountain plover habitats within the ARPA should be delineated prior to conducting surveys in 2010 and changed accordingly. For this effort, Grasslands recommends the use of available high resolution aerial photography followed up with ground truthing. In addition, one large mountain plover habitat patch (PLV 03) (Table 2, Figure3) is located partially within a State Wildlife Area that is designated as walk in access only. In this area, mountain plover surveys should be discontinued unless future development is planned.

Raptor nest locations within the ARPA have come from a variety of sources and have been documented in a variety of ways. Many of the locations may have been mapped from aircraft onto topographic maps, or from ground surveys prior to the availability of resource grade GPS devices, or from a compilation of different Geographic Information System files that are in different map projections. To ensure that resource managers have current nest location data projected in a widely accepted map projection, UTM NAD 83, we conducted surveys of all nest locations and collected data with resource grade GPS units. This ensures that resource managers can make informed management decisions when it comes to placing development restrictions and timing stipulations. Several nest locations were observed to be inaccurate during the survey and should be corrected in the master database.

Many of the nest locations surveyed by Grasslands Consulting in 2009 were off significantly and may actually be located in a different section than the naming convention for that nest indicates. Nest FH17910401 was found to be located in section 03 so the naming convention should be changed to indicate this FH17910301.

Nest GH15910801 is supposedly a great-horned owl nest, however upon thorough inspection no past or recent sign (pellets, feathers) indicate that this is the case.

Nest KE15910801 could not be located, the location is recorded as being under a bridge, no past or recent sign was observed and no nesting cavity could be observed.

Nest KE15912801 located in a juniper appears to be a domed black-billed magpie nest. Kestrels typically are cavity nesters, however it is possible that someone observed a nesting kestrel in a stick nest.

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