

**U.S. Department of the Interior
Bureau of Land Management
Farmington Field Office**

**Mancos-Gallup Resource Plan Amendment
and
Environmental Impact Statement**

**Raptor Management Report
May 2014**

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Acronyms and Abbreviations

BLM	United States Department of the Interior, Bureau of Land Management
EIS	environmental impact statement
FFO	Farmington Field Office
MOU	memorandum of understanding
RFD	Reasonable Foreseeable Development Scenario
RMP	resource management plan
USFWS	United States Fish and Wildlife Service

Chapter 1: Introduction

1.1 BACKGROUND

This Raptor Management Report is prepared in support of the upcoming United States Department of the Interior, Bureau of Land Management (BLM) Farmington Field Office (FFO) Resource Management Plan (RMP) Amendment/Environmental Impact Statement (RMPA/EIS). Management decisions for this land area are currently covered by the 2003 Farmington RMP/EIS. This RMPA will replace or update certain decisions from the 2003 RMP/EIS for lands within the current planning area.

The BLM analyzed the Mancos/Gallup formations in the 2002 Reasonable Foreseeable Development Scenario (RFD) and current 2003 RMP/EIS. Technology developed since that time is allowing for additional development of what was previously considered a fully developed oil and gas play within the San Juan Basin in northwestern New Mexico. Improvements and innovations in horizontal drilling technology and multi-stage hydraulic fracturing have enhanced the economics of developing this stratigraphic horizon. The types of fluids recovered from the Mancos/Gallup formations are quite variable throughout the basin. Depending on the region of the formation, the fluids pass from the “gas window” into the “oil window,” varying from dry gas with some carbon dioxide to producing oil with some associated gas.

With the rise in oil prices, the oil play to the south has drawn interest, and several wells are being drilled and planned for the near future.

Approximately 4,140 natural gas and oil wells have been drilled in the Mancos/Gallup formations. The current RFD forecasted an additional 300 Mancos oil wells to the existing fractured Mancos play in the southeast portion of the San Juan Basin. The RFD also forecasted multiple Mancos gas completions to add onto existing Mesa Verde and Dakota producing wells.

Full-field development, especially in the shale oil play, will result in additional impacts unforeseen or analyzed in the RFD or the current 2003 RMP/EIS. As a result, this development will require EIS-level analysis and revision in the form of an amendment to the RMP for complete analysis of the Mancos/Gallup formations. Additionally, the RMPA and EIS will need to address updated management related to lands and realty, vegetation, and lands with wilderness characteristics.

The revised and updated RFD will estimate the future number of oil and gas wells to be drilled in the Mancos/Gallup formations and the magnitude of the infrastructure improvements projected at this time to assess the environmental impacts of full-field development in the Mancos/Gallup formations. The impacts associated with the construction of infrastructure and additional well counts will involve more surface disturbance than was originally visualized in the 2003 RMP. The amended RMP will consider impacts on biological resources from expanded oil and gas development in the planning area and will include specific management objectives for raptors and migratory birds. It will also consider updated vegetation management (including habitat) and the 2010 US Department of the Interior, Fish and Wildlife Service (USFWS) memorandum of understanding (MOU) with the BLM to promote bird conservation.

1.2 PROJECT AREA

Planning area: The 4.2-million-acre planning area is composed of federal, state, and private lands as well as Indian reservations overlying the Mancos/Gallup formations within portions of San Juan, Rio Arriba, McKinley, and Sandoval Counties in New Mexico.

Decision area: The 2.2-million-acre decision area for the Mancos-Gallup EIS includes only the surface land and subsurface mineral estate within the planning area for which the BLM has the authority to make land use and management decisions.

Study area: The study areas comprise areas of raptor habitat that are considered representative of raptor habitat in the planning area as a whole. The FFO study area includes lands in San Juan, Rio Arriba, McKinley, and Sandoval Counties in New Mexico. The Taos study area includes lands in upper

Rio Grande Gorge, the Orilla Verde Recreation Area, and the Rio San Antonio Gorge in Taos and Rio Arriba Counties in New Mexico.

1.3 PURPOSE OF THE RAPTOR MANAGEMENT REPORT

The purpose of the Raptor Management Report is to strengthen raptor conservation in the decision area by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on raptors. This analysis uses raptor nesting data provided by the BLM and the 2006 Annual Report Monitoring Nesting Golden Eagles for the Farmington Field Office and Nesting Raptors for the Taos Field Office (HawksAloft 2006), and the 2012 Golden Eagle Nest Monitoring report for the BLM Farmington Resource Area (Animas Biological Studies 2012). This report incorporates input from scoping process and reports, output from the meetings conducted for this task, and related information provided by the BLM, the Rapid Ecological Assessment for the Colorado Plateau, and environmental impact studies produced for other projects within the planning area¹. The data are discussed in **Sections 2.1** (Species and Habitat Requirements) and **2.2.1** (Raptor Use of the Project Area). Threats anticipated from oil and gas developments are discussed in **Section 2.2.2** (Causes of Mortality and Disturbance).

The “Memorandum of Understanding between the Bureau of Land Management and the US Fish and Wildlife Service: To Promote the Conservation of Migratory Birds” (MOU) committed the BLM to protection of nests and young of migratory bird species, including raptors. Additional protection measures that could be considered during this RMP amendment process to protect raptors are identified in **Section 2.2.3** (Protection Measures and Raptor-Safe Modifications).

In addition to this raptor management report, the BLM is producing a Migratory Bird Report to analyze impacts on all migratory birds, including the impacts from the BLM’s current migratory bird policies and additional measures to meet the BLM’s conservation objectives.

1.4 LAWS AND REGULATIONS

Migratory Bird Treaty Act of 1918. The Migratory Bird Treaty Act implements a series of international treaties that provide for migratory bird protection. The Act authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird” (16 USC 703) but does not regulate habitat. The list of species protected by the Act was revised in March 2010 and includes almost all bird species (1,007 species) that are native to the US.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. Signed on January 11, 2001, this Executive Order directs each federal agency taking actions that are likely to have a measureable effect on migratory bird populations to develop and implement an MOU with the USFWS that promotes the conservation of migratory bird populations.

Memorandum of Understanding to Promote the Conservation of Migratory Birds and Farmington Field Office Interim Management Policy. On April 12, 2010, the USFWS and BLM signed this MOU pursuant to Executive Order 13186. The purpose of the MOU is to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the USFWS and BLM, in coordination with state, tribal, and local governments. This MOU identifies specific activities where cooperation between the USFWS and BLM will contribute to the conservation of migratory birds and their habitat. Also in 2010, FFO developed an Interim Management Policy for migratory birds pursuant to MBTA that requires nest surveys for disturbance during nesting season, and halts construction at nest sites until young have fledged.

¹ Some of the studies included data from areas within the FFO, but outside the defined planning amendment area. However, the data is representative of raptor species and their habitat requirements, and therefore was included in this report.

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (1940, as amended 1959, 1962, 1972, 1978) prohibits the take or possession of bald and golden eagles with limited exceptions. Take, as defined in the Act, includes “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturb means to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, injury to an eagle; a decrease in its productivity by substantially interfering with normal breeding, feeding or sheltering behavior; or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. An important eagle-use area is defined in the Act as an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.

Endangered Species Act. The Endangered Species Act of 1973 (16 USC Part 1531 *et seq.*), as amended, provides for the conservation of federally listed plant and animal species and their habitats. The Endangered Species Act directs federal agencies to conserve listed species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely modify its designated critical habitat.

New Mexico Wildlife Conservation Act. This act establishes a list of threatened and endangered species for New Mexico and requires that they be managed to maintain and, to the extent possible, enhance their numbers within the carrying capacity of the habitat. It is unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship any species of wildlife listed under the act.

BLM Manual 6840 – Special Status Species Management. BLM Manual 6840 provides management policy for federally listed species and BLM-designated sensitive species. Species classified as BLM-designated sensitive must be native species found on BLM-managed lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-managed lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk. The BLM protects and manages habitat for the enhancement and protection of the species future existence.

BLM Instruction Memorandum 2008-050. This Instruction Memorandum provides guidance toward meeting the agency’s responsibilities under the Migratory Bird Treaty Act. This guidance directs field offices to promote the maintenance and improvement of habitat quantity and quality for migratory birds of conservation concern to avoid, reduce, or mitigate adverse impacts on their habitats to the extent feasible and in a manner consistent with regional or statewide bird conservation priorities. Because of the many species of migratory birds potentially present within FFO boundaries, the BLM has focused its protection on species listed by the USFWS as Birds of Conservation Concern. This listing resulted from the 1988 amendment to the Fish and Wildlife Conservation Act, which mandates the USFWS to “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973.”

USFWS Instruction Memorandum NM-F00-2010-001. Sent to the Farmington Field Office February 22, 2010, this Instruction Memorandum provided interim guidance meeting the BLM’s responsibilities under the Migratory Bird Treaty Act, Washington Office Interim Management Guidance (Instruction Memorandum No. 2008-050) and the Executive Order 13186. Under the Migratory Bird Treaty Act and Executive Order, federal agencies are required to consider impacts on migratory birds from management activities. In keeping with this mandate, the BLM should consult avian conservation plans to identify species at greater conservation risk based on threats to the species or their habitats. The BLM should consider the goals and objectives established in these bird conservation plans in their National

Environmental Policy Act analysis of actions that have a potential to negatively or positively affect migratory bird species of concern. These plans include:

- USFWS Birds of Conservation Concern
- New Mexico Partners in Flight (now called New Mexico Avian Conservation Partners) New Mexico Bird Conservation Plan
- Comprehensive Wildlife Conservation Strategy for New Mexico
- Gray Vireo Recovery Plan
- The North American Waterbird Conservation Plan
- Recovery plans and conservation plans/strategies prepared for federally listed candidate species

Chapter 2: Raptor Species of Interest

2.1 SPECIES AND HABITAT REQUIREMENTS

2.1.1 Golden Eagle (*Aquila chrysaetos*)

Among the largest raptors in North America, golden eagles range widely across western North America. They prefer open, arid country and avoid developed areas and forests. They nest on cliffs, canyons, rocks, trees and bluffs in grassland, chaparral, and other vegetated areas, where they can more easily forage for typical prey species such as black-tailed jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus audubonii*), ground squirrels (*Spermophilus* spp.), and prairie dogs (*Cynomys* spp.). In this part of their range, golden eagles prefer cliff habitat for nesting substrate, although tree nests commanding a wide view of their surroundings are occasionally used. In the planning area, golden eagles typically nest on the ledges of sandstone cliffs and volcanic rock outcrops adjacent to open grassland and shrub-steppe habitats (HawksAloft 1999).

Golden eagles are considered a short- to medium-distance migrant; however, many eagles do not migrate, and pairs maintain territories year-round. Pairs often build and maintain more than one nest within their territory and may switch nest sites from year to year (Kochert et al. 2002). Territories typically contain multiple nests that are maintained and repaired as part of the courtship ritual. Once golden eagles establish a territory, they often remain in that area for many years, defending an area of approximately 20 to 30 square kilometers from other eagles (Kochert et al. 2002).

The increase in human activities and land use practices could adversely impact golden eagle nesting activity and reproductive success (Glinski 1988, Hawks Aloft 2000). Long-term surveys indicate declines in the nesting populations in western U.S. (Kochert et al. 2002).

Golden eagles are protected in the United States under the Bald and Golden Eagle Protection Act of 1962, as well as the Migratory Bird Treaty Act.

The planning area has been surveyed for golden eagle nests since 1981. Starting in 1998, HawksAloft conducted surveys (HawksAloft 2006) and subsequently, Animas and the San Juan Institute of Natural and Cultural Resources surveyed nests (2012).

In 2006, a total of 32 territories in the FFO were occupied by at least one adult golden eagle; 20 territories were occupied by breeding pairs and considered active. Of the 20 active nests, 13 (68 percent) successfully fledged at least one young. The average productivity per breeding pair was 0.8 young per nest (HawksAloft 2006). Haller (1996) determined that a minimum annual productivity of 0.5 fledglings per occupied territory produced a viable, stable population of golden eagles.

In 2012, the BLM monitored 25 eagle nest sites, 17 in the northern and 8 in the southern parts of the study area. Of the 17 northern territories, 7 (41 percent) were occupied, but only 4 (24 percent) had an active nest. Ten (59 percent) of the territories were inactive. Two of the four active nests failed, and two successfully fledged at least one eaglet. In the southern territories, 4 sites were occupied (50 percent) but only 2 (25 percent) had active nests, with the remaining two territories occupied but inactive. Of the two active nests, one was successful and one failed (Animas 2013).

The northern territories are located primarily in Largo Canyon, an area of intense oil and gas development, while the southern territories are located in an area used primarily for low level agriculture. The northern territories are subject to constant human intrusion, including high volumes of vehicle traffic and noise disturbance related to drilling and gas well maintenance activities. Some raptors are sensitive to human disturbance, particularly during the early stages of the breeding season and incubation (Watson 1997, Britten 2001). These impacts may be especially disruptive during years of low prey availability, such as 2009 and 2010 when there was a crash in the desert cottontail population.

Table 2-1 (Comparison of Golden Eagle Productivity in the BLM, Farmington Resource Area, McKinley, Rio Arriba, Sandoval, and San Juan Counties, 2008–2012) shows the number of territories monitored from 2008 to 2012, with the highest number of nests monitored in 2008. Territory occupancy in 2012 was similar to that of 2010 and 2011, but it remained substantially lower than 2008, 2009 and earlier. The proportion of failed nests was 50 percent in 2012. This is the same percentage as 2010, the last year in which there were active nests to monitor. The number of fledglings per occupied territory (0.4) was the highest since 2008 (0.7), but the overall trend shows limited nesting success.

Table 2-1. Comparison of Golden Eagle Productivity in the BLM, Farmington Resource Area, McKinley, Rio Arriba, Sandoval, and San Juan Counties, 2008–2012

Year	No. of Territories Monitored	No. of Occupied Territories	% Occupancy	No. of Active Nests	No. of Failed Nests	No. of Young Fledged	No. Fledglings/ Occupied Territory
2008	45	30	67	20	2	22	0.7
2009	8	6	75	3	2	1	0.2
2010	22	10	46	4	2	3	0.3
2011	8	3	38	0	0	0	0.0
2012	25	11	44	6	3	4	0.4

Source: Animas Biological Studies 2012

Preliminary golden eagle nest survey data from 2014 report at least 13 pairs were observed nesting in the FFO, indicating that the local golden eagle population has rebounded from the crash in 2010, though nest success has yet to be determined (Kendall 2014).

2.1.2 Other Raptors

Other raptors that nest in the FFO area include:

- Prairie falcon (*Falco mexicanus*),
- Peregrine falcon (*F. peregrinus*)
- American kestrel (*F. sparverius*)
- Red-tailed hawk (*Buteo jamaicensis*)
- Great horned owl (*Bubo virginianus*)
- Ferruginous hawk (*Buteo regalis*)
- Swainson's hawk (*Buteo swainsoni*)
- Osprey (*Pandion haliaetus*)
- Cooper's hawk (*Accipiter cooperii*)
- Sharp-shinned hawk (*Accipiter striatus*)

In addition, bald eagle (*Haliaeetus leucocephalus*) and northern harrier (*Circus cyaneus*) have been observed foraging or migrating through the planning area but are not known to nest there (HawksAloft 2006).

The Taos study area was surveyed for raptor nests in 2006, a good productive year for raptors. A total of 21 active raptor nests were monitored: 9 golden eagle, 5 prairie falcon, and 7 red-tailed hawk. In addition, one golden eagle, two prairie falcon, one peregrine falcon, one red-tailed hawk, and one great horned owl territories were occupied by at least one adult, but no evidence of breeding was observed. Reproductive outcome was determined at all active nests; 16 (76 percent) successfully fledged at least one young. The average productivity per breeding pair was 1.3 young for golden eagle, 3.0 for prairie falcon, 1.0 or more for red-tailed hawk (HawksAloft 2006).

Peregrine falcon population status was separately studied in 2008 and 2010 (Johnson and Williams 2008; Johnson 2010). In 2004 to 2008, 85 percent of peregrine falcon territories were occupied, a good indicator of recovery. Population increased 9 percent over those years, but productivity and breeding success was low, an indicator of poor population status. Modeling predicts a decline in population and anticipates the population in New Mexico is not productive enough to sustain itself, with pesticides and

disease being the most likely factors (Johnson and Williams 2008). The limited breeding success and declining trends continued in 2010, with pesticide use and take of peregrines for falconry being cited as likely factors in the decline (Johnson 2010).

Figure 2-1 (Raptors) shows raptor nest locations in the planning area, according to BLM data between 2003 and 2013. The figure does not show nest locations on tribal lands, which are not public information. The figure shows 10 ferruginous hawk nests, 54 golden eagle nests, 2 osprey nests, 5 peregrine falcon nests, and 6 prairie falcon nests (BLM GIS 2014).

2.2 THREAT ASSESSMENT

2.2.1 Raptor Use of Project Area

As outlined above, a variety of raptors may be found within the planning area. Raptors have high potential to be affected by the developments in the proposed RMPA because of their foraging behavior and the proximity of their nesting and roosting habitats to proposed developments.

2.2.2 Causes of Mortality and Disturbance

A variety of factors can lead to avian mortality at oil and gas development sites, including electrocution from power lines and blunt trauma from collision. Development in close proximity to nests may result in nest abandonment, and noise caused by construction activities may disturb nesting birds. Impacts on raptors' prey base, primarily the hare population, is also a potential threat. Prey populations may crash from loss of cover and foraging habitat near developments or from disease.

In 2005, the FFO issued permits for approximately 800 new wells, about 40 percent of which were located on existing pads. In 2006, 940 wells were permitted, of which 16 percent were located on existing pads. For 2007, approximately 810 new wells were requested, and it is currently unknown how many were located on existing pads. Issues regarding the increase in habitat fragmentation due to the expansion of oil and gas development expands and grazing practices as they relate to the potential impacts important prey species in golden eagle foraging areas should be addressed. Maintaining the integrity of native shrub communities that are prime habitat for leporids, a major prey species, will be critical in the long-term (HawksAloft 2006).

As new oil and gas wells continue to increase in number, it will become increasingly difficult to maintain the 0.3-mile buffer zone around existing golden eagle nests. Because studies suggest that golden eagles can be sensitive to human disturbance during the incubation period (Fyfe and Olendorff 1976; Watson and Dennis 1992), maintaining the integrity of the 0.3-mile buffer zone or increasing the buffer zone to 0.5 mile during the egg-laying and incubation period when birds are more sensitive to nest abandonment is of increasing importance. Some eagle pairs in the planning area regularly nest successfully near oil and gas wells and appear to tolerate the higher amounts of human activity associated with the maintenance of oil and gas equipment. There is currently little understanding of the types, proximity, duration, and frequency of disturbances that can adversely affect the breeding success of golden eagles in the planning area.

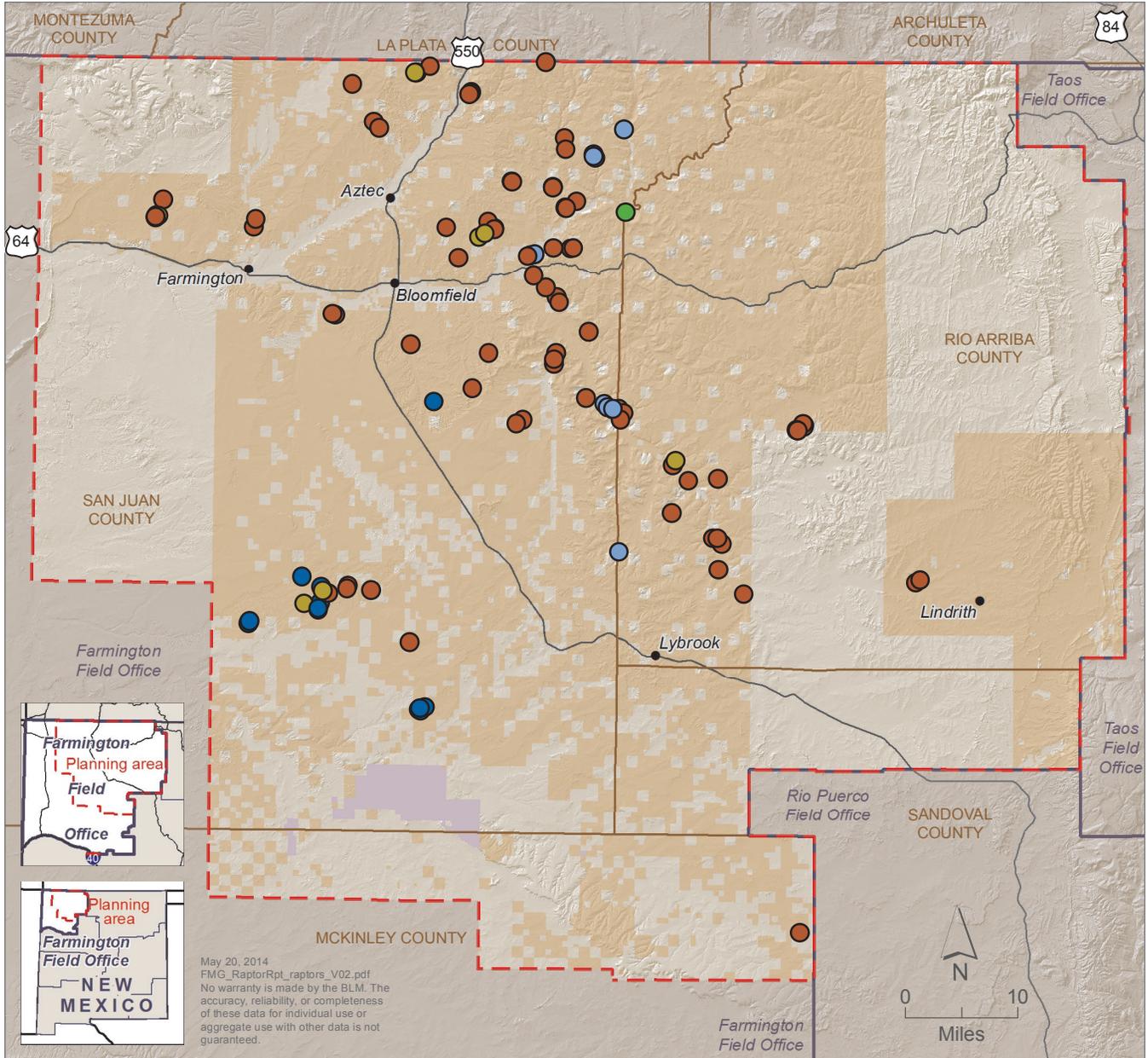
2.2.2.1 *Electrocution*

Avian electrocutions can occur when an animal completes an electric circuit by simultaneously touching two energized parts or an energized part and a grounded part of electrical equipment. Improperly constructed power lines, especially distribution lines, are one cause of direct mortality for avian species and can result in electrocution of birds attempting to utilize these structures for perching and nesting (Harness and Wilson 2001).



Raptors

Raptor nests are typically protected by a 1/3-mile buffer to prevent disturbance during nesting season.



Source: BLM GIS 2014

- Ferruginous Hawk
- Golden Eagle
- Osprey
- Peregrine Falcon
- Prairie Falcon
- Decision Area
- Planning area
- National Park Service
- Field office boundary

2.2.2.2 Collision

Structures associated with well developments and utility lines may cause mortality by collision. Vulnerability to collision depends on many factors such as bird behavior and maneuverability, topography, weather, and power line design and placement. Bird collision with power lines has been documented for decades, and risk of collision is considered highest in areas where birds congregate, such as power lines that bisect daily flight paths.

A recent study on how birds see outlined that many types of birds may have significant blind spots, increasing risk of collision even during daylight. Movements of a bird's head during flight such as scanning below for foraging or roost site can render them blind to objects in the direction of travel. The study examined only a few species, but then extrapolated visual challenges of other orders of birds based on physiology and other published literature. These blind spots are related to how birds forage for food as well as the position and size of eyes (Martin and Shaw 2010).

2.2.2.3 Construction

Construction would have short-term impacts on air quality, noise, and lighting from site-grading exhaust from gas- and diesel-powered construction equipment, tractor-trailers and other vehicles. The construction of well pads, pipelines, utilities, and access roads would cause temporary and permanent disturbance to foraging habitat and may result in loss of prey species. Effects from noise, human presence, and heavy equipment present during construction activities could lead to reduced nesting success for individual birds displaced into surrounding areas. Further, individuals could be affected by the fragmentation caused by the overall footprint of the development, leading to reduced nesting success, especially if prey populations are also reduced.

2.2.2.4 Noise

Construction and operational noise may disturb birds nesting in the vicinity of the project, resulting in nest abandonment or young neglect. Construction noise would be greatest near the construction site and attenuate outward from there. Foraging birds are unlikely to be disturbed by construction noise.

The FFO utilizes a noise standard of 48.6 decibels (dBA) over a 24-hour period, but this standard applies only to long-term oil and gas operations, not to construction or drilling. Noise studies of nest disturbance have been inconclusive due to difficulties of measuring noise at nest locations. Noise disturbance should be judged on a site-by-site basis based on the nature of the disturbance, topography and tolerance level of the birds.

2.2.3 Protection Measures and Raptor-Safe Modifications

This section describes protective measures that could be applied as part of this RMPA to reduce threats to raptors. Measures described were taken from the MOU with the USFWS, the 2003 RMP, input from BLM specialists, and avian-safe practices suggested by Avian Power Line Interaction Committee (APLIC 2006).

2.2.3.1 Collision and Electrocution

Power-line poles would consist of steel or wood H-frame tangent structures, steel or wood three-pole dead-end heavy angle structures, steel single-pole heavy angle dead-end structures, and steel single-pole staggered tangent structures. The use of H-frame structures may increase the visibility of the structures to birds, since the poles would be grouped in pairs connected with cross-bracing. However, three-pole angle structures and single-pole structures require guy wires to support the angle poles and to plumb the structures. Since they are less visible, guy wires could increase the potential for collision. The angle structures are only used when necessary since they are at angle points. Small diameter lines are potentially the most difficult for birds to see and avoid. Therefore, these lines are commonly marked for visibility.

All power lines that cross golden eagle nesting territory will incorporate flight diverters on the static line to make it more conspicuous. Flight diverter types (e.g., FireFly bird diverters, spiral vibration dampers, and aviation balls) and locations will be determined by agency biologists. Spacing of flight diverters is generally specified by the manufacturers, as well as site conditions. Some flight diverters cause long-term maintenance issues because they might fall during windstorms or because of icing.

All power lines and stations will be constructed utilizing avian-safe practices to avoid electrocution, as suggested by Avian Power Line Interaction Committee using industry standards (APLIC 2006). Any potential electrocution caused mortality to avian species will be captured under the reporting systems described below.

2.2.3.2 Project Construction

Construction best management practices would be employed in order to minimize harm to raptors during project construction. Raptor nest surveys would be conducted no more than two weeks prior to disturbances by a qualified biologist acceptable to the BLM. This survey would be conducted to identify either breeding adult birds or nest sites within the specific areas to be disturbed. If active nests are present within the areas to be disturbed, developers would coordinate with the BLM to develop appropriate protection measures for these sites, which may include avoidance, construction constraints, and the establishment of buffers. Current BLM policy dictates 0.3-mile nest buffers around construction, drilling, or completion activities for active or historic golden eagle nests during the breeding season. Nest buffers are currently enforced from February 1 through June 30 annually (BLM 2008). Other raptor nests are similarly protected by a 0.3-mile buffer from construction, drilling or completion activities between March 1 and June 30.

2.2.3.3 Avian Reporting System

Continued raptor monitoring in the FFO allows land managers to minimize disturbance to nesting golden eagles due to such activities as oil and gas development and road and utility construction. In order to assess the effectiveness of raptor protection measures, the site managers will report, monitor, and manage all avian injury or mortality in accordance with the methodology below. All appropriate personnel, including managers, supervisors, line crews, and engineers would be provided with instruction on implementing the methodology and properly reporting raptor mortality. Mortality reporting will be standard practice by the site managers for the duration of project operation. Raptor nest site reporting will also be performed according to the methodology below.

2.2.3.4 Detection

The detection of injury or mortality could occur through investigation of power outages, through monitoring efforts during operation, and through incidental observations during the nesting season from February through July. To improve the probability that birds that have suffered injury or death are detected, site field staff will be directed to remain alert for birds. The detection of avian nest sites will occur through monitoring efforts during operation and through incidental observations. Dead or injured birds will be reported to the BLM along with location and facility.

If raptor nesting is observed through monitoring or incidental observations within the planning area (adjacent to or within project facilities), site personnel will record the circumstances and conditions associated with the nest site and nest. The recorded information will be used to determine if the nest and its location present risk of injury or mortality to the nesting birds.

2.2.3.5 Adaptive Management Approaches

Facilities and structures will be built according to avian-safe standards (APLIC 2006). As such, the potential for an avian interaction would be minimized, which can help prevent possible violations of the Migratory Bird Treaty Act, Endangered Species Act, and Bald and Golden Eagle Protection Act.

Nest buffers for golden eagles or other raptors may be modified according to circumstances of the nesting location. For example, if nest positioning makes noise or visual disturbance unlikely, the nest buffer area might be reduced; in areas with low disturbance, the nest buffer might be increased to 0.5-mile during laying and roosting to protect against nest abandonment. Nest buffers could be reduced later in the season when young have hatched and eagles are less likely to abandon nests. Timing of nest buffers could also be adjusted based on adaptive management. Some eagles may return to their nests in January and require a protective buffer earlier than February 1.

Reactive measures would be developed through adaptive management practices such as, but not limited to, utilization of different flight diverters, hazing, or alterations in vehicular traffic or other operational activities. As incidents occur, the site manager will respond appropriately through documentation via the Avian Reporting System.

Measures identified above are the primary methods to reduce potential avian mortality for transmission line projects. However, where the site manager identifies unexpectedly high mortality or unexpected impacts on protected species or their habitats despite the use of such methods, the site manager will work with agencies to identify appropriate adaptive management mortality reduction or mitigation measures.

2.2.3.6 Eagle Conservation Plan

Applications for Permits to Drill located in the vicinity of sensitive eagle nesting habitat may be required to produce an Eagle Conservation Plan and obtain an incidental take permit from USFWS for golden eagle.

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