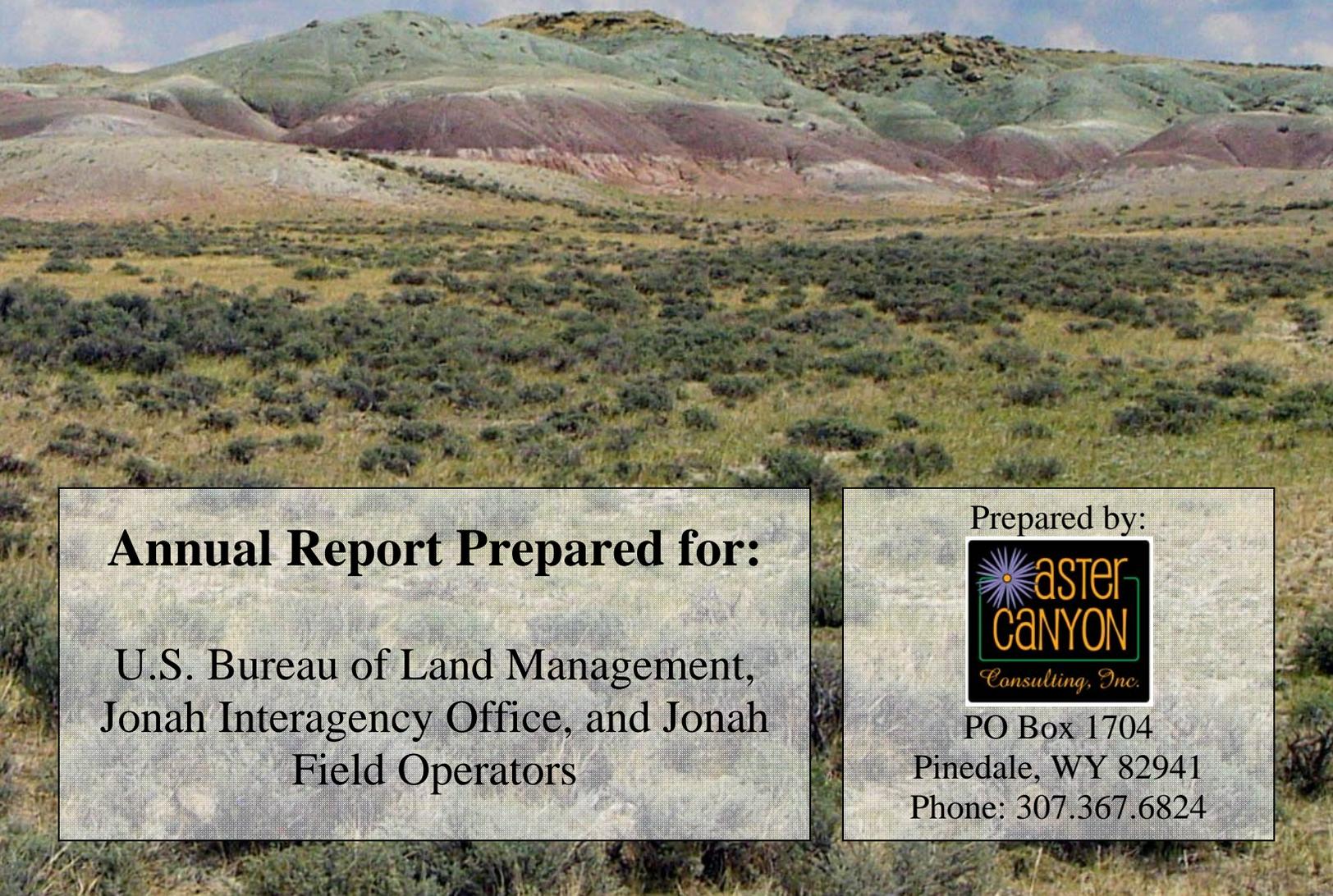


# 2012 Jonah Infill Drilling Project Area Wildlife Monitoring Final Report



## **Annual Report Prepared for:**

U.S. Bureau of Land Management,  
Jonah Interagency Office, and Jonah  
Field Operators

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## 1.0 EXECUTIVE SUMMARY

Aster Canyon Consulting, Inc. (Aster Canyon) has prepared this 2012 Jonah Infill Drilling Project Area Wildlife Monitoring Report in compliance with criteria set forth by the Bureau of Land Management (BLM) and the Jonah Interagency Mitigation and Reclamation Office (JIO), as described in the *Wildlife Monitoring Plan for the Jonah Infill Drilling Project Area* (WMP; JIO 2012b). The objectives of monitoring wildlife in the Jonah Infill Drilling Project Area (JIDPA) and surrounding 3-mile buffer are: (1) to compare observations and data collected over time; (2) to identify existing mitigation and protection measures as described in the BLM Jonah Field Record of Decision (ROD; BLM 2006); and (3) to offer recommendations on how to improve monitoring, mitigation and protection measures. The principal protection measure undertaken in the JIDPA for the majority of wildlife species is the avoidance of sensitive or critical habitats during certain times of the year, specifically raptor and burrowing owl nesting sites, mountain plover breeding grounds, and greater sage-grouse leks.

Monitoring criteria discussed in the WMP are for US Fish & Wildlife Service (USFWS) Threatened, Endangered, Proposed, and Candidate (TEPC) species, Wyoming Game & Fish Department (WGFD) Species of Greatest Conservation Need (SGCN), and BLM Wyoming Sensitive Species (WSS). Species included in these listings that were independently inventoried in 2012 include raptors (golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), etc.), burrowing owl (*Athene cunicularia*), mountain plover (*Charadrius montanus*), and landbirds. General wildlife observations and fence monitoring were also conducted in 2012. All data presented in this report were collected between August 16<sup>th</sup>, 2011 and August 15<sup>th</sup>, 2012.

To view past wildlife monitoring reports, please visit the JIO website at: <http://www.wy.blm.gov/jio-papo/jio/monitoring.htm>.

This report is organized according to species and provides an introduction, methods, results, and a discussion for each species inventoried. A brief summary of monitoring results is presented below:



#### RAPTORS

- 109 nest locations were monitored in the JIDPA and 3-mile buffer in 2012.
- 2 ferruginous hawk nests on artificial nesting structures in the 3-mile buffer were active and successfully fledged young.
- A golden eagle nest in the JIDPA was active and successfully fledged young.

#### BURROWING OWL

- 64 nest locations were monitored in the JIDPA and 3-mile buffer in 2012.
- 3 new burrowing owl nests were recorded.
- 6 burrowing owl pairs successfully hatched and fledged young.

#### MOUNTAIN PLOVER

- 27 previously-identified mountain plover habitats were surveyed in the JIDPA and 3-mile buffer in 2012.
- 2 adult mountain plovers (1 sighting) were observed.

#### LANDBIRDS

- 34 landbird point count surveys were conducted in the JIDPA in 2012.
- 366 individual birds, comprising 12 species of landbird, were detected during point counts.

#### FENCE MONITORING

- 11.9 miles of fence were monitored 8 times during greater sage-grouse lekking season (March, April, and May).
- 4 simple strikes and 4 mortality strikes of greater sage-grouse were recorded during lekking season monitoring.
- 78.2 miles of fence were monitored twice outside of greater sage-grouse lekking season (July and August).
- 3 simple strikes (2 greater sage-grouse, 1 common nighthawk) and 6 mortality strikes (3 greater sage-grouse, 3 horned lark) were recorded during summer monitoring.

#### GENERAL WILDLIFE

- Common species which were routinely observed in the JIDPA and 3-mile buffer in 2012 include: pronghorn antelope (*Antilocarpa americana*), white-tailed jackrabbit (*Lepus townsendii*), cottontail rabbit (*Sylvilagus spp.*), white-tailed prairie dog, ground squirrel (*Spermophilus spp.*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), vesper sparrow (*Pooecetes gramineus*), mourning dove (*Zenaida macroura*), and sage thrasher (*Oreoscoptes montanus*).
- 23 other wildlife species (19 avian, 3 mammalian, 1 reptilian) were detected in the JIDPA and 3-mile buffer in 2012; species of note include greater sage-grouse (*Centrocercus urophasianus*) and American avocet (*Recurvirostra americana*).

Species not specifically referred to in the WMP, but who are TEPC, SGCN, or WSS, including white-tailed prairie dog (*Cynomys leucurus*), pygmy rabbit (*Brachylagus idahoensis*), greater sage-grouse, and black-footed ferret (*Mustela nigripes*), are discussed below:

#### WHITE-TAILED PRAIRIE DOG

- White-tailed prairie dog town mapping was not required in 2012.
- White-tailed prairie dog town mapping will reinitiate in 2013.

#### PYGMY RABBIT

- Pygmy rabbits were not required to be monitored in 2012.
- Monitoring for pygmy rabbits will reinitiate in 2013.

#### GREATER SAGE-GROUSE

- Monitoring for greater sage-grouse was not required in 2012.
- The BLM and WGFD conduct annual sage-grouse lek surveys and inventories in the JIDPA and 3-mile buffer.
- A total of 7 incidental greater sage-grouse observations, totaling 22 individuals, occurred in the JIDPA and 3-mile buffer in 2012.

BLACK-FOOTED FERRET

- Monitoring for black-footed ferret is no longer required in the JIDPA as per a USFWS decision.

**2.0 INTRODUCTION**

The JIDPA is located in the Upper Green River Basin and exists entirely in Sublette County, Wyoming. The JIDPA lies approximately 32 miles southeast of Pinedale, Wyoming, between United States Highways 189 and 191. The JIDPA is situated almost exclusively (94%) on federally-owned lands and has one of the richest concentrations of natural gas in the United States (JIO 2012a). Meanwhile, the sagebrush-dominated ecosystem that predominates in the JIDPA and surrounding area is critically important to many Wyoming wildlife species, and several of Wyoming’s TEPC, SGCN, and WSS depend on sagebrush during some part of their life history. Accordingly, the BLM has initiated wildlife monitoring and inventory studies as recommended under the Environmental Impact Statement (EIS), which was written in compliance with the National Environmental Policy Act of 1969 (NEPA). Environmental studies commenced in 1996 with Anderson Environmental Consultants, Inc. and continued from 1997-2005 with TRC Mariah Associates, Inc. (TRC). No funding was allocated for the project in 2006. Since 2007, Aster Canyon has been performing wildlife inventories in the JIDPA and 3-mile buffer.

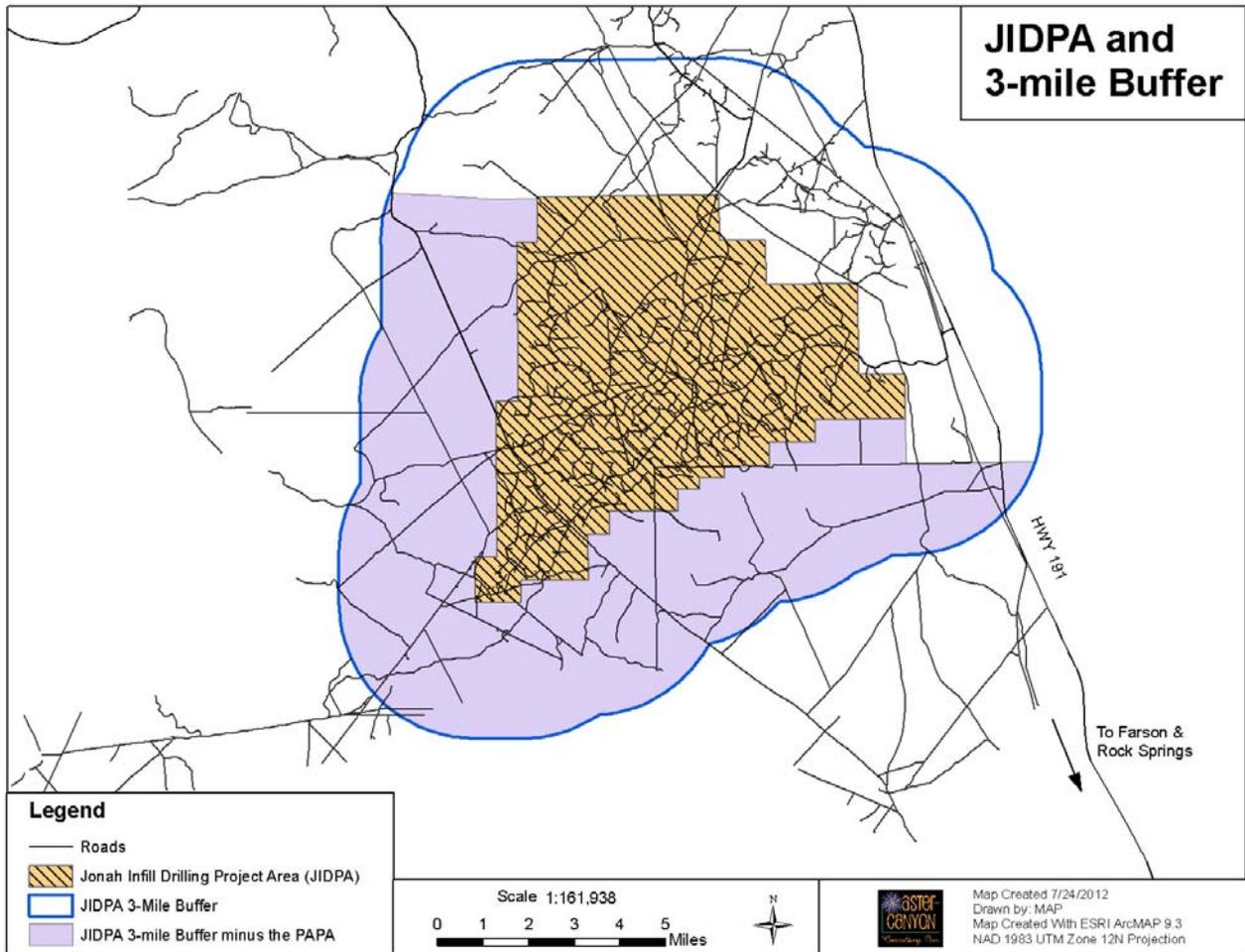


A greater sage-grouse observed in the JIDPA; Photo by A. Tompkins

## 2.1 Study Area

The JIDPA encompasses approximately 30,500 acres of land in townships 28N and 29N, ranges 107W, 108W and 109W. Aster Canyon's 2012 Jonah Infill Drilling Project Area Wildlife Monitoring study area includes the JIDPA as well as a surrounding 3-mile buffer (Map 1). Mountain plover, general wildlife, and fence monitoring were conducted throughout the JIDPA and entire 3-mile buffer in 2012. The 3-mile buffer on the north and east sides of the JIDPA has been eliminated for raptor and burrowing owl monitoring since 2009, as it overlaps with the Pinedale Anticline Project Area's (PAPA) 3-mile buffer. Landbird point counts were carried out solely within the JIDPA boundary.

Map 1. 2012 Wildlife study areas: the JIDPA (landbirds), its 3-mile buffer (mountain plover, fence and general wildlife) and its 3-mile buffer minus the PAPA (raptors and burrowing owl)



The JIDPA and 3-mile buffer consists of shrub-steppe habitat dominated by Wyoming big sagebrush (*Artemisia tridentata var. wyomingensis*) and containing other species of sagebrush (*Artemisia spp.*), rabbitbrush (*Chrysothamnus spp.*), saltbush (*Atriplex spp.*), and a variety of forbs and grasses. It is considered a semi-arid, cold desert and is punctuated by rolling hills interspersed with scattered buttes and rocky outcrops. The area is intersected by numerous ephemeral stream channels and washes and contains a handful of man-made reservoirs, including livestock water sources and a spring-fed earthen dam. Total precipitation averages 8.0 inches per year, and the elevation ranges from 7,000 – 7,400 feet above sea level (BLM 2006).

## **2.2 Objectives**

The objectives of JIDPA Wildlife Monitoring in 2012 were to: (1) identify and record wildlife occurring within the JIDPA and 3-mile buffer; (2) provide data to assist in the maintenance of desired wildlife population levels within the JIDPA; and (3) assist land managers and Operators with planning efforts. Aster Canyon's monitoring of the JIDPA and 3-buffer provides data that assists in determining the effects of disturbance on wildlife therein while also providing guidance related to future monitoring. This is intended to help land managers identify appropriate mitigation and protection measures and, if needed, revise the EIS wildlife models and projections.

## **2.3 Datum and GPS**

Global Positioning System (GPS) locations were recorded using Garmin Rino110 and Trimble GeoXT GeoExplorer - 2005 series in the Universal Transverse Mercator (UTM) coordinate system, Zone 12 north in the North American Datum of 1983. All locations were then projected into a Geographic Information System (GIS) and plotted using ESRI ArcGIS 9®, ArcMap versions 9.1 and 9.3.

## **2.4 Threatened, Endangered, Proposed, and Candidate Species; Wyoming Sensitive Species; and Species of Greatest Conservation Need**

There are several species on the USFWS's TEPC list, the BLM's WSS list, and the WGFD's SGCN list that occur within the JIDPA and 3-mile buffer. These species can be found online at:

USFWS Federally listed, Proposed and Candidate Species by County – Wyoming:  
[http://www.fws.gov/wyominges/Pages/Species/Species\\_Endangered.html](http://www.fws.gov/wyominges/Pages/Species/Species_Endangered.html)

BLM Wyoming Sensitive Species Policy and List:  
<http://www.blm.gov/wy/st/en/programs/Wildlife.html>

WGFD Wyoming Species of Greatest Conservation Need:  
<http://wgfd.wyo.gov/web2011/wildlife-1000407.aspx>

TEPC, WSS, and SGCN species which are discussed in the WMP include the following (JIO 2012b): black-footed ferret, white-tailed prairie dog, pygmy rabbit, ferruginous hawk, golden eagle, western burrowing owl, mountain plover, greater sage-grouse, and landbirds. All incidental observations of species not specifically surveyed for in 2012 were recorded in the WGFD Wildlife Observation System (WOS) and are included in the General Wildlife section of this report.

## **2.5 Overall Monitoring and Protection Measures**

Each species presented in this report has monitoring and protection measures specific to its individual needs. Table 1 presents wildlife protection measures (by species) that pertain to development-related activities occurring within the JIDPA. However, some measures, such as the protection and conservation of critical habitat, apply to all wildlife species. Particular habitats which effectively increase the JIDPA's biodiversity include: sand draws, rocky outcrops, reservoirs, and un-fragmented sagebrush stands. Aster Canyon posits that the preservation of these vital habitats is critical for the persistence of many sensitive species in the area. Also, prairie dogs are an important resource for several species in the JIDPA, as they provide food for raptors and habitat for burrowing owl and mountain plover.

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Table 1. Standard protection measures for all development-related activities in the JIDPA (BLM 2006)

<b>Affected Areas</b>	<b>Applied Restrictions</b>	<b>Restriction Time Frame</b>	<b>Restricted Area Distance</b>
Greater sage-grouse lek	No surface occupancy	Year-round	Within 0.25-mile of occupied lek boundary
Greater sage-grouse lek	No surface-disturbing activity	March 1 - May 15	Within 0.25-mile of occupied lek boundary
Greater sage-grouse nesting habitat	No surface-disturbing activity	March 15 - July 15	Within 2-miles of active lek or within suitable nesting habitat
Greater sage-grouse winter habitat	No surface-disturbing activity	November 15 - March 14	Within identified winter habitat
Greater sage-grouse lek/strutting grounds	Surface occupancy or use restricted or prohibited	March 1 - May 15 (8 pm to 8 am)	Within 0.25-mile of lek/strutting grounds boundary
Mountain plover	No surface-disturbing activity until 2 surveys (no earlier than 4/20 and 5/4) show no nesting activity; activity must begin within 72 hours of survey	April 10 - July 10	Within potential mountain plover habitat
Bald eagle nest	No surface occupancy	Year-round	Within .5-mile of active nest
Bald eagle nest	No surface-disturbing activity	February 1 - August 15	Within 0.5-mile of active and alternative nests
Bald eagle winter use area	No surface-disturbing activity; disruptive activities restricted	November 15 - April 1	Within 1-mile of roost site
Ferruginous hawk nest	No surface occupancy	Year-round	Within 1,000 feet of active nest
Ferruginous hawk nest	No surface-disturbing activity	February 1 - July 31	Within 1-mile of active nest
Other raptors	No surface occupancy	Year-round	Within 825 feet of active nest
Other raptors	No surface-disturbing activity	February 1 - July 31	Within 0.5-mile of active nest
Sand draw	No surface occupancy	Year-round	Within 300 feet

As stated in the ROD, intensive surface-disturbing activities in the JIDPA will likely have significant impacts on wildlife, including displacement and/or extirpation of local populations; therefore, mitigation is encouraged to maintain and protect wildlife. The JIO was formed to provide overall on-site and off-site management of field monitoring and mitigation activities. The JIO is also tasked with managing a ‘monitoring and mitigation’ fund, which was initially provisioned \$24.5 million by EnCana Oil and Gas (USA) Inc. and BP American Production Company. Of the original \$24.5 million, \$16.5 million were committed to off-site wildlife mitigation while the remaining \$8 million were committed



to other environmental initiatives (JIO 2012a). Organizations interested in mitigation efforts may submit project proposals to the JIO; proposed projects must meet criteria described in the funding application guidelines found online at: <http://www.wy.blm.gov/jio-papo/applications/applicationguidelines.pdf>.

The Wyoming Landscape Conservation Initiative (WLCI), whose goal is “long-term science-based effort to assess and enhance aquatic and terrestrial habitats at a landscape scale in southwest Wyoming” (WLCI 2011), is another source of funding for wildlife-related projects. Wyoming Wildlife and Natural Resource Trust (WWNRT) funding is also available for a wide variety of projects throughout the state, including natural resource programs from other agencies (WWNRT 2011).

Finally, previously-unidentified protection measures for TEPC, WSS, and SGCN species are often identified during field reviews by the BLM and Operators during on-site meetings for Applications for Permits to Drill, Right of Way, and in Sundry Notices. When these protection measures are identified, surveys by BLM-approved consulting biologists are usually required, with survey protocols being coordinated with BLM biologists.

### **3.0 RAPTORS**

Raptors are an integral part of the sagebrush-steppe ecosystem, as they are critical for maintaining stable populations of small mammals such as ground squirrels and prairie dogs. They do so by regulating herbivory, which helps to safeguard plant communities and protect the overall health of the ecosystem. As many raptor species are sensitive to development and other anthropogenic disturbances, they can also serve as indicators of overall ecosystem health.

Raptors that are generally found nesting within the JIDPA and 3-mile buffer include the ferruginous hawk and American kestrel (*Falco sparverius*), while a nesting golden eagle pair was also documented this season. It is possible that short-eared owl (*Asio flammeus*), an open-country ground nester (Wiggins et al. 2006), is also breeding in the area. These

raptors are all protected under the Migratory Bird Treaty Act (MBTA) of 1918; golden eagles are also protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) of 1940. In addition, the ferruginous hawk is listed as a WSS and a SGCN species. Incidental sightings of non-nesting raptors observed in the JIDPA and 3-mile buffer can be found in the General Wildlife section of this Report.

Aster Canyon biologists monitored nesting raptor activity in the JIDPA and 3-mile buffer (minus the PAPA) from April 16<sup>th</sup> - July 16<sup>th</sup>, 2012, with the following objectives: (1) monitor previously-recorded raptor nests to determine nesting activity and success; (2) search for new nests; and (3) quality control the official BLM raptor nest database. Additionally, Aster Canyon's monitoring assists Operators with planning efforts and helps them remain in compliance with the MBTA. Real-time reporting, which was submitted to Operators, the BLM, and the JIO after each round of surveys, also offers nesting raptors valuable protection as soon as possible. The following are methods, results, and discussion for the 2012 monitoring season.

### **3.1 Raptors Methods**

2012 raptor nest monitoring was performed as per the *Raptor Survey Protocol*, found in the *Wildlife Survey Protocols, Pinedale Field Office Version 2.3* and the *Wildlife Monitoring Plan for the Jonah Infill and Drilling Project*. BLM-required spreadsheets were used to record all monitoring data.

A total of 109 nest locations were received from the Pinedale BLM and were surveyed during the 2012 nesting season. Monitoring consisted of 2 rounds of nest surveys prior to June 15<sup>th</sup> plus additional productivity surveys. Productivity surveys were performed to determine hatch and fledge success of active nests. Each round of surveys took place a minimum of 3 weeks apart, as specified in the *Wildlife Monitoring Plan for the Jonah Infill and Drilling Project*.

### **3.2 Raptors Results**

One-hundred and nine raptor nest locations were surveyed in the JIDPA and 3-mile buffer (minus the PAPA) during 2012 nest monitoring. Of the 109, 48 were deemed to be



historic; these nest locations were monitored 2 times to ensure data accuracy, while the remaining 61 nests were monitored 3 times. No new raptor nests were discovered in the JIDPA or 3-mile buffer in 2012. Appendix A contains BLM-required spreadsheets detailing nest activity for all known raptor nests, as well as spreadsheets for Operators to assist with planning.

Three raptor nests were occupied in the JIDPA and 3-mile buffer in 2012: 2 ferruginous hawk nests (291073301 and 291073201) and 1 golden eagle nest (291082504); all of these nests were also active. An ‘active’ nest is defined by the BLM as one which hosted a breeding attempt. Table 2 summarizes results from the 2012 raptor monitoring season. Appendix A-6 is a map displaying all nest locations, occupied and active nests, and NSO and seasonal restriction buffers.

Table 2. Summary of 2012 raptor monitoring results in the JIDPA and 3-mile buffer (minus the PAPA)

Species Monitored	Total Number of Nests	Number of Occupied Nests	Number of Active Nests	Number Hatch Successful	Number Fledge Successful
American kestrel	22	0	0	0	0
Ferruginous hawk	84	2	2	2	2
Golden eagle	2	1	1	1	1
Unknown raptor	1	0	0	0	0
<b>Total</b>	<b>109</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>

*Ferruginous hawk*

Ferruginous hawk nests 291073201 and 291073301, both of which are located on the artificial nesting structures in the 3-mile buffer south of the JIDPA, successfully hatched and fledged young in 2012. These nests have successfully produced young for several consecutive years.



Ferruginous hawk artificial nesting structure in JIDPA 3-mile buffer; Photo by M. Pomilia

*Golden eagle*

Golden eagle nest 291082504, located inside the JIDPA, successfully hatched and fledged one eaglet in 2012. Previously, this nest site had been used by a ferruginous hawk, though it has not been used in several years. This is the second consecutive year that a golden eagle has been recorded nesting in the JIDPA.

*American kestrel*

No nesting activity by American kestrels was observed in the JIDPA and 3-mile buffer during the 2012 monitoring season, although 5 American kestrels were otherwise observed. The American kestrel population has been declining across its range for many years, and in the northern Rockies the population dropped approximately 1.6% per year from 2000-2010 (Sauer et al. 2011). Future monitoring will help to determine whether this year's results were an aberration or whether American kestrels are indeed declining in the region.

### **3.3 Raptors Discussion**

Of the 109 raptor nest locations received from the BLM, 61 were found to still exist as a nest (although in varying conditions) while 48 were recorded as historic nest locations. A total of 3 occupied and active nests were identified: 2 ferruginous hawk and 1 golden eagle. All three nesting pairs succeeded in fledging young.

Aster Canyon was unable to identify nesting American kestrels during the 2012 monitoring season. Surveying American kestrels for nesting activity is quite a difficult task. American kestrels often nest in rock formations containing many cavities; considering the large number of potential nest locations in a given rocky outcrop and the inconspicuous nature of incubating females, it is very difficult to observe nesting kestrels from a distance. At the same time, observing from close range could present the risk of disturbing nesting individuals.

The artificial nesting structures in the 3-mile buffer south of the JIDPA appear to be serving as excellent nesting sites for ferruginous hawks. The nests on these structures,

Nests 291073201 and 291073301, have hosted successful nesting attempts for 5 and 6 years, respectively. These artificial nesting structures are fairly isolated from human activity and are currently the only ferruginous hawk nests being utilized in the area. Based on Aster Canyon's experience and knowledge, it is predicted that populations of ferruginous hawk will remain stable with continual protection of these artificial nesting platforms. The success and productivity of these artificial nesting structures could, however, be compromised if development begins to encroach on the area.

This is the first time a golden eagle pair has successfully hatched and fledged young in the 6 years that Aster Canyon has been monitoring raptors in the JIDPA and 3-mile buffer. The location of the nest, in one of the highest traffic areas of the JIDPA, is particularly surprising considering the golden eagle's aversion to developed areas (Kochert et al. 2002). However, as drilling winds down in the JIDPA over the next several years and human disturbance decreases, the area may become more suitable for nesting raptors and we may begin to see an increase in nesting raptor activity. In any case, the successful nesting attempt by a golden eagle in a high traffic area of the JIDPA suggests that raptors' tolerance to disturbance may be highly variable from individual to individual.

Unfortunately, long-term trends in raptor nesting activity cannot be accurately evaluated for a number of reasons: study areas have been reconfigured over time, monitoring protocols have been altered over time, and UTM locations of nests recorded prior to 2007 are unavailable to Aster Canyon. Looking ahead, quick identification of nesting raptors and implementation of appropriate protection buffers should continue to be the focus of monitoring efforts. These actions, combined with a decrease in potential human disturbance, should serve to increase the population of nesting raptors into the future.

#### **4.0 BURROWING OWL**

The western burrowing owl is by far the most common owl species observed in the JIDPA and 3-mile buffer. This small, long-legged owl lives underground in burrows usually constructed by prairie dogs or other mammals. The burrowing owl migrates into

the region in the spring and nests in the sagebrush-steppe habitat that dominates the JIDPA and surrounding landscape. The burrowing owl is a WSS and SGCN and is protected under the MBTA.

Aster Canyon biologists monitored burrowing owl nest activity within the JIDPA and 3-mile buffer (minus the PAPA) from May 7<sup>th</sup> to August 1<sup>st</sup>, with the following objectives: (1) monitor previously-recorded burrowing owl nests to determine nesting activity and success; (2) search for new nests; and (3) quality control the official BLM burrowing owl nest database. Real-time reporting, which was submitted to Operators, the BLM, and the JIO after each round of surveys, also offers nesting burrowing owls valuable protection as soon as possible. The following are methods, results, and discussion for the 2012 monitoring season.

#### 4.1 Burrowing Owl Methods

2012 burrowing owl nest monitoring was performed as per the *Burrowing Owl Survey Protocol*, which follows data collection standards for nesting raptors. This protocol is found in the *Wildlife Survey Protocols, Pinedale Field Office Version 2.3* and the *Wildlife Monitoring Plan for the Jonah Infill and Drilling Project*. BLM-required spreadsheets were used to record all monitoring data.



A juvenile burrowing owl observed in the JIDPA

A total of 61 nest locations were received from the Pinedale BLM and were surveyed, along with newly-recorded nests, during the 2012 nesting season. Monitoring consisted of 2 rounds of nest surveys plus additional productivity surveys. Productivity surveys were performed to determine hatch and fledge success of active nests. Each round of surveys took place a minimum of 3 weeks apart, as specified in the *Wildlife Monitoring Plan for the Jonah Infill and Drilling Project*.

#### 4.2 Burrowing Owl Results

Sixty-four burrowing owl nest locations were surveyed in the JIDPA and 3-mile buffer (minus the PAPA) during 2012 nest monitoring. Of the 64 nest locations, 14 were

deemed to be historic; these nest locations were monitored 2 times to ensure data accuracy, while 49 of the remaining 50 nests were monitored 3 times. The additional nest (291083003) was surveyed only once, as it was first discovered during fence monitoring in August. Two other new burrowing owl nests (291091502 and 291081606) were discovered by Aster Canyon biologists in the JIDPA and 3-mile buffer while surveying for mountain plover. Appendix B contains BLM-required spreadsheets detailing nest activity for all known burrowing owl nests, as well as spreadsheets for Operators to assist with planning.

Of the 50 existing burrowing owl nests, 9 were found to be occupied by burrowing owls (291073103, 291081402, 291081606, 291082801, 291083003, 291083202, 291083501, 291083607 & 291091502). Eight of these nests were found to be active; an 'active' nest is defined as a nest which hosted a breeding attempt. The activity status of nest 291083003 was unable to be determined. Six of the active nests successfully fledged young (Table 3). The BLM protocol does not define the term 'fledge'; in the case of burrowing owls, Aster Canyon defines 'fledge' as when fully-feathered young voluntarily leave the nest for the first time (Bird and Bildstein 2007). Appendix B-6 is a map displaying all nest locations, occupied and active nests, and NSO and seasonal restriction buffers.

As of July 30<sup>th</sup>, Nest 291082801 showed no signs of reproductive success and appeared to be abandoned; therefore, this nest has been recorded a failed nesting attempt. Also, it was unable to be determined if the pair at Nest 291091502 laid eggs or successfully hatched young.

Table 3 summarizes results from burrowing owl monitoring during the 2009 – 2012 seasons. The study area in the JIDPA and 3-mile buffer has remained unchanged during these years.

Table 3. Summary of burrowing owl monitoring results: 2009-2012

	Total number of nest locations	Number of Occupied Nests	Number of Active Nests	Number Hatch Successful	Number Fledge Successful
2012	64	9	8	6	6
2011	61	10	8	7	7
2010	51	12	11	7	7
2009	38	*	6	2	2

\* 'Occupied' was not a term that was used in the BLM protocol in 2009

### 4.3 Burrowing Owl Discussion

Of the 61 nest locations received from the BLM, 47 were found to still exist as a nest (although in varying conditions) while 14 were recorded as historic nest locations. Three new nests were discovered and recorded. A total of 9 occupied and 8 active nests were identified and 6 nests successfully fledged young. These results are similar to 2011 when 10 occupied nests were observed, with 7 successfully hatching and fledging young.

Little is known on the specific dates of arrival and departure of burrowing owls to their breeding grounds, especially in western Wyoming. Burrowing owls are generally found on northern breeding grounds from March to September (Poulin et al. 2011). Aster Canyon has recorded owls on the JIDPA as early as April 4<sup>th</sup> (in 2008).

The Jonah ROD provides seasonal restrictions for surface-disturbing activities from February 1<sup>st</sup> through July 31<sup>st</sup> within 0.5 miles of all active raptor nests. The ROD also states that seasonal buffer distances and dates may vary, depending on factors such as raptor species, nest activity status, prey availability, natural topographic barriers, line-of-site distance(s), and other issues (BLM 2006). Aster Canyon recommends that adaptive management tools continue to be used to evaluate nest protection on a case-by-case basis. For example, inclement weather in a particular year can be considered in determining whether late snow melt has kept owls from using burrows until later in the nesting season. Data can also be analyzed to determine if a particular nest is a 'late' nest and whether a re-nesting attempt has occurred. Nest initiation dates and burrowing owl ecology should always be taken into account when considering potential protection measures.



Unfortunately, long-term trends in burrowing owl nesting activity cannot be accurately evaluated for a number of reasons: study areas have been reconfigured over time, monitoring protocols have changed over time, and UTM locations of nests recorded prior to 2007 are unavailable to Aster Canyon. Looking ahead, quick identification of burrowing owls and implementation of appropriate protection buffers should continue to be the focus of monitoring efforts.

## 5.0 MOUNTAIN PLOVER

The mountain plover is a migratory shorebird that breeds in open, dry areas of short-grass prairie in the western Great Plains and sagebrush-steppe habitats of the Rocky Mountain states. In Wyoming, mountain plovers can be found throughout much of the state in areas of sparsely-vegetated grasslands and open shrub-steppe habitats (Smith & Keinath 2004). An estimated minimum population size of around 3,400 individuals, or 30% of the total mountain plover population (Plumb et al. 2005), are present in the state during migration and throughout the breeding season.

There is evidence that mountain plover populations have experienced large-scale declines over the past century (Drietz et al. 2006) and that mountain plover numbers decreased significantly from the 1960s to the 1990s (Knopf & Rupert 1996). Population declines and concerns regarding habitat loss led to the mountain plover being proposed for federal listing under the Endangered Species Act (ESA). The mountain plover was first considered as a candidate species for federal listing in 1993 after sufficient evidence for its need for protection was presented. It was then listed as ‘threatened’ under the ESA in 1999. That proposal was amended in 2002, but then withdrawn in 2003 after a review deemed that protection for mountain plovers was unwarranted. Most recently, a 2010 proposal to re-list the mountain plover as a federally threatened species was



Mountain plover adult in Wyoming; Photo by J. Brauch

withdrawn by the USFWS in May 2011 after it was determined that the mountain plover was not threatened or endangered throughout a significant portion of its range (USFWS 2011). The mountain plover is currently listed as a Bird of Conservation Concern by the USFWS, a Species of Concern by the United States Forest Service, a SGCN, a WSS, and is federally protected under the MBTA.

Aster Canyon biologists surveyed for mountain plovers within the JIDPA and 3-mile buffer during the period of May 1<sup>st</sup> - June 14<sup>th</sup>, 2012. A total of 3 survey rounds were performed to determine the presence of mountain plovers within pre-determined mountain plover habitats. The results of surveys were reported to the BLM, JIO, and Operators in real-time, following the conclusion of each round. The following are methods, results and discussion for the 2012 monitoring season.

### **5.1 Mountain Plover Methods**

Surveys were conducted as per the *Mountain Plover Survey Protocol*, which is found in the *Wildlife Survey Protocols, Pinedale Field Office Version 2.3*. This protocol was adapted from the USFWS mountain plover survey guidelines (USFWS 2002). The large scale/long term project survey protocol was utilized. BLM-required spreadsheets were used to record all monitoring data.

A total of 27 previously-identified mountain plover habitats within the JIDPA and 3-mile buffer were surveyed for 3 rounds during the breeding season. Appendix C-2 is map displaying all mountain plover habitats surveyed in 2012. Each round being separated by at least 14 days, surveys were conducted between May 1<sup>st</sup> - June 14<sup>th</sup>, 2012. This period fell within the required dates for large scale/long term surveys as stated in the BLM survey protocol. Surveys were conducted from sunrise until 10:00 am and were only performed during ideal weather conditions when wind, rain, fog or other elements would not negatively affect mountain plover behavior or reduce the ability of observers to detect mountain plovers. Surveys were conducted from within a vehicle which remained on roads and two-tracks in order to reduce disturbance to the birds. Playbacks were not used during 2012 surveys, as they have not been deemed successful in past monitoring

seasons. Habitats were not searched by foot for nests, as they are extremely difficult to find and searching may disturb nesting mountain plovers.

**5.2 Mountain Plover Results**

A total of 2 adult mountain plovers were observed on one occasion within the JIDPA 3-mile buffer during the 2012 monitoring season (Appendix C-3; Table 4). The adult mountain plovers were detected during survey round 1 in previously identified JIDPA habitat area 1. One individual was observed foraging while the other flew away upon approach. No breeding behavior was observed.

Table 4. 2012 mountain plover sightings in the JIDPA and 3-mile buffer

Sighting #	Date	Habitat (Plot) ID	Adult	Juvenile
1	5/2/2012	1	2	0

**5.3 Mountain Plover Discussion**

Wyoming serves as a breeding ground for a significant portion of the global mountain plover population; therefore the species should continue to be awarded special consideration by land managers in the state. Population declines in mountain plover have been attributed largely to a loss of suitable habitat. Human activity is a negative modifier of mountain plover habitat (Smith and Keinath, 2004) and although mountain plovers may be tolerant of some habitat modification, encroachment of human development into critical habitats will likely decrease the quality of those habitats and hence reduce or even exclude breeding mountain plovers from the area.

Areas of high quality habitat in the JIDPA and 3-mile buffer which have hosted breeding mountain plovers or been the location of multiple sightings include habitat areas 1, 6, 26, 27, 28, 29 and 30. We recommend that critical habitats in the JIDPA and 3-mile buffer, particularly the habitats listed above, be protected from any potential disturbance, as they will likely play a key role in maintaining a local mountain plover population moving forward.



Since 2000, there have been a total of 70 mountain plover sightings in 11 designated habitat areas within the JIDPA and 3-mile buffer. These habitat areas are: 1, 6, 10, 15, 18, 24, 26, 27, 28, 29, and 30. The earliest year for which we have sightings records is 2000 (Table 5). It should be noted that these observations do not represent a population trend, as methodologies have not been standardized or adjusted for observer effort. Appendix C-3 is a map displaying sightings dating back to 2000. Thus, sightings data from previous years should be interpreted only as denoting the presence of mountain plover in a given area.

Table 5. Summary of mountain plover sightings in the JIDPA and 3-mile buffer: 2000-2012

Year	# Sightings	Habitat Areas
2000	1	30
2002	3	26, 30
2003	2	26, 27
2004	9	1, 26, 28, 29
2005	12	1, 6, 26, 27
2007	9	1, 10, 18, 26, 29
2008	4	6, 27, 29
2009	13	1, 26, 27, 29, 30
2010	7	1, 26, 29, 30
2011	8	1, 15, 24, 26, 29, JMPH7*
2012	1	1

\*JMPH7 is not a previously-recorded habitat and has not been delineated

Vegetative height and percentage of bare ground, both key factors influencing suitable mountain plover breeding habitat (Smith & Keinath 2004), can be greatly affected by industrial development. Industrial activities involving ground disturbance and road development tend to create conditions under which exotic plants can invade; tall or dense-growing exotic vegetation, once established, may create conditions that could greatly decrease the quality of habitat for nesting mountain plovers. It is also important to protect habitats occupied by mountain plovers during migration, courting, nest site selection and brood rearing, which may not necessarily be characterized by the same vegetative structure. If mountain plover habitat is disturbed, efforts should be made to maintain vegetative characteristics that promote suitable conditions for mountain plovers. The reclamation process should be monitored to ensure that reclamation results are



progressing towards final reclamation criteria as per the Jonah Reclamation Monitoring Plan (JIO 2008).

### *Habitat Delineation*

The re-evaluation and re-delineation of mountain plover habitat areas in 2013 should help reflect more accurate habitat boundaries and improve monitoring for future years. It is recommended that delineation be accomplished with the use of imagery such as aerial photography or imagery from the National Agriculture Imagery Program, combined with ‘ground truthing’ to confirm the accuracy of habitat classification.

### *Recommendations for Improving Surveys*

One major challenge when conducting mountain plover surveys in this area is that access to plots can be difficult, especially when surveying from a vehicle. Many of the habitats are large and do not have roads or two-tracks that allow access to portions of the mapped habitat. It is possible that the number of mountain plover sightings is significantly reduced as a result. One option might be to use off-road all-terrain vehicles (ATVs) to access habitats which are inaccessible by roads. While this option would allow for more thorough surveys, it would likely be more time-consuming and increase disturbance to breeding mountain plovers. Thus, this trade-off between survey coverage and disturbance should be weighed and considered in relation to survey goals before protocols are altered.

The current protocols for mountain plover surveys in the JIDPA and 3-mile buffer are meant to determine the presence or absence of mountain plovers, not the density of nesting mountain plovers. Therefore, calculating population trends in the JIDPA using previously-collected data is not possible. In order to better estimate local population trends, it may be helpful if field data sheets included start *and* end times for all surveys conducted. This way, survey data could be used to calculate the number of mountain plovers observed per unit of observation time [i.e. total # birds detected/count hours].

With collaborative effort in revamping survey data collection procedures, it may be possible to improve the quality and validity of the data produced. This could help improve management of mountain plovers in the JIDPA and 3-mile buffer while also

making a more significant contribution to broad-scale mountain plover monitoring efforts.

## **6.0 LANDBIRDS**

All birds discussed in this section are protected under the MBTA. Under the MBTA, the BLM and its leaseholders have a legal obligation to protect species of migratory birds, which occur on lands under federal jurisdiction. Executive Order (EO) No. 13186, ordered in 2001, directs agencies to take additional actions to execute the MBTA. To comply with the EO, the BLM, in cooperation with the USFWS, has developed principles and practices that minimize the amount of unintentional take of migratory birds, focusing particularly on species of concern. Their goals are to conserve, enhance and restore habitats and assess potential risks to migratory birds.

The objective of the point count surveys was to calculate relative abundance and diversity of landbird species in the JIDPA. Surveys primarily targeted the group of birds known as Passeriformes, commonly referred to as perching birds, half of which are songbirds.

### **6.1 Landbirds Methods**

In 2010, the Handbook of Field Methods for Monitoring Landbirds (Ralph 1993; Appendix D-2), along with the Rocky Mountain Bird Observatory (RMBO) protocol (Appendix D-1), were used to design a landbird survey protocol for the JIDPA. Thirty-four points were systematically established at the corners of each section within the JIDPA boundary (Appendix D-3), to be surveyed once per season. This protocol was utilized in 2010, 2011, and this year in 2012, with the exception that distance estimations were omitted this year.

Point counts were performed within a half hour of sunrise until 9:00 a.m., with each point consisting of 2 consecutive 3-minute intervals where all birds heard or seen, including flyovers, were recorded. Weather data including temperature, wind speed, precipitation and cloud cover were also recorded at each point (Cariveau 2007). Surveys were not conducted in conditions of low visibility (i.e. rain, snow, fog) or in winds above 15 mph.



A horned lark observed in the JIDPA; Photo by A. Tompkins

## 6.2 Landbirds Results

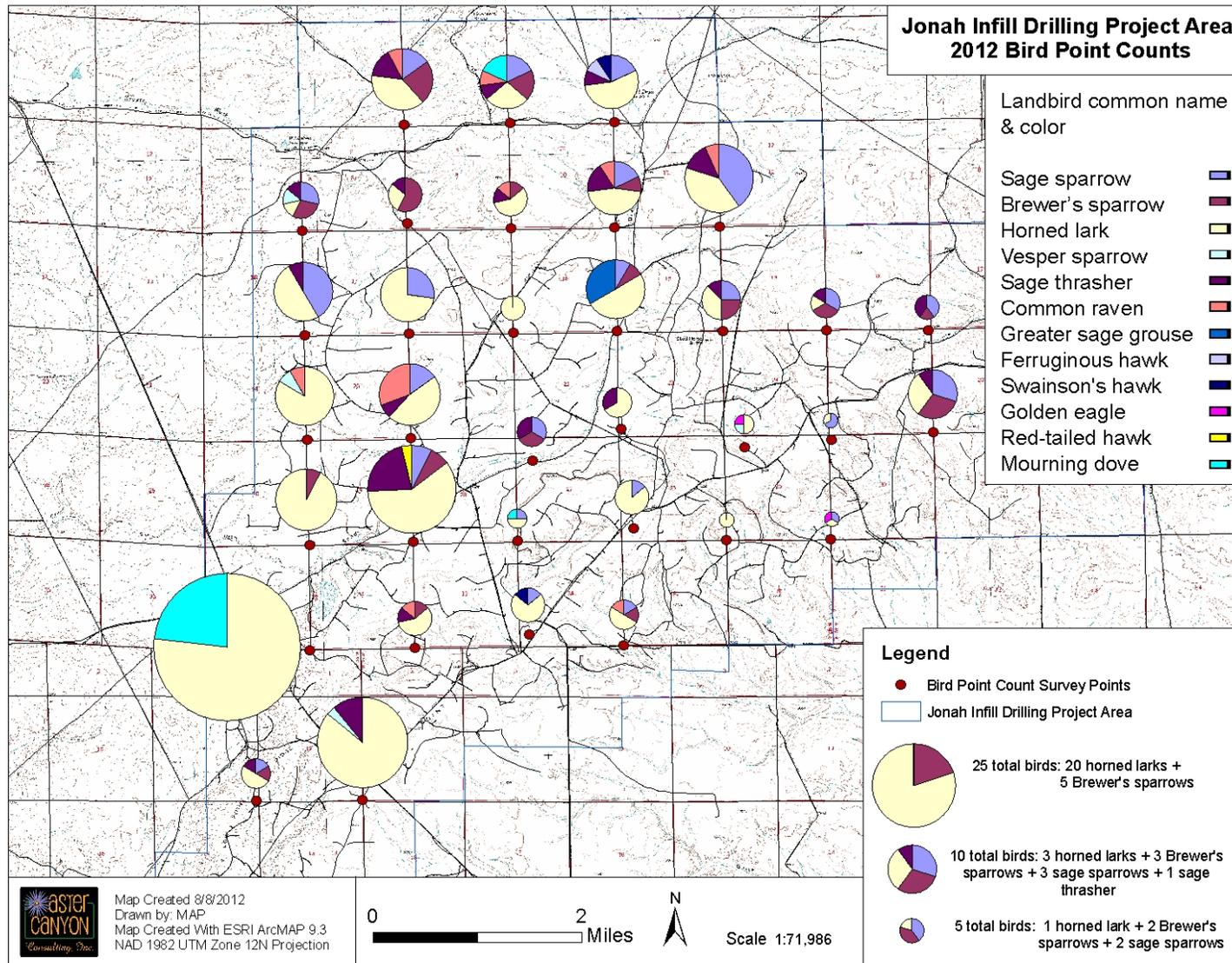
The results presented here include relative abundance and diversity of landbirds detected in 2012, as well as species detections over time. Three hundred and sixty-six individual birds, comprising 12 species, were detected in the JIDPA in 2012 (Figure 1; Table 6). Four species were predominant: horned lark, sage sparrow, sage thrasher, and Brewer’s sparrow. The average number of birds detected per point in a given year was 7.4 birds/point in 2007, 4.1 birds/point in 2008, 7.6 birds/point in 2010, 8.2 birds/point in 2011, and 10.8 birds/point in 2012.

Table 6. Landbird species detected in the JIDPA during 2012 point count surveys

COMMON NAME	FOUR-LETTER CODE	SCIENTIFIC NAME
Brewer’s sparrow	BRSP	<i>Spizella breweri</i>
Common raven	CORA	<i>Corvus corax</i>
Ferruginous hawk	FEHA	<i>Buteo regalis</i>
Golden eagle	GOEA	<i>Aquila chrysaetos</i>
Greater sage-grouse	GRSG	<i>Centrocercus urophasianus</i>
Horned lark	HOLA	<i>Eremophila alpestris</i>
Mourning dove	MODO	<i>Zenaida macroura</i>
Red-tailed hawk	RTHA	<i>Buteo jamaicensis</i>
Sage sparrow	SAGS	<i>Amphispiza belli</i>
Sage thrasher	SATH	<i>Oreoscoptes montanus</i>
Swainson’s hawk	SWHA	<i>Buteo swainsoni</i>
Vesper sparrow	VESP	<i>Pooecetus gramineus</i>

When species composition from 2012 was compared with data from 2007-2011, the results were reasonably similar. The same 4 species were predominant, even with a smaller sample size in 2012 than in 2007 and 2008, when large, intensive studies were performed (34 points in 2010-12 versus 225 points in 2007 and 2008; Figure 2). The findings for these commonly-detected species are described in detail below:

Map 2. Landbird point count locations, total birds recorded (size of pie chart) and proportion of each species recorded at each point (fraction of pie chart)



**Brewer’s Sparrow (BRSP):** 30 BRSPs were detected, comprising 8% of total landbirds. This represents a decrease in relative abundance as compared to previous years, as BRSPs comprised 26% of total birds detected in 2007, 21% in 2008, 6% in 2010 and 20% in 2011.

**Horned Lark (HOLA):** 212 HOLAs were detected, comprising 58% of total landbirds. This represents an increase in both relative and raw abundance as compared to previous years. HOLAs were detected at 94% of points in 2012.

**Sage Sparrow (SAGS):** 48 SAGSs were detected, comprising 13% of total landbirds detected. This represents a slight decrease in relative abundance as compared to previous years.

**Sage Thrasher (SATH):** 33 SATHs were detected, comprising 9% of total landbirds. This represents a slight decrease as compared to previous years. SATHs were detected at 59% of points in 2012.

Figure 1. Abundance of landbird species detected in the JIDPA during 2012 point count surveys

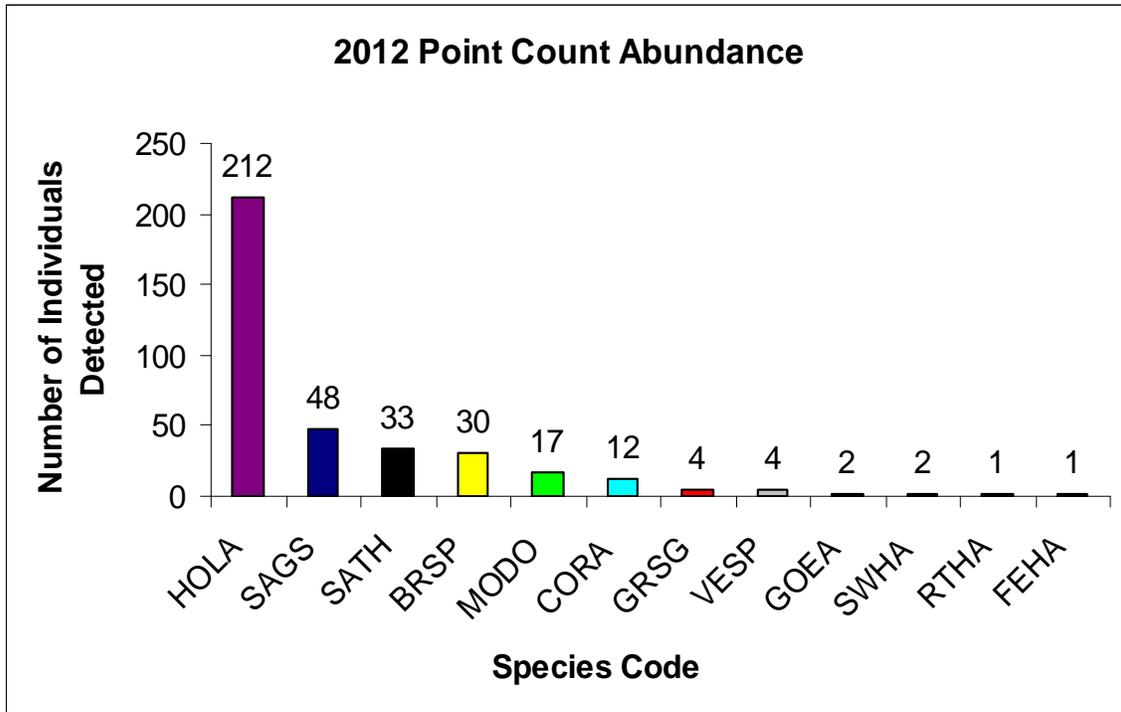
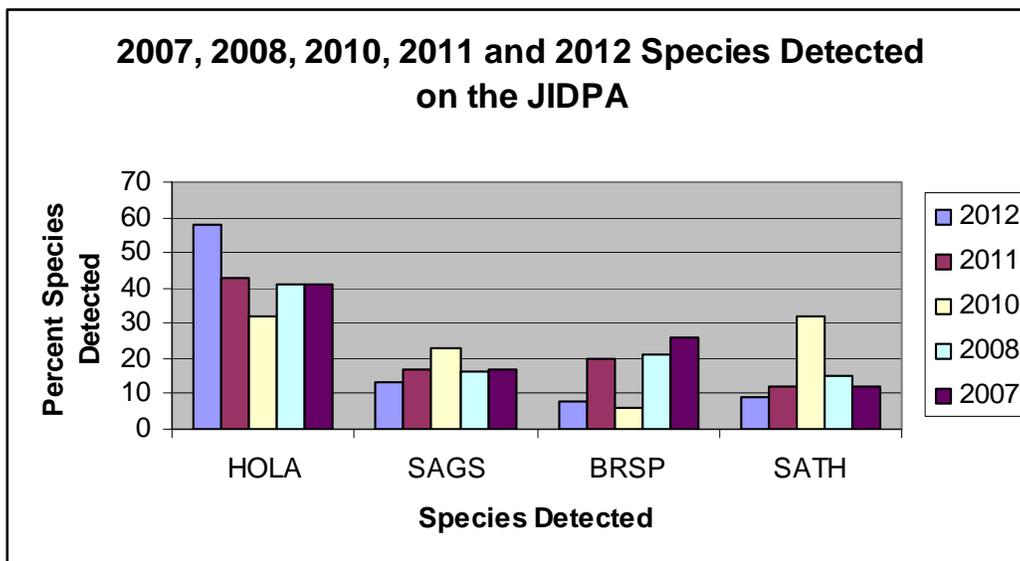


Figure 2. Landbird species detected in the JIDPA in 2007, 2008, 2010, 2011 and 2012 as a percentage of total birds detected



### 6.3 Landbirds Discussion

It is important to monitor populations of sagebrush-obligate species listed as WSS and SGCN such as Brewer’s sparrow, sage sparrow, sage thrasher, and loggerhead shrike (*Lanius ludovicianus*). These species are listed as WSS and SGCN due to population declines throughout their ranges; for example, Brewer’s sparrow experienced an annual decline of 1.5% between 1980 and 2007, while the sage thrasher declined 1.1% annually during the same time period (Sauer et al. 2008). At present, these species are monitored nationally by breeding bird surveys. 2012 abundance and diversity of landbirds, along with inter-annual trends, are discussed below:

#### *Abundance*

Horned larks, sage sparrows and sage thrashers were the most abundant bird species during 2012 surveys, comprising 58%, 13%, and 9% of all detections, respectively. Relative abundances of common species were reasonably similar in 2012 as compared to previous years, with Brewer’s sparrows being somewhat less common and horned larks more common.

Overall, more birds were detected this year (10.8/point) than in previous years. In large part, this is due to a few points containing very high abundances of horned larks (as many

as 46 at one point). Horned larks prefer habitat of sparse, short vegetation and bare ground, so the JIDPA road right-of-ways, well pads, and pipelines serve as ideal habitat (Beason 1995).

### *Diversity*

Twelve bird species were detected during 2012 point count surveys. This represents a similar level of diversity as compared to 2010 and 2011, but a lower level as compared to 2007 and 2008. This is likely due to less intensive survey methods being used in 2010-12, whereas more points and larger areas were surveyed in 2007 and 2008, including significant areas outside of the JIDPA. Four species of raptor were documented in 2012, compared to 1 in 2011 and 0 in 2010. Also, mourning dove and greater sage-grouse, neither of which have been recorded during the past two years, were both documented in 2012.

## **7.0 FENCE MONITORING**

In 2010, Aster Canyon inventoried all non-industrial fences within the JIDPA and 3-mile buffer, excluding the area that overlaps with the PAPA buffer. In 2011, Aster Canyon inventoried all non-industrial fences in the PAPA-JIDPA 3-mile buffer overlap, as well as newly-discovered fences. Fence inventories for JIDPA and 3-mile buffer are now complete.

In the spring of 2011, fence markers were placed along the northern border of the JIDPA in places where sage-grouse strikes had been recorded in 2010. The same was done in the spring of 2012 for all sage-grouse strikes recorded in 2011.

The objectives of 2012 fence monitoring were to: (1) provide locations of fence strikes on 11.9 miles of fence monitored during sage-grouse lekking season and 78.2 miles of fence monitored during the summer; and (2) provide information on the effectiveness of previously-placed fence markers.

## 7.1 Fence Monitoring Methods

Fence monitoring was required and completed as per the *Wildlife Monitoring Plan for the Jonah Infill and Drilling Project*. Data was recorded using a Trimble GEO XT 2005 Series with a data dictionary, which was provided by the Pinedale BLM.

Fence monitoring was conducted during both sage-grouse lekking season (March – May) and during the summer (July – August). For sage-grouse lekking season, fences were monitored once per week during the last two weeks in March, once a week during the month of April, and twice during the month of May (at least 14 days apart), with surveys being conducted between the hours of 9 a.m. - 7 p.m. 11.9 miles of fence line along the northern border of the JIDPA were surveyed during these times. For summer surveys, all previously-inventoried fences within the JIDPA and 3-mile buffer (78.2 miles) were monitored once in July and once again in August.

All fence strikes by any species were recorded during 2012 fence monitoring. When a strike was located it was determined whether it was a simple strike (the animal was not killed) or if it was a mortality strike (the animal was killed). Feathers, fur, or carcasses were removed from the fence and close vicinity so that the strike would not be recorded in subsequent surveys. Lekking season surveys were always conducted on foot, while summer surveys were conducted both on foot and from a slow-moving vehicle (when an existing two-track followed the fence line).

## 7.2 Fence Monitoring Results

### *Sage-grouse lekking season monitoring*

11.9 miles of fence along the northern portion of the JIDPA was monitored a total of 8 times in March, April and May, 2012. During these monitoring surveys a total of 8 greater sage-grouse strikes, or 0.67 strikes per mile, were recorded. Four of these were simple strikes, while the other 4 were mortality strikes (Table 7). Some of these strikes were located in areas where strike deterrents had already been placed on the fence.

Table 7. Fence strikes recorded on 11.9 miles of fence in the northern portion of the JIDPA 3-mile buffer during sage-grouse lekking season

<b>Species</b>	<b>Simple Strikes</b>	<b>Mortality Strikes</b>	<b>Total</b>
Greater sage-grouse	4	4	8
<b>Total</b>	<b>4</b>	<b>4</b>	<b>8</b>

*Summer monitoring*

All previously-inventoried fences (78.2 miles) within the JIDPA and 3-mile buffer were monitored once in July and once in August, 2012. A total of 9 strikes were recorded during summer monitoring (0.12 strikes per mile; Table 8). Five sage-grouse strikes, including 3 mortality strikes, were recorded during this period. Three horned lark strikes and 1 common nighthawk strike were also recorded.

Table 8. Fence strikes recorded on 78.2 miles of fence in the JIDPA and 3-mile buffer outside of sage-grouse lekking season

<b>Species</b>	<b>Simple Strikes</b>	<b>Mortality Strike</b>	<b>Total</b>
Common nighthawk	1	0	1
Greater sage-grouse	2	3	5
Horned lark	0	3	3
<b>Total</b>	<b>3</b>	<b>6</b>	<b>9</b>

Map 3 displays all strike locations from 2012 fence monitoring, including both lekking and non-lekking season monitoring. All BLM-required shapefiles are located in Appendix E.

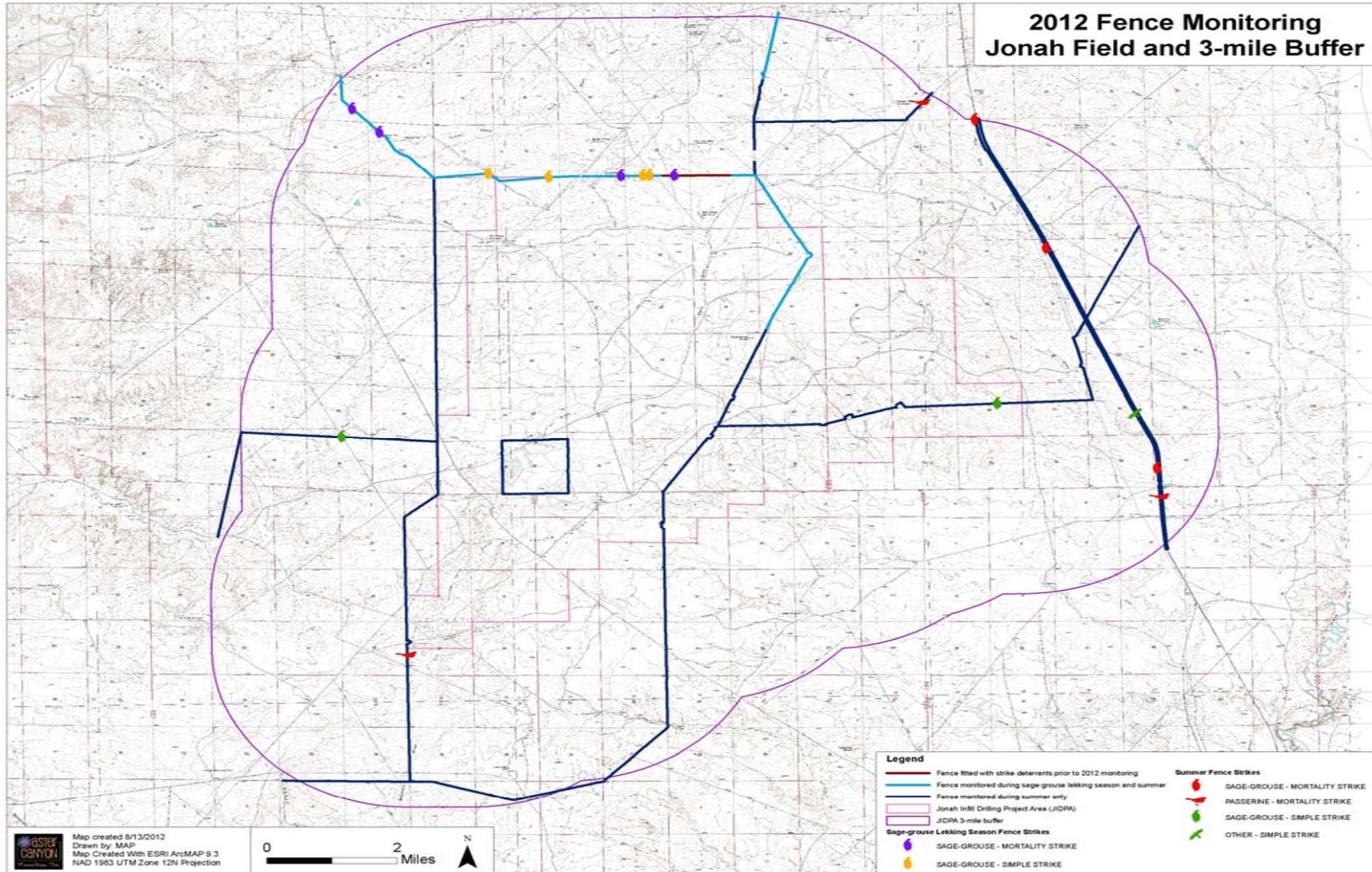
**7.3 Fence Monitoring Discussion**

Overall, 17 fence strikes (10 mortalities) were recorded during 2012 fence monitoring. The vast majority of these strikes (76%) were by greater sage-grouse. Since the greater sage-grouse has been declining throughout its range (USFWS 2006), any source of unnatural mortality may have negative consequences on their population persistence.

One sage-grouse mortality strike recorded during the 2012 sage-grouse lekking season was located in a one-mile stretch of fence in the northern JIDPA where strike deterrents had previously been placed. This suggests that these may not be totally effective in



Map 3. Fences monitored and fence strike locations recorded in the JIDPA and 3-mile buffer



preventing sage-grouse fence strikes. Nevertheless, fence deterrents have proven effective in other locations where sage-grouse occur (WGFD 2011). Aster Canyon recommends that reflective fence deterrents, and not flagging tape, continue to be placed in areas of newly-recorded sage-grouse strikes. Future monitoring should help to provide further insight on the effectiveness of reflective fence markers in the JIDPA.

Fences create a barrier to movement as animals seek to meet their daily needs (Jackson Hole Wildlife Foundation 2011). When fences are not in use, the gates should be opened to allow wildlife to travel through more freely, resulting in a lesser chance of causing harm to wildlife crossing the fence. Efforts should be made to decrease the impediment of fences within the JIDPA and 3-mile buffer to allow for easier travel of all species that inhabit the JIDPA.

In 2011, the majority of fences in the JIDPA were 3-4-stranded barbed wire fences with the bottom strand approximately 12 inches off of the ground. Appendix 3 in the ROD and Approved Pinedale Resource Management Plan 2008 states that existing livestock fences will be reconstructed to meet BLM wildlife-friendly standards where deemed necessary and that new fences will adhere to standards in the BLM Handbook H-1741-1. The BLM Handbook H-1741-1 specifications for areas with cattle, pronghorn and deer are a smooth strand 16 inches above the ground, which allows adequate space for pronghorn to pass under the fence. Three stands are preferred, with the top strand not exceeding a height of 38 inches. Further details can be found in the BLM Handbook H-1741-1.

## **8.0 GENERAL WILDLIFE**

Aster Canyon biologists recorded general wildlife observations in the JIDPA and 3-mile buffer from August 16<sup>th</sup>, 2011 – August 15<sup>th</sup>, 2012. Incidental observations were documented while traveling in the study area or while conducting field surveys for focal species. Common species, such as ravens and horned larks, were not documented. General wildlife observation data can be used to assess the local, or statewide, distribution of these species.

## 8.1 General Wildlife Methods

General wildlife observations were recorded according to the WGFD's Wyoming Observation System (WOS), as specified in the WMP. Focal species documented during surveys were not recorded under general wildlife observations. For example, raptors observed during raptor monitoring were not included in WOS data; however, raptors observed during surveys for other species were recorded.

## 8.2 General Wildlife Results

Common species which were routinely observed in the JIDPA and 3-mile buffer in 2012 include: pronghorn antelope, white-tailed jackrabbit, cottontail rabbit, white-tailed prairie dog, ground squirrel, common raven, horned lark, Brewer's sparrow, sage sparrow, vesper sparrow, mourning dove, and sage thrasher; observations of these species were not recorded as part of WOS. Among other species, a total of 62 individuals comprising 23 species (19 birds, 3 mammals, 1 reptile) were recorded in the JIDPA and 3-mile buffer in 2012 (Table 9; Map 4). Species of note include the American avocet (*Recurvirostra americana*), green-winged teal (*Anas crecca*) and greater sage-grouse. The WOS spreadsheet of all general wildlife observations can be found in Appendix F.

### *Birds*

A total of 26 bird species were observed in the JIDPA and 3-mile buffer in 2012. Sightings of American avocet, green-winged teal and mallard (*Anas platyrhynchos*) occurred at a reservoir which remains full of water throughout the summer when water sources in the area are scarce. Sightings of rock wren and American kestrel were associated with the rock outcrops east of North Jonah Road.

### *Mammals*

American badger (*Taxidea taxus*), coyote (*Canis latrans*), and wild horse (*Equus ferus*) were observed in the JIDPA and 3-mile buffer in 2012. Wild horses were only observed in the 3-mile buffer south of the JIDPA, while American badger and coyote were observed both inside and outside of the JIDPA.

*Amphibians and reptiles*

Greater short-horned lizards (*Phrynosoma hernandesi*) were frequently observed (12 sightings) in the JIDPA and 3-mile buffer in 2012. In previous years, the greater short-horned lizard was not recorded as part of WOS.

Table 9. List of general wildlife observations in the JIDPA and 3-mile buffer

Species	Number of Observations	Number of Individuals Observed
<b>Birds</b>		
American avocet	3	6
American kestrel	3	5
Chipping sparrow	1	10
Common nighthawk	5	8
Ferruginous hawk <sup>1,3</sup>	3	3
Golden eagle <sup>4</sup>	2	3
Greater sage-grouse <sup>1,2,3</sup>	7	22
Green-winged teal	1	2
Loggerhead shrike <sup>1</sup>	9	9
Mallard	1	2
Mountain bluebird	1	1
Northern flicker	1	1
Northern harrier	2	2
Prairie falcon	1	1
Red-tailed hawk	1	1
Rock wren	1	5
Swainson's hawk	1	1
Western kingbird	1	1
Western meadowlark	1	1
<b>Mammals</b>		
American badger	2	2
Coyote	4	4
Wild horse	2	6
<b>Reptile</b>		
Greater short-horned lizard	12	14

1 = BLM Sensitive Species

3 = WGFD Species of Greatest Conservation Need

2 = USFWS Threatened, Endangered, Protected, and Candidate Species

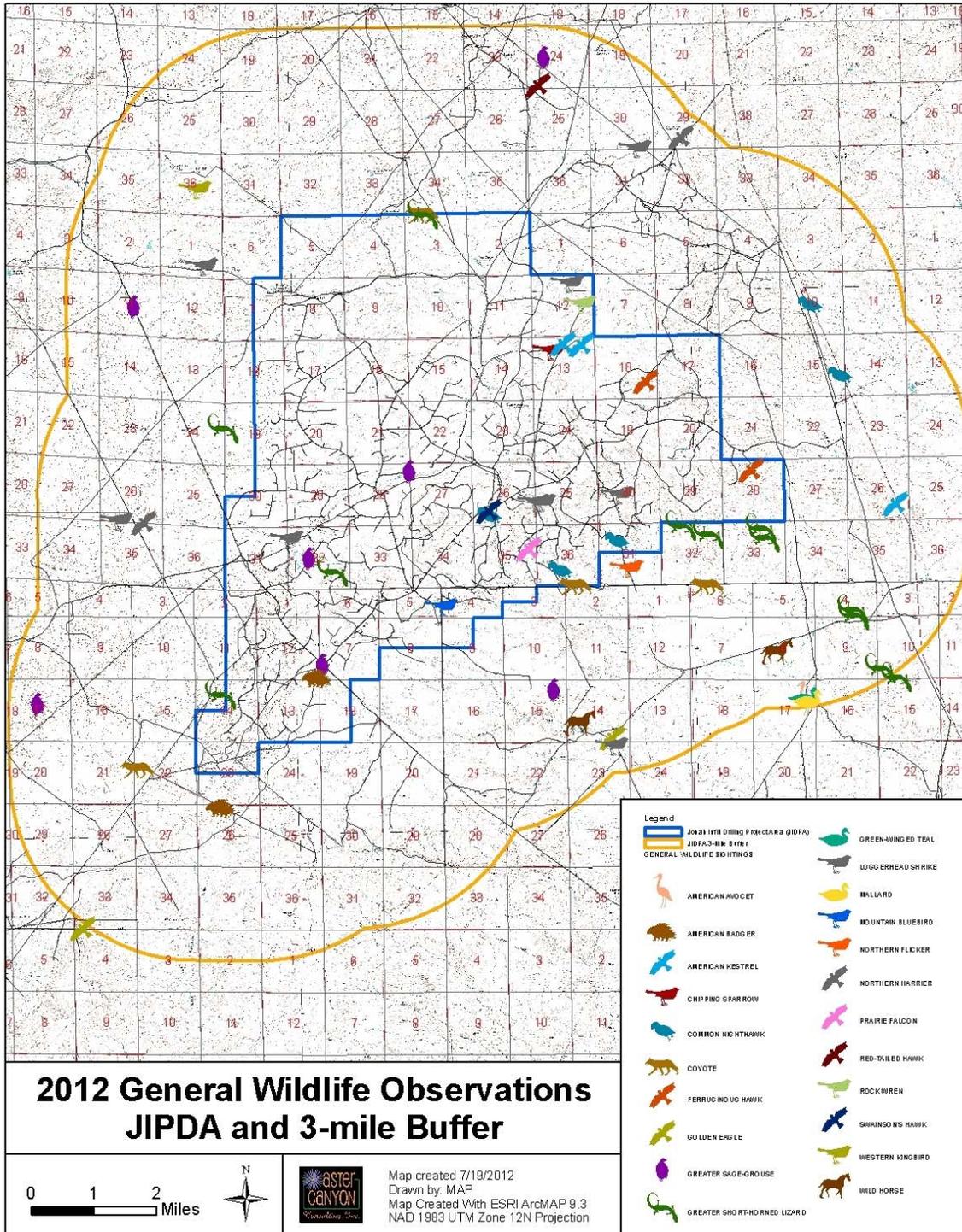
4 = Protected under Bald eagle and Golden eagle Protection Act

\*Species was common and therefore not documented



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Map 4. General wildlife observations in the JIDPA and 3-mile buffer



### 8.3 General Wildlife Discussion

Many species utilize the sagebrush-steppe habitat of the study area for breeding, migration, wintering, or all of the above. Some of the species observed in 2012 are of conservation concern and could potentially become of regulatory concern in the future.

The JIDPA is home to a diversity of wildlife which is worthy of preservation and protection. Still, it is important to recognize that mitigation measures which may benefit one species may be detrimental to others (i.e. installation of raptor platforms may negatively affect nearby songbird and pygmy rabbit populations). Therefore, it is important to take all species into consideration when weighing wildlife management options. Mitigation measures that will likely benefit all wildlife in the JIDPA include: avoiding disturbance to critical habitats (e.g. draws, rocky outcrops), protecting all water resources, restoring habitat to a pre-construction state, and applying restriction buffers around active nests, breeding areas and critical winter habitat. In addition, awareness among gas field workers regarding the presence of wildlife (particularly sensitive species) should form a key component of the JIDPA's Wildlife Management Plan.



Greater short-horned lizard observed in the JIDPA

## 9.0 CONCLUSION

The data presented in this report will assist land managers in maintaining wildlife resources in the JIDPA and 3-mile buffer at appropriate levels. Trends in local wildlife populations were presented where available; however, for most species, the ability to evaluate trends has been affected by changes in study area boundaries (namely the reduction of the 3-mile buffer) and study design (i.e. for pygmy rabbits and landbirds). When wildlife population trend data in the JIDPA becomes more reliable, the effects of disturbance on wildlife will become more apparent and, henceforth, mitigation efforts can be improved.

Ongoing mitigation efforts, such as the avoidance of raptor nests and sage-grouse leks during critical time periods, along with the addition of more artificial nesting structures, should continue. It is also recommended that all non-industrial fences be removed or replaced with wildlife-friendly fences to allow wildlife in the JIDPA to move more freely and avoid unnecessary injuries or mortalities. In addition, educating workers in the JIDPA about the importance of protecting wildlife should become a high priority.

## LIST OF ACRONYMS

### *Agencies and Companies*

BLM = Bureau of Land Management  
JIO = Jonah Interagency Reclamation and Mitigation Office  
TRC = TRC Mariah Associates, Inc.  
USFWS = United States Fish and Wildlife Service  
WGFD = Wyoming Game and Fish Department  
WLCI = Wyoming Landscape Conservation Initiative  
WWNRT = Wyoming Wildlife and Natural Resource Trust

### *Other*

ATV= All Terrain Vehicle  
EIS = Environmental Impact Statement  
EO = Executive Order  
ESA = Endangered Species Act  
GIS = Geographic Information Systems  
GPS = Geographic Positioning Systems  
JIDPA = Jonah Infill Drilling Project Area  
JMPH= Jonah Mountain Plover Habitat (potential habitat)  
MBTA = Migratory Bird Treaty Act  
NEPA= National Environmental Policy Act  
PAPA= Pinedale Anticline Project Area  
RMBO = Rocky Mountain Bird Observatory  
ROD = Record of Decision  
SGCN = Species of Greatest Conservation Need  
TEPC = Threatened, Endangered, Proposed, and Candidate Species  
UTM = Universal Transverse Mercator  
WMP = Wildlife Monitoring Plan  
WOS = Wildlife Observation System  
WSS = Bureau of Land Management Wyoming Sensitive Species

**COMMON AND SCIENTIFIC NAMES OF SPECIES PRESENTED IN THIS REPORT**

**COMMON NAME**

**SCIENTIFIC NAME**

*Birds*

American avocet	<i>Recurvirostra americana</i>
American kestrel	<i>Falco sparverius</i>
Brewer's sparrow	<i>Spizella breweri</i>
Burrowing owl	<i>Athene cunicularia</i>
Common nighthawk	<i>Chordeiles minor</i>
Common raven	<i>Corvus corax</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Green-winged teal	<i>Anas crecca</i>
Horned lark	<i>Eremophila alpestris</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Mallard	<i>Anas platyrhynchos</i>
Mountain plover	<i>Charadrius montanus</i>
Mourning dove	<i>Zenaida macroura</i>
Northern flicker	<i>Colaptes auratus</i>
Northern harrier	<i>Circus cyaneus</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rock wren	<i>Salpinctes obsoletus</i>
Sage sparrow	<i>Amphispiza belli</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Western meadowlark	<i>Sturnella neglecta</i>

*Mammals*

American badger	<i>Taxidea taxus</i>
Black-footed ferret	<i>Mustela nigripes</i>
Coyote	<i>Canis latrans</i>
Ground squirrel	<i>Spermophilus spp.</i>
Cottontail rabbit	<i>Sylvilagus spp.</i>
Pronghorn antelope	<i>Antilocapra americana</i>
Pygmy rabbit	<i>Brachylagus idahoensis</i>
White-tailed jackrabbit	<i>Lepus townsendii</i>
White-tailed prairie dog	<i>Cynomys leucurus</i>
Wild horse	<i>Equus ferus</i>



*Plants*

Rabbitbrush

*Chrysothamnus spp.*

Sagebrush

*Artemisia spp.*

Saltbush

*Atriplex spp.*

Wyoming big sagebrush

*Artemisia tridentata var. wyomingensis*

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