

P-8C – Great Gray and Flammulated Owl Surveys Technical Report

2011 Report



TETRA TECH

Boardman to Hemingway Transmission Line Project

2011 Great Gray and Flammulated Owl Surveys



**September 2011
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Great Gray and Flammulated Owl Field Surveys

Boardman to Hemingway Transmission Line Project

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1.0 INTRODUCTION

1.1 Project Overview

Idaho Power Company (IPC) is proposing to construct and operate a new, approximately 300-mile-long, single-circuit 500-kilovolt (500kV) electric transmission line between northeast Oregon and southwest Idaho, referred to as the Boardman to Hemingway Transmission Line Project. The overhead, 500-kV transmission line will carry energy bi-directionally between a Portland General Electric (PGE) planned substation (Grassland Substation) adjacent to the Boardman Generating Plant, near Boardman in Morrow County, Oregon, and IPC's existing Hemingway Substation, located in Owyhee County, Idaho (Figure 1-1; figures are located at the end of this document). The Project will traverse federal, state, and private lands in six counties in Oregon and Idaho.

The Project would result in disturbances related to the construction of permanent facilities such as transmission tower pads, substations, regeneration stations, and permanent access roads, as well as temporary disturbances related to fly yards, laydown areas, tensioning sites, and temporary access roads. In addition, the Project would include the initial clearing and long-term vegetation management within and adjacent to the right-of-way. This includes the removal of trees that could interfere with the safe construction and operation of the line. To help determine the degree of impact that could occur from construction and operation of these Project components, the location of occupied territories and nests for great gray owls (*Strix nebulosa*) and flammulated owls (*Otus flammeolus*) that occur along the Project have been identified during this survey.

The Project, as proposed, would cross both public and private lands. Public lands that would be crossed are managed, in part, with the intent of conserving and improving wildlife populations, and public land managers have gathered data on lands they manage. Data for private lands, with the exception of some statewide data gathered by state fish and game agencies, are largely unavailable. Existing databases could not always be used to determine the locations of great gray and flammulated owls and their habitats, territories, and nests that could be impacted by the Project. Therefore, surveys for great gray and flammulated owls were implemented to supplement existing data. Field surveys could not be conducted in all suitable habitat crossed by the Project because IPC does not currently have access to all private land crossed by the proposed route.

1.2 Target Species

The great gray owl is the largest owl in North America. It inhabits coniferous and hardwood forests, pine and spruce in particular, and utilize older seral stages of forest and second-growth stands, especially those near the water. The great gray owl nests in broken-top snags or uses abandoned stick nests of other species such as goshawks. It usually forages in open areas where scattered trees or forest margins provide suitable sites for visual searching. When the owl is nesting, it hunts during the day or night (Quintana-Coyer et al. 2004). Great gray owl nesting habitat that is crossed by the Project has been identified as having a minimum of 60 percent canopy cover (Bull and Henjum 1990), and generally occurs in the Blue Mountains of Oregon.

The flammulated owl is North America's smallest eared owl. It is generally associated with montane forests with brushy understory. It prefers aspen and ponderosa pine and can occur in mixed conifer forests of oak, Douglas fir, white fir, incense cedar, or sugar pine. Flammulated owls typically nest in cavities made by northern flickers and similar-sized woodpeckers. They are almost exclusively insectivorous, foraging at dawn and dusk (BLM 1997). The flammulated

owl is one of the most migratory owls in North America. Even with lengthy migrations, breeding site fidelity is high and nests are used for multiple years.

This technical report describes the survey area and the process implemented to delineate the survey area for 2011, as well as the protocols used to conduct great gray owl and flammulated owl surveys. The goal of this survey effort was to identify previously unknown territories or nesting pair locations for great gray owls and flammulated owls to assist in siting the Project.

2.0 SURVEY AREA

The survey area for great gray owls and flammulated owls is all areas within 0.25 mile of the IPC proposed route and route alternatives, access roads, and associated facilities that meet habitat requirements for these species. The survey area generally occurs in the Blue Mountains, outside of La Grande, Oregon, from milepost (MP) 85 to 125 of the proposed transmission line (Figure 2-1). Great gray and flammulated owl habitat is located on lands under the administration of the USFS, Oregon State Parks, and lands under private ownership.

In general, access to the lands under the administration of the USFS and Oregon State Parks was only limited by logistical constraints, primarily road coverage and conditions, and weather-related issues (e.g., storms and snow accumulations). In contrast, private lands were only accessible where landowners had provided access for the purposes of the survey. At the time of the 2011 survey, access was available to approximately 53 percent of the private land within the survey area. When added to the USFS lands, a total 67 percent of the survey area was accessible for the survey (Figure 2-2).

3.0 METHODS

There were two main components to the great gray owl and flammulated owl survey. The first was pre-field survey data collection conducted to establish survey areas and identified calling station locations. The second component was field surveys consisting of nocturnal broadcast acoustical surveys that were conducted at the established calling stations. Additional daytime follow-up surveys were conducted if a great gray owl or flammulated owl was heard during the nocturnal surveys, to identify nesting locations and territories. Field survey methods used for this study were based on Quintana-Coyer et al. (2004) for great gray owls, and Smucker et al. (2008) for flammulated owls.

Survey methods were reviewed and finalized once all suitable great gray owl and flammulated owl habitat within the survey area was identified. Approximately 30,000 acres of great gray and flammulated owl habitat was determined present within the survey area. Information about historical and known owl observations and locations was incorporated from available resources. All of this information was coordinated into an overall survey plan to provide appropriate coverage of accessible lands within the survey area that were deemed to meet the standard for suitable great gray owl and flammulated owl habitat (Tetra Tech 2011). This resulted in the establishment of 598 nocturnal calling stations along roads, two-tracks, and other easily accessed routes.

A data review of known great gray and flammulated owl locations in the vicinity of the Project was conducted. This included multiple meetings with BLM, USFS, U.S. Fish and Wildlife Service, and Oregon Department of Fish and Wildlife (ODFW) where location information and habitat information was requested along the proposed route. The USFS provided a dataset that showed locations of USFS/ODFW great gray owl artificial nest platforms that were all outside of the survey area. Oregon Biodiversity Information Center (ORBIC) data were reviewed and no

element occurrences were found for either species. Literature review of the ecology of the great gray owl in northeastern Oregon (Bull and Henjum 1990) and nesting habitat of the flammulated owl in the Starkey Experimental Forest (Bull et al. 1990) provided nesting habitat indicators specific to the Blue Mountains where surveys occurred.

Night calling is recognized as the most efficient method for detecting great gray and flammulated owls because most owls respond more readily at night. In addition, sound travels more readily at night with less background noise, so both owls and observers are more likely to hear one another.

Great gray owls typically defend and call from a small area around their nest site (Bull and Duncan 1993). The primary territorial call can be heard as far away as 1,350 feet under ideal conditions, but typically it is heard within 650 feet. Within the survey areas, calling stations are placed at approximately 0.10-mile (528 foot) intervals (Quintana-Coyer et al. 2004). This spacing varies based on topography and habitat, while trying to establish stations at useful geographic features to ensure complete coverage of habitat. Some stations may have been dropped if they were in steep or unsafe terrain or if access was denied by landowners. Calling stations were identified by a unique number, and Universal Transverse Mercator geographic coordinates for each point were recorded (Figures 3-1 through 3-6).

Both species were surveyed twice during the 2011 field survey season during three unique survey periods. The first survey period was for great gray owls and was selected to correspond with their nesting stage (late March). The second survey period was for great gray and flammulated owls and was selected to correspond with the fledging period for great gray owl and nesting period for flammulated owls (late May). The third survey period was for flammulated owls and was developed to correspond with their fledging period (late June). Survey period, survey dates, and species detected during each survey period are presented in Table 3-1.

Table 3-1. Survey Period, Survey Date, and Species Surveyed

Survey Period	Survey Dates	Species Detected
1	March 21–30	great gray owl
2	May 16–25	great gray owl and flammulated owl
3	June 20–27	flammulated owl

A total of 413 calling stations were established within the survey area prior to the initiation of the first survey period. Between the first and second survey period, IPC requested modifications to the survey area due to changes to the proposed transmission line route and to allow flexibility in siting of the proposed route. These modifications resulted in the removal of 52 calling stations, which were no longer within the survey area, and the addition of 185 calling stations to ensure complete coverage of the survey area. As a result, a total of 546 calling stations were established for the second and third survey periods. With the 52 calling stations that were removed following survey period 1, there were a total of 598 unique calling stations over the course of the three survey periods.

The same survey methods were used for both owl species and followed the survey method outlined by Quintana-Coyer et al. (2004). All stations were called for a minimum of 5 minutes. During this time, surveyors alternated digital broadcasts of great gray or flammulated owl calls with listening periods. The great gray owl survey consisted of 10 seconds of calling followed by 33 seconds of listening. This pattern was repeated until the 5-minute survey period was completed. The flammulated owl survey consisted of 30 seconds of calling followed by 2 minutes of listening, then 30 seconds of calling followed by a 30-second listening period. The

adult territory call for the respective species was played for all calls throughout the surveys. Calls were broadcast using Edge® digital game callers made by Expedite, Inc., or MP3 players with amplifiers.

Field crews used Global Positioning System technology for data collection activities. Trimble GeoXT survey grade receivers loaded with ESRI ArcPAD 10 software were used by crews conducting field surveys.

Survey data forms were completed for each calling station whether or not an owl was detected. Each survey data form recorded the date; a description of the survey route with an accompanying map; survey start and stop time, time spent calling between stations, and weather conditions (Appendix A). Responses from great gray or flammulated owls as well as other owl species were recorded with the following information: compass bearing and approximate distance; sex and age, if known; time of first response; and type of detection (audio, visual, or both).

4.0 RESULTS

Surveys on the proposed route included 1,206 surveys at 386 of the 598 established call stations and three additional day visits as a result of follow-up visits or supplemental searches associated with earlier responses (Figures 3-1 through 3-5; Table 4-1; Appendix B). A total of two flammulated owl, three great gray owl, and one possible great gray or flammulated owl detections were logged during all survey efforts between March 21 and June 27, 2011. Two daytime follow-up visits were conducted in response to a flammulated owl and a great gray owl detection during the nocturnal surveys. An additional daytime follow-up visit was conducted in response to a daytime sighting of a great gray owl that was observed during the goshawk surveys conducted on June 9, 2011. None of the follow-up visits resulted in additional detections or visual observations of the birds.

The 386 call stations surveyed in 2011 represent 65 percent of the total established call stations within the owl survey area. Call stations not surveyed were a result of denied access, access that was not possible due to poor weather and difficult terrain, or unsafe access to the call station.

Table 4-1. Summary of 2011 Great Gray and Flammulated Owl Survey Calling Station Access

Survey Period	Total Calling Stations Identified	Survey Completed ¹	Follow-up Completed ²	Access Denied ³	Access Blocked ⁴
1	413	226	0	82	73
2	546	321	2	188	35
3	546	338	1	178	28

¹Survey completed

²Follow-up survey

³Survey not conducted at this calling station. Property owner denied access and/or biological surveys.

⁴Survey not conducted at this calling station. Blocked access include: 1) physical constraints limiting access to the site that may include steep slopes, impassable roads or streams, and/or terrain and weather conditions; 2) access blocked by surrounding properties that had access denied; 3) unable to access due to time constraints.

⁵Survey not conducted at this calling station. Background noise at the survey location was sufficiently high to potentially prevent surveyor from hearing owl responses. Noise sources included wind, streams, highway, and trains.

4.1 Survey Period 1

No great gray or flammulated owls were detected during nocturnal surveys conducted at the established calling stations. However, one great gray owl was heard calling while observers were in transit (walking) between calling stations 521 and 511 (MP 90; Figure 3-1, Table 4-2). No follow-up survey was conducted because the distance from the bird to the observers was determined to be greater than the survey area (.25 miles) and access was constrained by weather and terrain.

4.2 Survey Period 2

A large owl (species undetermined) was visually observed during survey period 2, in proximity to calling station 511 (MP 90; Figure 3-1, Table 4-2). This is the same location where the great gray owl was detected during survey period 1. The follow-up survey did not result in any further observations.

One flammulated owl was detected at calling station 342 (MP 100; Figure 3-3). A daytime follow-up survey did not result in any further detections or visual observations.

4.3 Survey Period 3

An owl (distant) was detected at calling station 78 (MP 121; Figure 3-4, Table 4-2), but the species could not be identified. No follow-up survey was conducted because the distance from the bird to the observers was determined to be greater than the survey area (.25 miles), the location of the bird could not be determined and access was constrained by steep terrain, including two large creeks. .

An unknown owl species was detected during survey period 3 at calling station 421 (MP 97.5; Figure 3-1, Table 4-2); observers noted that it was possibly a great gray owl or flammulated owl. No follow-up survey was conducted because given the distance of the bird from the observers; the search area would have been too large.

A great gray owl was visually observed during goshawk surveys on June 9, 2011, west of MP 123 (Figure 3-5, Table 4-2). A follow-up survey during survey period 3 found a broken eggshell and whitewash at the base of a tree, in the vicinity of the June 9 observation; however, there was no evidence to positively identify it as being from a great gray owl nest. No auditory or visual detections of a great gray owl were made during the follow-up visit.

During the course of the three survey periods, several additional owl species were heard, including great horned owl (*Bubo virginianus*), northern pygmy owl (*Glaucidium californicum*), and northern saw-whet owl (*Aegolius acadicus*). These observations are noted on Figures 3-1 through 3-6 and summarized in Table 4-2.

Table 4-2. Summary of 2011 Owl Responses and Observations

Species	Date	Call Station	Milepost	Type
Northern saw-whet owl	3/22/11	458	95	Vocal
Great horned owl	3/25/11	437	96	Vocal
Great horned owl	3/25/11	438	96	Vocal
Great horned owl	3/26/11	90	120	Vocal
Great horned owl	3/26/11	93	120	Vocal
Great horned owl	3/27/11	99	119	Vocal
Great horned owl	3/27/11	592	120	Vocal
Northern saw-whet owl	3/27/11	593	120	Vocal
Northern saw-whet owl	3/27/11	594	120	Vocal
Great gray owl	3/28/11	521	90	Vocal
Great horned owl	3/29/11	50	122	Vocal
Great horned owl	3/29/11	570	87	Vocal
Great horned owl	5/17/11	47	122	Vocal
Great horned owl	5/17/11	553	86	Vocal
Great horned owl	5/17/11	564	86	Vocal
Northern saw-whet owl	5/18/11	530	90	Vocal
Possible great gray owl	5/19/11	511	90	Visual
Great horned owl	5/20/11	486	92	Vocal
Northern saw-whet owl	5/21/11	460	94	Vocal
Flammulated owl	5/23/11	342	100	Vocal
Great horned owl	5/23/11	364	100	Vocal
Great horned owl	5/24/11	404	98	Vocal
Great gray owl	6/9/11	*	123	Visual
Great horned owl	6/20/11	305	102	Vocal
Great horned owl	6/21/11	571	87	Vocal
Possible flammulated owl	6/24/11	78	121	Vocal
Unknown Species	6/25/11	511	97	Vocal
Northern pygmy owl	6/25/11	154	116	Vocal
Northern pygmy owl	6/25/11	162	116	Vocal
Great horned owl	6/26/11	327	101	Vocal

*Great gray owl observed during northern goshawk surveys.

5.0 CONCLUSION

The objective of the great gray owl and flammulated owl surveys was to identify territories within or overlapping the proposed route and alternatives and to identify all nesting pairs of owls. The 2011 survey effort used the best available data and the appropriate recommended procedures for identifying the locations of great gray and flammulated owls that may be affected by the Project. However, no territories or nesting pairs of great gray or flammulated owls were positively identified during this survey effort.

A total of two flammulated owl, three great gray owls, and one possible great gray or flammulated owl detections were obtained during the 2011 survey effort. Several additional owl species were heard, including great horned owl, northern pygmy owl, and northern saw-whet owl.

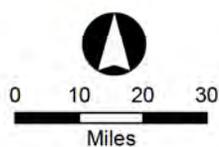
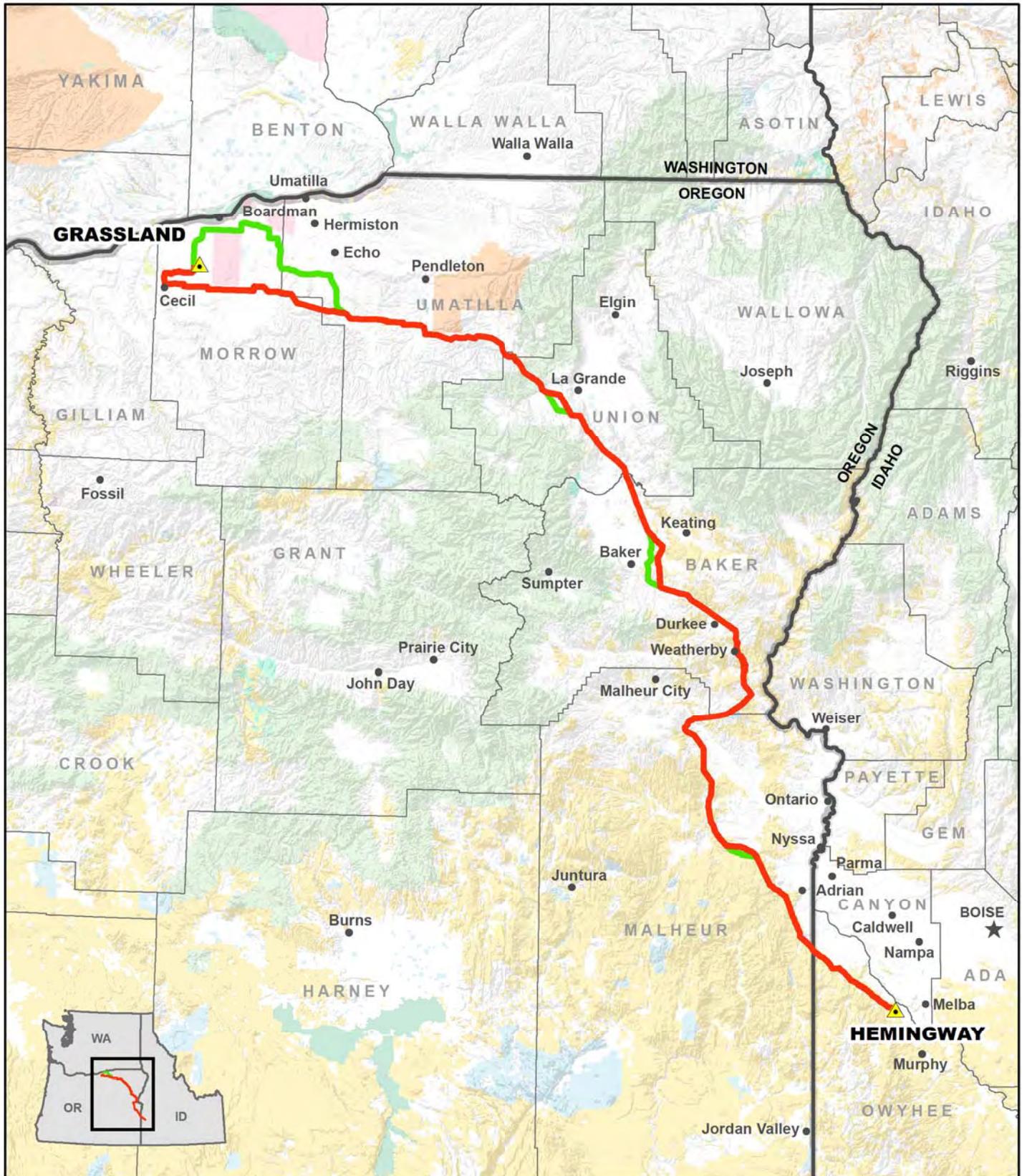
Great gray and flammulated owl detections may appear to be low during the 2011 survey season; however, detections of great horned owls were common. Surveying for the presence of great gray owls can be challenging. This is due to a number of factors including the time of year when the species is most vocal (mid-February to March), the difficulty of access in early spring, and the fact that the Project occurs on the extreme southern periphery of the species' range. Great gray and flammulated owl response can also be dependent on timing and such factors as nesting status, snow depth, and weather patterns. The flammulated owls soft call and retiring habits can make detection of this species difficult.

Appropriate field surveys to close data gaps where access was previously denied will be conducted once right of access to private property has been obtained in 2012. This will ensure that necessary data on great gray and flammulated owls are collected prior to ground-disturbing activities.

6.0 REFERENCES

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- .

FIGURES



Project Features

- Substation
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

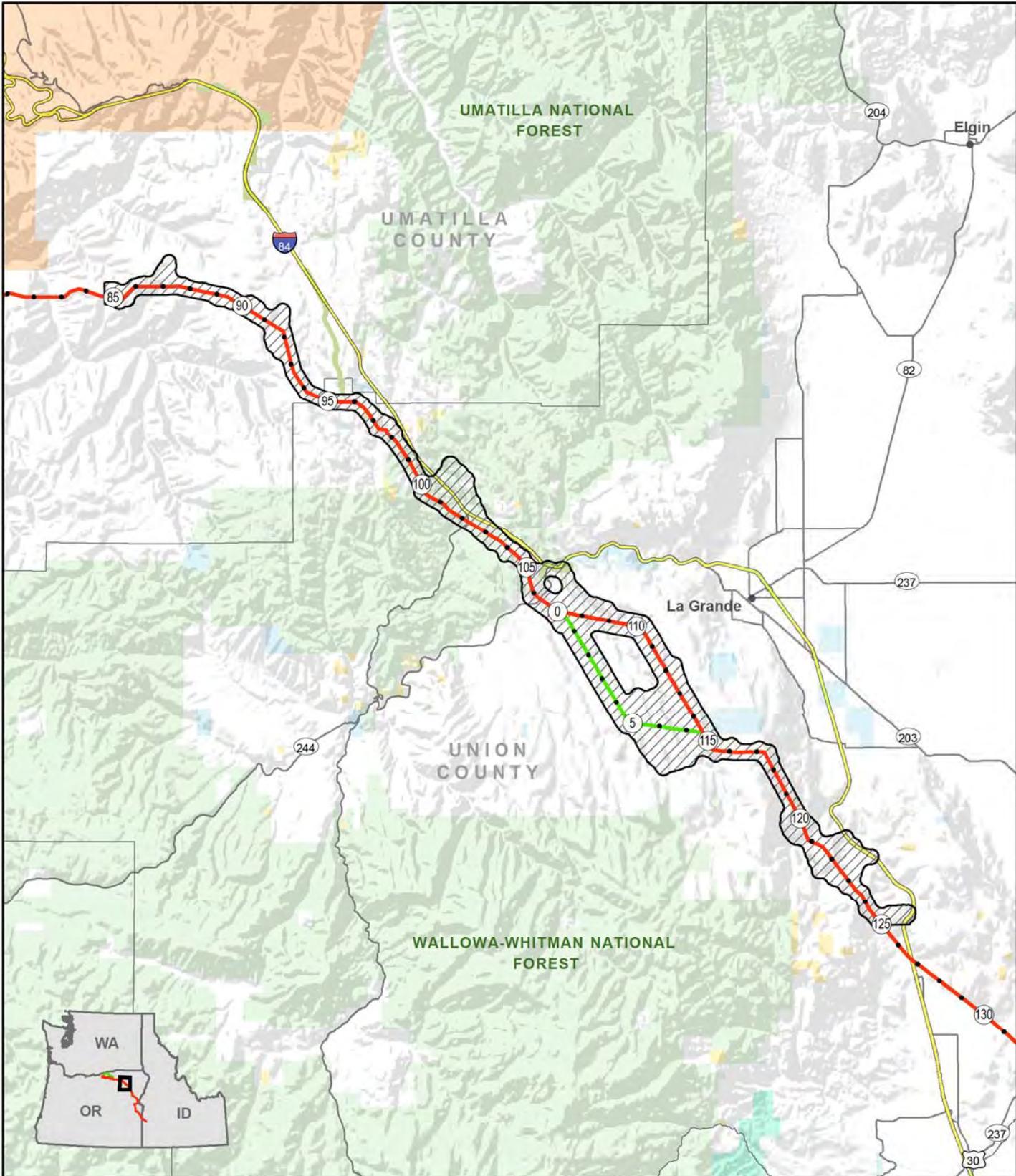
Land Status

- Bureau of Land Management
- Indian Reservation
- Bureau of Reclamation
- Military
- State Land
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Private Land

**FIGURE 1
STUDY AREA**

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AUGUST 2011



**FIGURE 2
2011 OWL SURVEY AREA**

**IDAHO POWER COMPANY
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TRANSMISSION LINE PROJECT**

AUGUST 2011

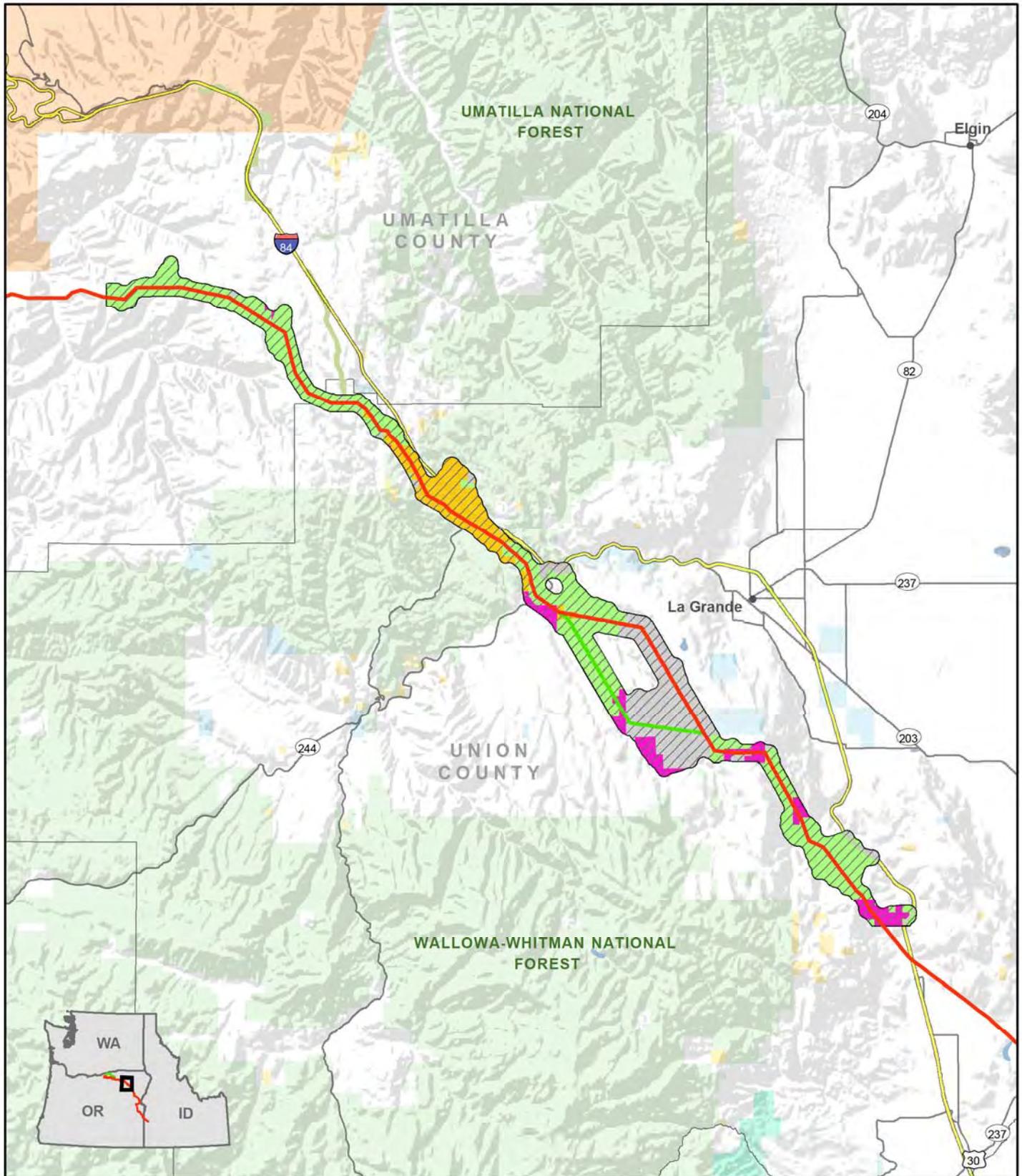


Project Features

- 2011 Owl Survey Area
- Substation
- Route Milepost
- Proposed Route
- Alternative Route

Land Status

- Bureau of Land Management
- Indian Reservation
- Bureau of Reclamation
- Military
- State Land
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Private Land



Project Features

- Right of Entry Denied
- Right-of-Entry Granted
- Public Land
- No Landowner Response
- 2011 Owl Survey Area
- Substation
- Proposed Route
- Alternative Route

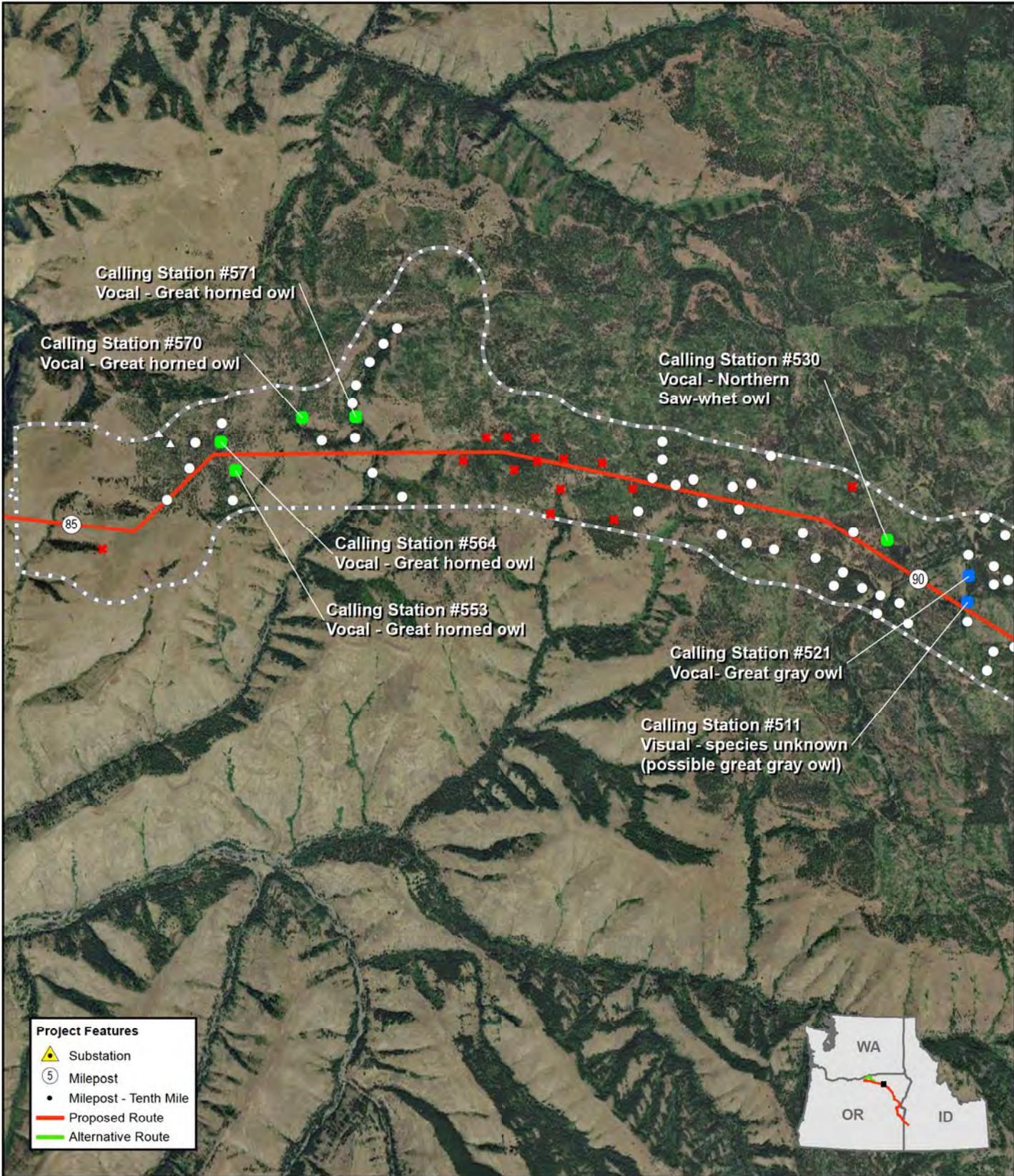
Land Status

- Bureau of Land Management
- Indian Reservation
- Bureau of Reclamation
- Military
- State Land
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Private Land

**FIGURE 3
RIGHT OF ENTRY STATUS**

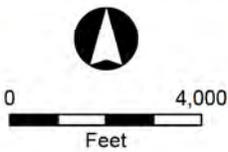
**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**

AUGUST 2011



Project Features

- Substation
- Milepost
- Milepost - Tenth Mile
- Proposed Route
- Alternative Route



Survey Features

- 2011 Owl Survey Area
- Never surveyed
- Surveyed for both Great Gray Owl and Flammulated Owl
- Surveyed for Flammulated Owl only
- Surveyed for Great Gray Owl only
- Incidental observation

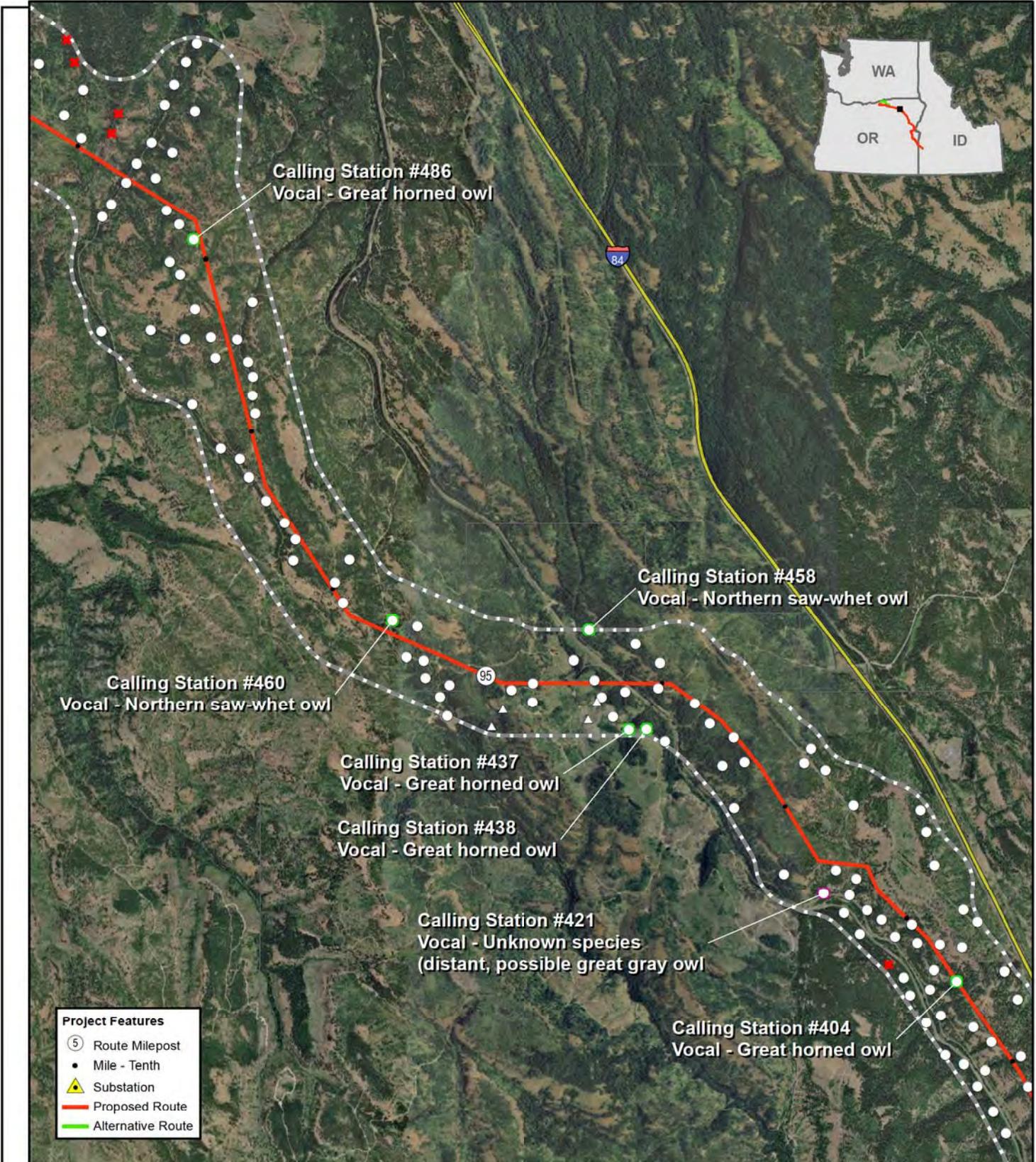
Observation type

- No owl species detected
- Great Gray Owl detected
- Flammulated Owl detected
- Great Gray Owl or Flammulated Owl detected
- Other owl species detected

FIGURE 4
2011 OWL SURVEY RESULTS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

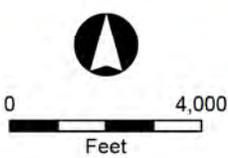
AUGUST 2011



**FIGURE 5
2011 OWL SURVEY RESULTS**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**

AUGUST 2011

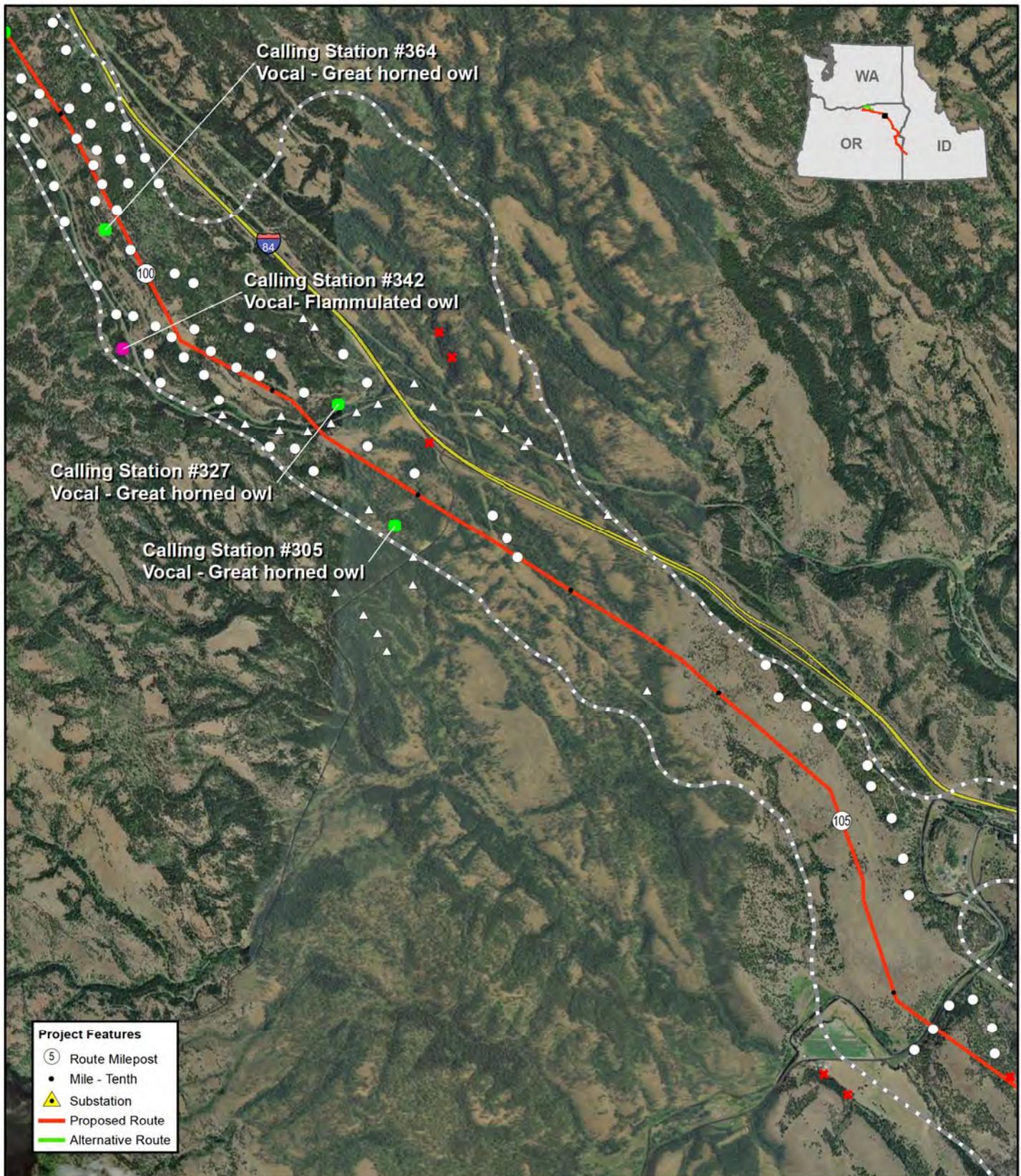


Survey Features

- 2011 Owl Survey Area
- Never surveyed
- Surveyed for both Great Gray Owl and Flammulated Owl
- Surveyed for Flammulated Owl only
- Surveyed for Great Gray Owl only
- Incidental observation

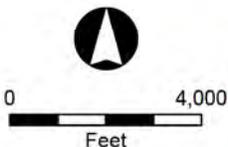
Observation type

- No owl species detected
- Great Gray Owl detected
- Flammulated Owl detected
- Great Gray Owl or Flammulated Owl detected
- Other owl species detected



Project Features

- ⑤ Route Milepost
- Mile - Tenth
- ⚡ Substation
- Proposed Route
- Alternative Route



Survey Features

- ▭ 2011 Owl Survey Area
- ✖ Never surveyed
- Surveyed for both Great Gray Owl and Flammulated Owl
- Surveyed for Flammulated Owl only
- △ Surveyed for Great Gray Owl only
- ✱ Incidental observation

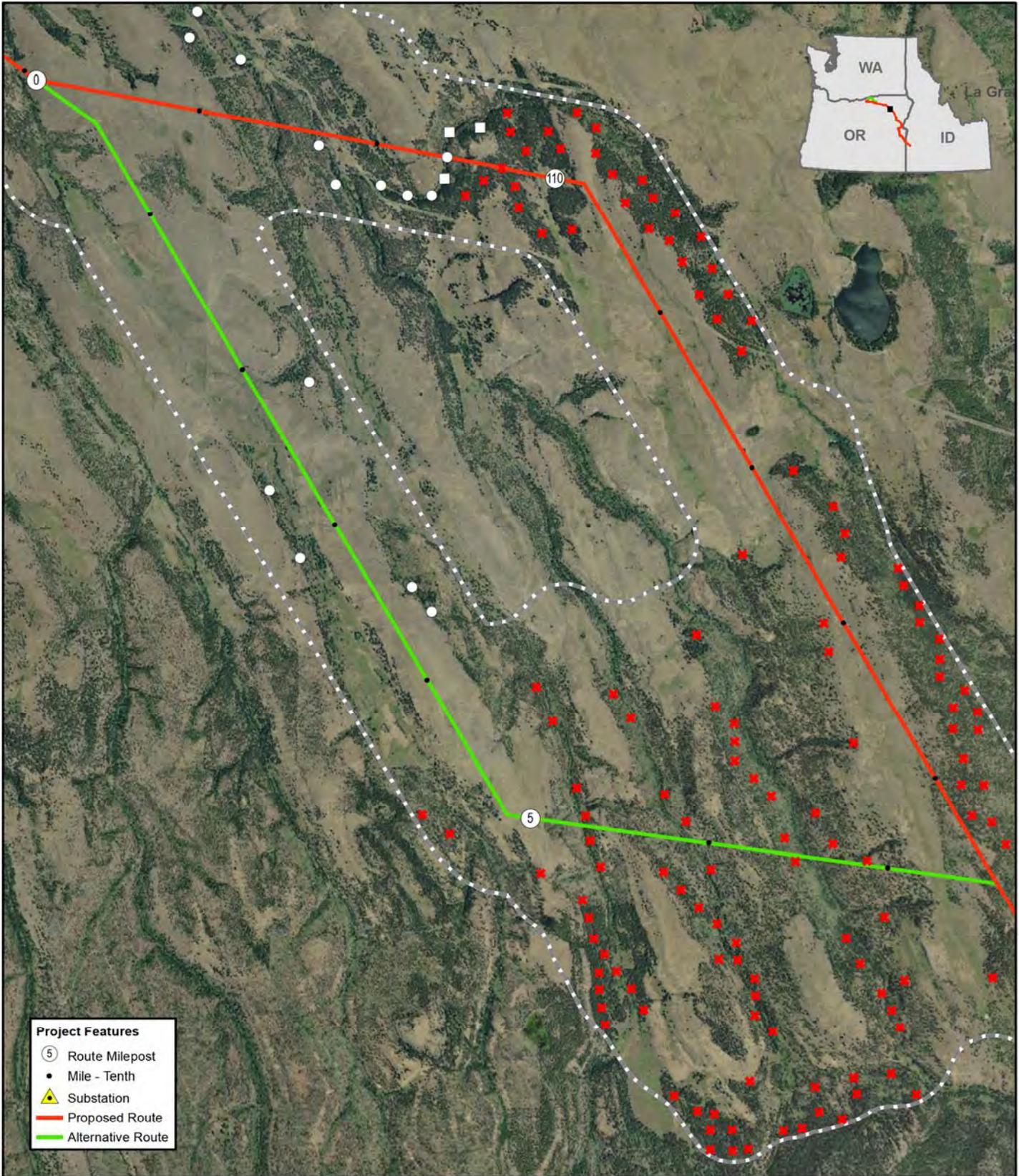
Observation type

- No owl species detected
- Great Gray Owl detected
- Flammulated Owl detected
- Great Gray Owl or Flammulated Owl detected
- Other owl species detected

FIGURE 6
2011 OWL SURVEY RESULTS

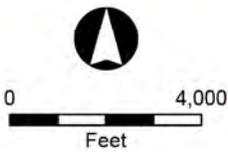
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TRANSMISSION LINE PROJECT

AUGUST 2011



Project Features

- ⑤ Route Milepost
- Mile - Tenth
- ▲ Substation
- Proposed Route
- Alternative Route



Survey Features

- ▭ 2011 Owl Survey Area
- ✗ Never surveyed
- Surveyed for both Great Gray Owl and Flammulated Owl
- Surveyed for Flammulated Owl only
- △ Surveyed for Great Gray Owl only
- ★ Incidental observation

Observation type

- No owl species detected
- Great Gray Owl detected
- Flammulated Owl detected
- Great Gray Owl or Flammulated Owl detected
- Other owl species detected

**FIGURE 7
2011 OWL SURVEY RESULTS**

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BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**

AUGUST 2011

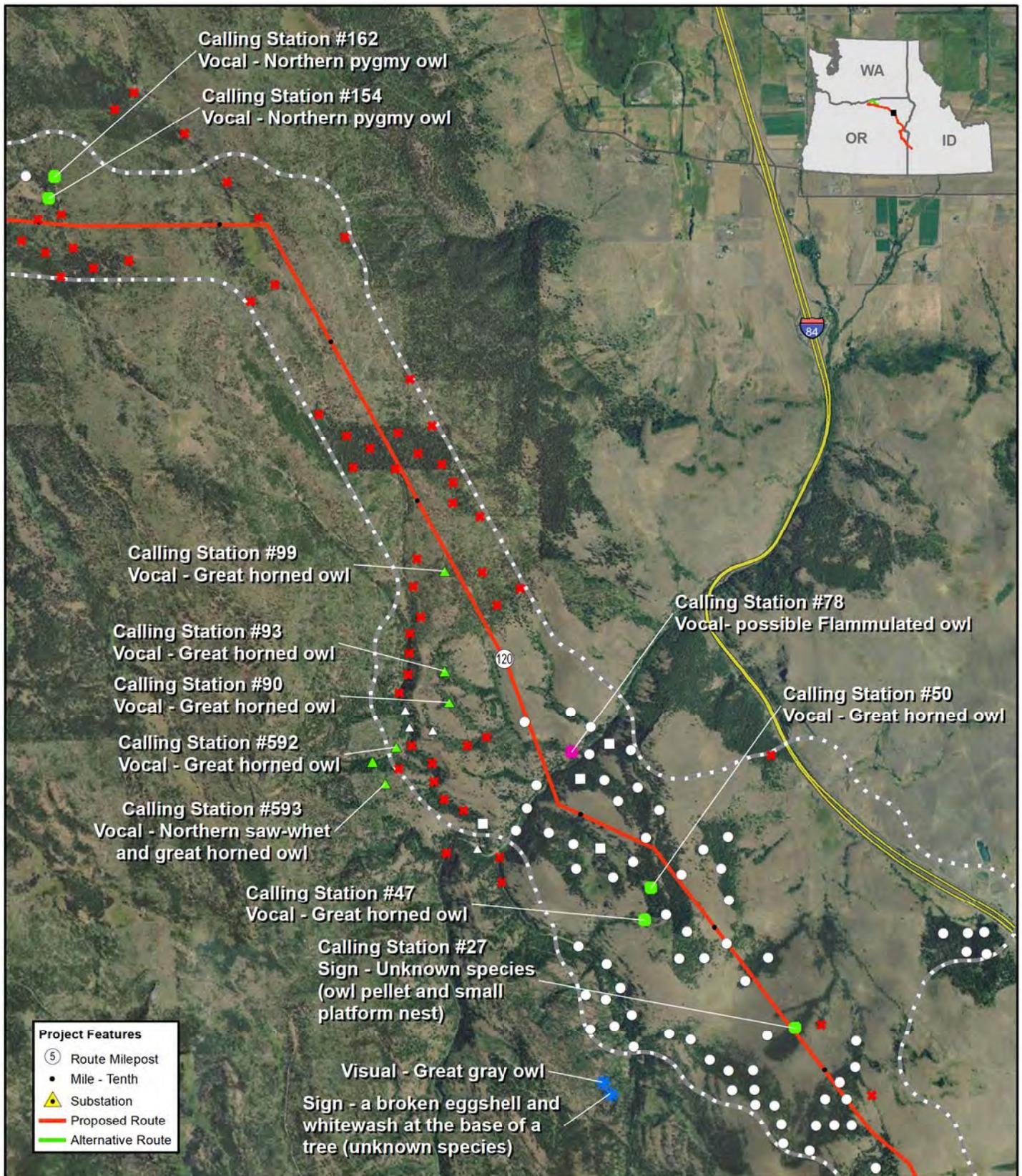
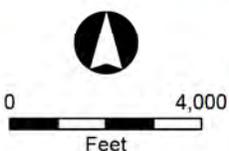
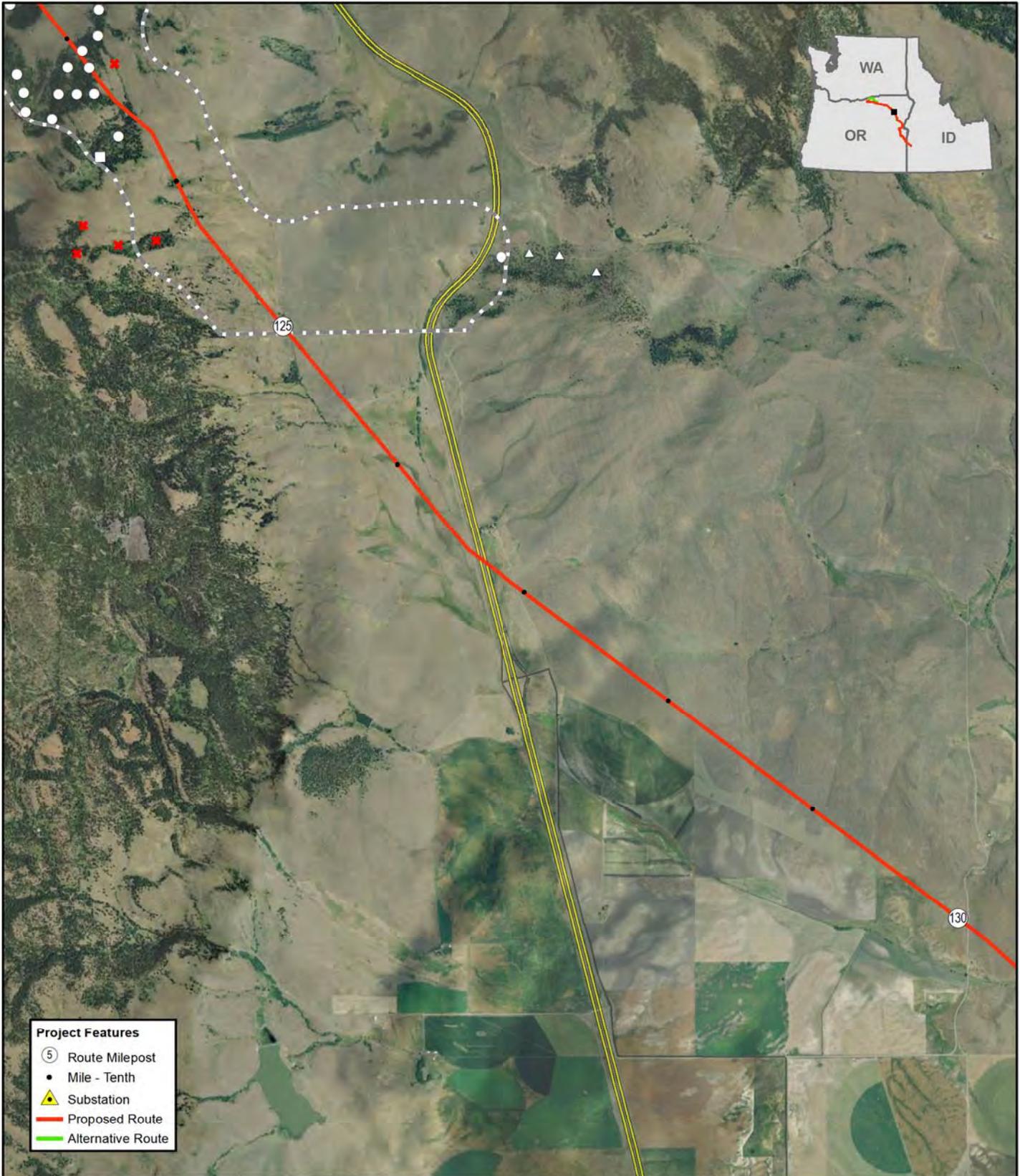


FIGURE 8
2011 OWL SURVEY RESULTS

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BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

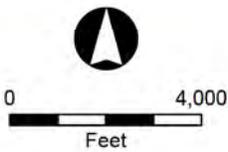
AUGUST 2011





Project Features

- ⑤ Route Milepost
- Mile - Tenth
- ⚡ Substation
- Proposed Route
- Alternative Route



Survey Features

- ▭ 2011 Owl Survey Area
- ★ Never surveyed
- Surveyed for both Great Gray Owl and Flammulated Owl
- Surveyed for Flammulated Owl only
- △ Surveyed for Great Gray Owl only
- ★ Incidental observation

Observation type

- No owl species detected
- Great Gray Owl detected
- Flammulated Owl detected
- Great Gray Owl or Flammulated Owl detected
- Other owl species detected

FIGURE 9
2011 OWL SURVEY RESULTS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

AUGUST 2011

APPENDIX A
EXAMPLE SURVEY FORM

Boardman to Hemingway Great Gray Owl Calling Surveys 2011

SURVEY

FOLLOW-UP

Date _____ Point no. _____ Start time _____ End time _____

UTM E _____ UTM N _____ Observers _____

Veg at point: _____ Elevation (ft) _____ Slope (%) _____ Aspect _____

Wind: 1 smoke rises (<1 mph)

2 smoke drifts (1-3 mph)

3 leaves rustle, breeze felt on face (4-7 mph)

4 leaves and small twigs in constant motion (8-12 mph)

5 raises dust, small branches in motion (< 12 mph)

Observation type: sign, visual, visual & vocal, vocal

Age: **Adult**; **Fledgling**; **Hatchling**; **Juvenile/immature**; **Unknown**.

Activity type: ex. feeding/drinking; fleeing; flying; hunting; courting; nesting; roosting

Observation type	Time	# GGOW observed	Sex	Age	Activity type	Repro status	GPS pt.
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	

Notes (other spp. observed, weather, nest type, height, and nest stand veg):

APPENDIX B
2011 GREAT GRAY AND FLAMMULATED OWL SURVEY DATABASE

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/28/2011	1	521	90	1:00	1:05	Survey	385866	5037420	Douglas fir	Vocal- Great gray owl (distant)	Follow up survey was not conducted because distance of the bird from the observers, access to the point was very difficult, and due to very snowy conditions, which limit visibility to observe potential sign.
5/19/2011	2	511	90	0:53	1:01	Survey	385797	5037201	Fir spp.	Visual - species unknown (possible great gray owl)	Large owl flew in and perched in tall tree 30 meters away during great gray owl calls – possible great gray owl- no vocalizations. Day search to be conducted 5/19/2011.
5/19/2011	2	511	90	19:30	20:30	Follow-up	385796	5037191	Douglas fir, fir spp., lodgepole pine, western larch, spruce spp.	None	follow-up to owl observed at point 511 in large tree at 385815 5037228 - no owl detected or sign found
5/23/2011	2	342	100	20:35	20:42	Survey	395449	5026002	Douglas fir	Vocal- Flammulated	
5/24/2011	2	342	100	12:00	12:30	Follow-up	395410	5026422	Ponderosa pine, western larch, Douglas fir	None	follow-up on flammulated owl call heard on 5/23/11 at point 342; no owl, nest, or sign detected
6/25/2011	3	None	122	17:45	19:15	Follow-up	418448	5002866	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	this follow up is from a visual observation of a great grey owl during goshawk surveys by John Radde. In the vicinity, there are many diseased branches that have potential for suitable nesting substrate. A broken egg and whitewash at the base of a tree were identified at: 418515, 5002756. A drawing of the egg is included on the original datasheet. However, we could not positively identify this sign as great gray owl.

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/24/2011	3	78	121	2:27	2:32	Survey	418255	5005797	Douglas fir, ponderosa pine, herbaceous understory	Vocal- possible Flammulated owl (distant, from south, not confirmed)	Stream noise loud; follow-up survey not conducted due to distance of the bird from the observers
6/25/2011	3	421	97	4:24	-	Survey	393314	5029659	Lodgepole pine, ponderosa pine	Vocal - Unknown species (distant, possible great gray owl or flammulated owl)	Extremely faint owl(?) call heard - barely audible
3/29/2011	1	50	122	0:45	0:50	Survey	418847	5004564	Douglas fir	Vocal - Great horned owl	-
3/26/2011	1	90	120	23:56	0:01	Survey	417112	5006276	Douglas fir, ponderosa pine	Vocal - Great horned owl	-
3/26/2011	1	93	120	23:42	23:47	Survey	417127	5006557	Fir spp., ponderosa pine	Vocal - Great horned owl	-
3/27/2011	1	99	119	3:02	3:07	Survey	417113	5007408	Ponderosa pine, Douglas fir	Vocal - Great horned owl (distant)	-
3/25/2011	1	437	96	3:24	3:29	Survey	391560	5031178	Western larch, fir spp., lodgepole pine	Vocal - Great horned owl	moderate train noise
3/25/2011	1	438	96	3:33	3:38	Survey	391730	5031180	Lodgepole pine, western larch	Vocal - Great horned owl	-
3/22/2011	1	458	95	1:14	1:19	Survey	391221	5032074	Douglas fir	Vocal - Northern saw-whet owl (responding to recorded great gray owl call)	-
3/29/2011	1	570	86	2:34	2:39	Survey	379876	5038863	Ponderosa pine, Douglas fir	Vocal - Great horned owl (distant)	took point about 70 meters S of point because of lake
3/27/2011	1	592	120	0:55	1:00	Survey	416648	5005889	Douglas fir, ponderosa pine	Vocal - Great horned owl (two individuals)	faint highway and river noise
3/27/2011	1	593	120	1:22	1:27	Survey	416526	5005573	Ponderosa pine, Douglas fir	Vocal - Northern saw-whet owl, great horned owl	-
3/27/2011	1	594	120	1:08	1:13	Survey	416430	5005782	Ponderosa pine	Vocal - Northern saw-whet owl, great horned owl (two individuals)	-
5/17/2011	2	47	122	2:20	2:25	Survey	418817	5004269	Douglas fir	Vocal- Great horned owl (~500 ft)	-
5/23/2011	2	364	100	3:22	3:29	Survey	395336	5027099	Ponderosa pine	Vocal- Great horned owl	-
5/24/2011	2	404	98	3:45	3:50	Survey	394474	5028879		Vocal- Great horned owl	

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/21/2011	2	460	94	21:09	21:17	Survey	389456	5032210	Lodgepole pine	Vocal- Northern saw-whet owl, Visual-unknown species (~14" wingspan)	-
5/20/2011	2	486	92	22:21	22:30	Survey	387728	5035648	Western larch, fir spp.	Vocal- Great horned owl	
5/18/2011	2	530	90	22:08	22:17	Survey	385098	5037758	Ponderosa pine, fir spp., lodgepole pine, spruce spp.	Vocal - Northern saw-whet (distant)	-
5/17/2011	2	553	86	1:52	1:59	Survey	379292	5038477	Ponderosa pine, Douglas fir	Vocal- Great horned owl	-
5/17/2011	2	564	86	1:31	1:40	Survey	379165	5038728	Ponderosa pine, Douglas fir	Vocal- Great horned owl	-
6/22/2011	3	27	123	20:50	-	Survey	420160	5003323	Douglas fir, ponderosa pine, herbaceous understory	Sign - Unknown species (owl pellet and small platform nest)	Found small portion of owl pellet at site. Small Platform nest located directly above survey point, ~30 m high, ~4 feet from main trunk. No indication of what type of owl it is.
6/25/2011	3	154	116	21:11	21:16	Survey	413642	5010847	Ponderosa pine, Douglas Fir, grand fir	Vocal - Northern pygmy owl (from 310 degrees at 400m)	-
6/25/2011	3	162	116	21:22	21:27	Survey	413697	5011041	Ponderosa pine, Douglas fir, herbaceous understory, grand fir	Vocal - Northern pygmy owl (from 330 degrees at 300m)	-
6/20/2011	3	305	102	11:10	11:15	Survey	397879	5024414	Ponderosa pine, lodgepole pine	Vocal - Great horned owl (~500 m)	Highway and crickets audible.
6/26/2011	3	327	101	3:58	4:03	Survey	397330	5025429	Douglas fir, herbaceous understory	Vocal - Great horned owl (from 300 degrees at 150m)	Stream and highway audible,
6/21/2011	3	571	87	3:07	-	Survey	380472	5039005	Ponderosa pine	Vocal - Great horned owl	point moved due to stream noise
3/25/2011	1	22	122	21:20	21:25	Survey	418731	5003166	Douglas fir	None	-
3/25/2011	1	29	122	21:32	21:37	Survey	418595	5003348	Douglas fir	None	-
3/25/2011	1	30	122	21:10	21:15	Survey	418692	5003514	Douglas fir	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/25/2011	1	31	122	22:50	22:55	Survey	418488	5003603	Douglas fir	None	-
3/25/2011	1	32	122	22:10	22:15	Survey	418311	5003625	Douglas fir	None	-
3/25/2011	1	33	122	21:50	21:55	Survey	418601	5003745	Douglas fir	None	-
3/25/2011	1	35	122	21:47	21:53	Survey	418479	5003835	Douglas fir	None	-
3/29/2011	1	39	122	2:10	2:15	Survey	419382	5004067	Douglas fir	None	-
3/26/2011	1	42	121	0:35	0:40	Survey	418287	5004094	Douglas fir	None	-
3/29/2011	1	46	122	2:30	2:35	Survey	419214	5004214	Ponderosa pine	None	-
3/29/2011	1	47	122	0:25	0:30	Survey	418679	5004204	Sagebrush	None	-
3/29/2011	1	48	122	2:45	2:50	Survey	419020	5004309	Douglas fir	None	-
3/29/2011	1	53	122	1:50	1:55	Survey	419513	5004753	Douglas fir	None	-
3/25/2011	1	54	121	23:45	23:50	Survey	418219	5004791	Douglas fir	None	-
3/29/2011	1	55	121	1:00	1:05	Survey	418839	5004845	Douglas fir	None	-
3/29/2011	1	56	122	1:35	1:40	Survey	419324	5004870	Douglas fir	None	-
3/29/2011	1	60	121	1:10	1:15	Survey	418850	5005023	Douglas fir	None	-
3/25/2011	1	61	121	0:05	0:10	Survey	417958	5004955	Douglas fir	None	-
3/29/2011	1	64	121	1:20	1:25	Survey	419001	5005270	Douglas fir	None	-
3/25/2011	1	77	121	19:14	19:20	Survey	418269	5005823	Fir spp., ponderosa pine	None	fairly loud stream noise - 56 dB
3/25/2011	1	78	121	20:10	20:37	Survey	418459	5005714	Fir spp.	None	loud stream noise - 62 dB
3/27/2011	1	84	120	0:08	0:13	Survey	416939	5006032	Douglas fir, ponderosa pine	None	-
3/27/2011	1	86	120	0:24	0:29	Survey	416789	5006096	Ponderosa pine, fir spp.	None	moderate stream noise - <50 dB
3/26/2011	1	87	120	1:39	1:45	Survey	417808	5006106	-	None	-
3/27/2011	1	89	120	0:36	0:41	Survey	416721	5006221	Ponderosa pine, Douglas fir, fir spp.	None	loud stream noise at 58 dB
3/26/2011	1	137	116	21:08	21:13	Survey	412998	5010364	Fir spp., Douglas fir, ponderosa pine, western larch	None	-
3/26/2011	1	143	116	20:51	20:56	Survey	413148	5010574	Spruce spp., fir spp., Douglas fir	None	-
3/26/2011	1	154	116	21:42	21:47	Survey	413590	5010897	Fir spp., Douglas fir	None	-
3/26/2011	1	162	116	20:17	20:22	Survey	413699	5011038	Douglas fir	None	snowing

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/26/2011	1	164	116	20:29	20:34	Survey	413436	5011023	Ponderosa pine	None	-
3/22/2011	1	279	106	20:55	20:58	Survey	402380	5019656	Ponderosa pine, lodgepole pine, Douglas fir	None	Grand Ronde very audible
3/22/2011	1	281	106	20:53	20:57	Survey	402558	5019784	Ponderosa pine, lodgepole pine, Douglas fir	None	Grand Ronde very audible
3/22/2011	1	283	106	20:47	20:50	Survey	402299	5020069	Douglas fir, spruce spp.	None	-
3/22/2011	1	289	106	22:08	22:11	Survey	404188	5021186	Ponderosa pine	None	Stream audible
3/22/2011	1	290	106	21:59	22:03	Survey	404056	5021266	Ponderosa pine, lodgepole pine	None	river audible
3/22/2011	1	292	106	21:50	21:55	Survey	403982	5021500	Ponderosa pine	None	river audible- heard a sawwhet owl
3/23/2011	1	298	104	21:00	22:35	Survey	401602	5022525	open grass, ponderosa pine	None	highway audible
3/23/2011	1	300	104	20:51	20:55	Survey	401516	5022697	open grass, Douglas fir	None	highway very audible
3/23/2011	1	301	104	20:23	20:27	Survey	401262	5022802	Ponderosa pine	None	highway audible
3/23/2011	1	302	104	20:35	20:38	Survey	401172	5023127	open, ponderosa pine	None	highway very audible
3/21/2011	1	303	103	19:29	-	Survey	398961	5024106	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	304	103	21:06	21:18	Survey	398867	5024279	Lodgepole pine, ponderosa pine	None	highway noise 51dB - loud
3/22/2011	1	305	102	0:11	0:17	Survey	397871	5024391	Ponderosa pine, lodgepole pine	None	-
3/21/2011	1	307	102	20:45	21:05	Survey	398740	5024987	Lodgepole pine, ponderosa pine	None	Hwy noise, 50 dB, T-line corona, light rain
3/21/2011	1	308	102	22:29	22:32	Survey	398041	5024846	Ponderosa pine, lodgepole pine	None	some highway noise
3/21/2011	1	309	102	23:31	23:36	Survey	397147	5024914	Spruce spp., fir spp.	None	highway noise
3/21/2011	1	312	101	23:03	23:08	Survey	396997	5025111	Ponderosa pine	None	snowing; faint highway noise
3/21/2011	1	313	102	22:42	22:47	Survey	397632	5025105	Ponderosa pine	None	highway noise

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/21/2011	1	314	101	23:14	23:20	Survey	396781	5025131	Lodgepole pine, ponderosa pine, Douglas fir	None	slight highway noise
3/22/2011	1	318	101	1:22	1:25	Survey	397110	5025244	Lodgepole pine, ponderosa pine	None	-
3/22/2011	1	319	101	1:33	1:37	Survey	396776	5025379	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	320	101	1:20	1:25	Survey	397315	5025400	Lodgepole pine, ponderosa pine	None	-
3/22/2011	1	321	101	1:36	1:39	Survey	396573	5025412	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	323	101	1:06	1:12	Survey	397622	5025542	Lodgepole pine, ponderosa pine	None	hwy noise
3/22/2011	1	324	101	1:40	1:43	Survey	396359	5025557	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	326	101	0:52	0:57	Survey	397736	5025539	Lodgepole pine	None	Stream audible
3/22/2011	1	327	101	1:06	1:14	Survey	397415	5025471	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	328	101	1:48	1:51	Survey	396318	5025547	Lodgepole pine, ponderosa pine	None	Stream audible
3/24/2011	1	329	101	1:15	1:20	Survey	397083	5025599	Ponderosa pine	None	highway and train very audible
3/22/2011	1	331	101	20:53	20:59	Survey	397635	5025695	Ponderosa pine	None	close to highway - loud
3/22/2011	1	332	100	1:54	-	Survey	395806	5025703	Lodgepole pine, ponderosa pine	None	Stream audible
3/24/2011	1	333	101	0:41	0:45	Survey	396683	5025767	Douglas fir, ponderosa pine	None	-
3/24/2011	1	335	101	0:34	0:38	Survey	396492	5025894	Ponderosa pine	None	highway audible
3/23/2011	1	337	100	23:56	0:00	Survey	396014	5025987	Douglas fir	None	-
3/22/2011	1	338	101	21:11	21:18	Survey	397441	5025953	opening with Douglas fir	None	loud highway noise
3/24/2011	1	339	101	0:58	1:58	Survey	396761	5025974	Douglas fir	None	-
3/22/2011	1	340	100	2:00	2:03	Survey	395694	5025988	Lodgepole pine, ponderosa pine	None	Stream audible
3/24/2011	1	341	101	0:15	0:20	Survey	396268	5026001	Ponderosa pine	None	-
3/23/2011	1	343	100	23:47	23:50	Survey	395918	5026151	open, ponderosa pine	None	-
3/24/2011	1	345	100	0:07	0:11	Survey	396107	5026195	open, ponderosa pine	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/23/2011	1	348	100	23:35	23:38	Survey	395769	5026232	Ponderosa pine	None	train just went by
3/22/2011	1	350	100	2:05	2:08	Survey	395553	5026317	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	351	100	2:09	2:11	Survey	395484	5026395	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	356	100	2:14	2:19	Survey	395316	5026690	Lodgepole pine, ponderosa pine	None	stream barely audible, light rain
3/22/2011	1	368	99	2:24	2:27	Survey	395039	5027420	Lodgepole pine, ponderosa pine	None	stream barely audible
3/22/2011	1	373	99	2:29	2:32	Survey	394953	5027586	Lodgepole pine, ponderosa pine	None	stream barely audible
3/22/2011	1	375	100	22:03	22:08	Survey	395824	5027491	Douglas fir, fir spp.	None	on road; some highway noise
3/22/2011	1	382	99	2:43	2:45	Survey	394845	5027809	Lodgepole pine, ponderosa pine	None	train and highway audible
3/22/2011	1	384	99	22:22	22:27	Survey	395706	5027723	Douglas fir, fir spp., lodgepole pine	None	-
3/22/2011	1	388	99	2:46	2:48	Survey	394720	5027997	Lodgepole pine, ponderosa pine	None	train and highway audible
3/22/2011	1	389	99	22:34	22:40	Survey	395535	5027993	on road	None	on road, highway noise (loud)
3/22/2011	1	391	99	2:49	2:51	Survey	394677	5028063	Ponderosa pine, lodgepole pine	None	-
3/22/2011	1	392	99	2:53	2:56	Survey	394564	5028247	Lodgepole pine, ponderosa pine	None	stream barely audible
3/22/2011	1	394	99	22:45	22:50	Survey	395405	5028168	on road, thick forest	None	on road, highway noise (loud)
3/22/2011	1	395	99	2:57	3:00	Survey	394437	5028356	Lodgepole pine, ponderosa pine	None	-
3/25/2011	1	396	99	0:05	0:10	Survey	394694	5020440	Douglas fir	None	-
3/22/2011	1	397	99	23:17	23:22	Survey	395214	5028312	Ponderosa pine, fir spp.	None	did survey about 50 meters S of call point due to very deep snow; highway noise
3/24/2011	1	398	99	23:52	23:57	Survey	394642	5020499	Douglas fir	None	-
3/22/2011	1	400	98	3:12	-	Survey	394329	5028495	Lodgepole pine, ponderosa pine	None	Stream audible
3/22/2011	1	403	98	0:00	0:00	Survey	394173	5028894	Lodgepole pine, ponderosa pine	None	Stream audible

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/24/2011	1	404	98	23:32	23:37	Survey	394469	5020910	Douglas fir	None	-
3/24/2011	1	407	98	23:20	23:25	Survey	394292	5029007	Douglas fir	None	-
3/24/2011	1	409	98	23:05	23:10	Survey	394490	5029131	Douglas fir	None	-
3/24/2011	1	410	98	22:50	22:55	Survey	394320	5029187	Douglas fir	None	-
3/24/2011	1	411	98	20:25	20:30	Survey	394106	5029201	Douglas fir	None	-
3/22/2011	1	412	98	3:30	3:35	Survey	393885	5029255	Lodgepole pine, ponderosa pine	None	Stream audible
3/24/2011	1	414	98	22:05	22:10	Survey	394094	5029432	Douglas fir	None	-
3/22/2011	1	416	98	3:34	3:39	Survey	393811	5029453	Spruce spp., Douglas fir	None	-
3/22/2011	1	419	98	3:10	3:16	Survey	393676	5029518	Spruce spp.	None	-
3/22/2011	1	420	98	2:58	3:03	Survey	393541	5029633	none	None	next to road; some stream noise
3/22/2011	1	421	97	2:48	2:53	Survey	393286	5029666	none	None	on road; some train noise
3/24/2011	1	422	98	18:25	18:30	Survey	393569	5029800	Douglas fir	None	-
3/22/2011	1	423	97	2:33	2:40	Survey	392942	5029865	Fir spp., western larch	None	-
3/24/2011	1	424	97	20:50	20:55	Survey	393441	5029073	Douglas fir	None	-
3/22/2011	1	428	97	2:06	2:11	Survey	392505	5030452	Fir spp.	None	stream noise
3/23/2011	1	433	97	20:57	21:02	Survey	392582	5030864	Fir spp., western larch, lodgepole pine	None	-
3/25/2011	1	435	96	3:42	3:45	Survey	391870	5031036	-	None	-
3/23/2011	1	436	97	20:42	20:47	Survey	392507	5031109	Fir spp.	None	-
3/23/2011	1	439	96	20:26	20:30	Survey	392302	5031228	Lodgepole pine	None	-
3/25/2011	1	440	96	2:57	3:01	Survey	391470	5031317	clearing	None	-
3/24/2011	1	441	95	0:09	0:13	Survey	389950	5031361	Lodgepole pine	None	-
3/23/2011	1	442	96	20:11	20:16	Survey	392154	5031413	Lodgepole pine	None	some highway noise in distance
3/25/2011	1	443	95	1:18	1:22	Survey	390786	5031516	Western larch, lodgepole pine	None	weather: snowing

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/23/2011	1	445	95	23:52	23:57	Survey	389865	5031526	Lodgepole pine	None	on road, a very high pitched call - single note every 30 sec.
3/25/2011	1	446	96	3:08	3:16	Survey	391538	5031512	Lodgepole pine, spruce spp.	None	loud train noise
3/23/2011	1	447	96	19:57	20:02	Survey	391830	5031558	Lodgepole pine	None	-
3/25/2011	1	448	95	1:35	1:39	Survey	390510	5031588	Western larch, Douglas fir, lodgepole pine	None	-
3/23/2011	1	449	95	23:43	23:47	Survey	389945	5031595	Lodgepole pine	None	-
3/25/2011	1	450	95	1:26	1:31	Survey	390742	5031572	Lodgepole pine, western larch, Douglas fir	None	faint train noise
3/25/2011	1	451	96	2:42	2:49	Survey	391264	5031635	Lodgepole pine, fir spp., spruce spp.	None	-
3/24/2011	1	452	95	0:35	0:40	Survey	389708	5031740	Lodgepole pine, spruce spp.	None	a little NW of actual point, river blocking access
3/23/2011	1	453	96	21:34	21:39	Survey	391848	5031784	Douglas fir, fir spp.	None	-
3/22/2011	1	454	95	1:35	1:39	Survey	391097	5031826	Douglas fir	None	-
3/24/2011	1	455	95	0:21	0:25	Survey	389733	5031840	Lodgepole pine	None	-
3/24/2011	1	456	95	0:48	0:52	Survey	389557	5031882	Lodgepole pine, spruce spp.	None	-
3/23/2011	1	457	96	21:45	21:50	Survey	391655	5031963	Douglas fir, western larch, spruce spp.	None	-
3/24/2011	1	459	95	1:06	1:11	Survey	389684	5032159	Western larch	None	-
3/24/2011	1	460	94	1:26	1:31	Survey	389455	5032198	Spruce spp., lodgepole pine	None	-
3/24/2011	1	461	94	1:42	1:46	Survey	389000	5032346	-	None	-
3/24/2011	1	462	94	1:58	2:03	Survey	388939	5032554	Western larch, fir spp.	None	-
3/24/2011	1	463	94	2:43	2:47	Survey	388852	5032720	Lodgepole pine, western larch	None	moderate train noise
3/24/2011	1	464	94	2:11	2:16	Survey	389082	5032747	Western larch, spruce spp., fir spp., Douglas fir	None	-
3/24/2011	1	465	94	2:51	2:56	Survey	388601	5032930	Ponderosa pine, lodgepole pine	None	moderate train noise

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
3/24/2011	1	466	94	3:00	3:04	Survey	388506	5033100	Douglas fir, western larch, spruce spp.	None	moderate train noise
3/24/2011	1	467	93	3:08	3:12	Survey	388381	5033329	Douglas fir, fir spp.	None	train noise quiet
3/24/2011	1	468	93	21:41	21:45	Survey	388216	5033517	Lodgepole pine, fir spp., Douglas fir	None	-
3/24/2011	1	469	93	21:52	21:56	Survey	388076	5033678	Fir spp., spruce spp.	None	-
3/24/2011	1	470	93	22:02	22:07	Survey	387958	5033820	Fir spp., lodgepole pine	None	-
3/24/2011	1	471	93	3:20	3:25	Survey	388245	5034083	Spruce spp., western larch	None	loud train noise
3/24/2011	1	472	93	22:13	22:18	Survey	387715	5034163	Lodgepole pine, western larch, fir spp.	None	-
3/24/2011	1	473	93	3:30	3:34	Survey	388212	5034251	Spruce spp., Douglas fir, western larch	None	faint train noise
3/24/2011	1	474	93	3:39	3:45	Survey	388241	5034448	Spruce spp., Douglas fir, western larch, lodgepole pine	None	-
3/24/2011	1	475	93	3:48	3:54	Survey	388172	5034564	Spruce spp., Douglas fir, western larch, fir spp.	None	-
3/27/2011	1	476	92	23:42	23:45	Survey	387902	5034596	Fir spp., lodgepole pine	None	-
3/24/2011	1	477	92	4:09	4:14	Survey	388139	5034740	Fir spp.	None	-
3/27/2011	1	478	92	23:12	23:17	Survey	387630	5034794	Fir spp., western larch, lodgepole pine	None	-
3/27/2011	1	479	92	23:31	23:36	Survey	387864	5034784	Western larch, lodgepole pine, fir spp., Douglas fir	None	-
3/27/2011	1	482	92	22:48	22:53	Survey	387725	5035096	Fir spp., ponderosa pine	None	-
3/24/2011	1	483	92	3:59	4:03	Survey	388198	5035089	Fir spp., spruce spp.	None	-
3/28/2011	1	484	92	0:16	0:21	Survey	387623	5035336	Western larch, Douglas fir, fir spp.	None	-
3/28/2011	1	485	92	0:31	0:34	Survey	387512	5035455	Fir spp.	None	-

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3/28/2011	1	486	92	0:47	0:51	Survey	387731	5035660	Western larch, fir spp., ponderosa pine	None	-
3/28/2011	1	487	92	1:01	1:05	Survey	387604	5035796	Western larch, fir spp., ponderosa pine, Douglas fir	None	-
3/24/2011	1	488	91	22:37	22:41	Survey	386889	5035844	Fir spp., spruce spp., Douglas fir, western larch	None	-
3/24/2011	1	490	91	22:52	22:57	Survey	387002	5036009	Spruce spp., western larch, lodgepole pine, Douglas fir	None	-
3/24/2011	1	491	91	23:01	23:11	Survey	387139	5036211	-	None	-
3/25/2011	1	492	91	0:14	0:20	Survey	387369	5036154	Lodgepole pine, Douglas fir, fir spp., spruce spp.	None	-
3/24/2011	1	493	91	23:15	23:20	Survey	387235	5036367	Fir spp., western larch, lodgepole pine	None	moderate train noise
3/24/2011	1	495	91	23:24	23:29	Survey	387370	5036565	Spruce spp., lodgepole pine	None	-
3/28/2011	1	496	91	0:15	0:20	Survey	385924	5036572	Douglas fir	None	-
3/27/2011	1	497	91	22:40	22:45	Survey	386704	5036584	Douglas fir	None	-
3/28/2011	1	499	91	0:05	0:10	Survey	386024	5036723	Douglas fir	None	-
3/27/2011	1	500	91	23:50	23:55	Survey	386217	5036752	Douglas fir	None	-
3/27/2011	1	501	91	22:55	23:00	Survey	386586	5036779	Douglas fir	None	-
3/28/2011	1	506	90	0:30	0:35	Survey	385846	5037030	Douglas fir	None	-
3/27/2011	1	507	91	23:15	23:20	Survey	386794	5037000	Douglas fir	None	-
3/28/2011	1	510	90	1:55	2:00	Survey	386393	5037147	Douglas fir	None	-
3/29/2011	1	514	90	21:20	21:25	Survey	-	-	Douglas fir	None	Raining
3/28/2011	1	515	90	1:45	1:50	Survey	386347	5037244	Douglas fir	None	-
3/28/2011	1	518	90	1:30	1:35	Survey	386113	5037465	Douglas fir	None	-
3/28/2011	1	520	90	1:35	1:40	Survey	386154	5037364	Douglas fir	None	-

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				Start	End		Easting	Northing		Observation Type	
3/29/2011	1	523	90	21:40	21:45	Survey	384641	5037498	Douglas fir	None	Raining
3/28/2011	1	525	90	1:20	1:25	Survey	386035	5037501	Douglas fir	None	-
3/28/2011	1	527	90	1:10	1:15	Survey	385894	5037604	Douglas fir	None	-
3/29/2011	1	540	86	2:06	2:10	Survey	379251	5038220	Ponderosa pine	None	-
3/29/2011	1	542	86	0:19	0:24	Survey	378680	5038235	Ponderosa pine	None	-
3/29/2011	1	553	86	1:50	1:55	Survey	379287	5038477	Ponderosa pine, Douglas fir	None	-
3/29/2011	1	555	86	0:31	0:35	Survey	378858	5038470	Ponderosa pine	None	-
3/29/2011	1	563	86	1:03	1:07	Survey	378941	5038735	Ponderosa pine	None	-
3/29/2011	1	564	86	1:37	1:42	Survey	379170	5038739	Ponderosa pine, Douglas fir	None	-
3/29/2011	1	565	87	2:47	2:52	Survey	380072	5038722	Fir spp.	None	-
3/29/2011	1	569	86	1:27	1:31	Survey	379168	5038896	Ponderosa pine, Douglas fir	None	-
3/29/2011	1	575	87	21:15	21:20	Survey	380766	5039491	Ponderosa pine, Douglas fir	None	light rain
3/29/2011	1	576	87	21:04	21:10	Survey	380841	5039600	Ponderosa pine, fir spp.	None	light rain
3/26/2011	1	577	125	3:05	3:10	Survey	425106	5000861	Ponderosa pine	None	-
3/26/2011	1	578	125	2:55	3:00	Survey	424772	5000937	Ponderosa pine	None	-
3/26/2011	1	579	125	2:20	2:25	Survey	424536	5000976	Ponderosa pine	None	-
3/25/2011	1	587	121	11:18	11:22	Survey	417345	5005010	-	None	in parking lot
3/23/2011	1	600	103	19:43	19:47	Survey	?40093	5022885	Ponderosa pine	None	missing digit on UTM
3/23/2011	1	601	102	2:07	2:11	Survey	399795	5024650	Douglas fir	None	-
3/23/2011	1	602	102	1:52	1:56	Survey	399350	5024977	Ponderosa pine	None	located on railroad tracks
3/23/2011	1	603	102	1:43	1:48	Survey	399085	5025109	Ponderosa pine	None	located <20 m from pt 173 so used the same calling info. located on railroad tracks
3/23/2011	1	604	102	1:43	1:48	Survey	399085	5025109	Ponderosa pine	None	located <20 m from pt 172 so used the same calling info. located on railroad tracks
3/23/2011	1	605	102	1:35	1:38	Survey	398880	5025239	Ponderosa pine	None	located on railroad tracks
3/23/2011	1	606	102	1:26	1:30	Survey	398649	5025387	Ponderosa pine	None	located on railroad tracks
3/23/2011	1	609	101	2:30	2:35	Survey	398189	5025489	-	None	located on railroad tracks, highway audible
3/23/2011	1	610	101	2:47	2:50	Survey	398021	5025614	Douglas fir	None	highway audible
3/21/2011	1	611	102	20:18	20:28	Survey	398026	5024114	Ponderosa pine, Douglas fir	None	-

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				Start	End		Easting	Northing		Observation Type	
3/21/2011	1	612	102	20:4 2	20:4 7	Survey	398012	5023894	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	613	102	23:3 2	23:3 7	Survey	397700	5023263	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	614	102	23:2 2	23:2 7	Survey	397700	5023459	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	615	101	23:5 9	0:04	Survey	397643	5024567	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	616	102	23:1 5	23:2 0	Survey	397560	5023626	Ponderosa pine, Douglas fir	None	-
3/21/2011	1	617	101	23:5 5	0:00	Survey	397314	5023805	Ponderosa pine, Douglas fir	None	-
3/22/2011	1	618	101	21:2 8	21:3 3	Survey	397192	5026193	opening with Douglas fir	None	loud highway noise
3/22/2011	1	619	100	21:3 7	21:4 2	Survey	397090	5026288	Lodgepole pine, ponderosa pine	None	loud highway noise
3/22/2011	1	620	101	1:26	1:31	Survey	396037	5025396	Lodgepole pine, ponderosa pine	None	Stream audible
3/25/2011	1	621	95	2:28	2:33	Survey	391279	5031441	clearing	None	-
3/25/2011	1	622	95	3:56	4:00	Survey	391203	5031226	-	None	moderate train noise
3/25/2011	1	623	95	1:51	1:56	Survey	390425	5031400	Douglas fir, ponderosa pine	None	-
3/25/2011	1	624	95	2:04	2:09	Survey	390324	5031238	Western larch, fir spp.	None	-
3/29/2011	1	626	86	0:41	0:45	Survey	378726	5038771	Douglas fir, ponderosa pine	None	-
3/29/2011	1	627	86	0:48	0:52	Survey	378612	5038823	Ponderosa pine, Douglas fir	None	-
5/22/2011	2	1	125	0:55	1:00	Survey	424251	5000939	Ponderosa pine	None	Highway noise
5/17/2011	2	4	124	21:2 0	21:2 5	Survey	420848	5002054	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	5	123	23:2 7	23:3 5	Survey	420259	5002269	Ponderosa pine, Douglas fir	None	highway audible
5/17/2011	2	6	123	23:4 6	23:5 1	Survey	420077	5002311	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	7	123	21:4 5	21:5 0	Survey	420636	5002448	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	8	123	21:5 8	22:0 5	Survey	420495	5002453	Ponderosa pine, Douglas fir, grand fir	None	highway audible

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5/17/2011	2	9	123	23:15	23:20	Survey	420343	5002437	Ponderosa pine, grand fir	None	highway audible
5/17/2011	2	10	123	23:58	0:05	Survey	420025	5002467	Ponderosa pine, Douglas fir	None	-
5/18/2011	2	11	123	0:09	0:15	Survey	419977	5002641	Ponderosa pine, Douglas fir	None	-
5/18/2011	2	12	123	2:13	2:18	Survey	419766	5002625	Douglas fir	None	-
5/17/2011	2	13	123	22:10	22:15	Survey	420614	5002674	Ponderosa pine, Douglas fir	None	highway audible
5/17/2011	2	14	123	23:03	23:08	Survey	420424	5002681	Ponderosa pine, Douglas fir	None	highway audible
5/17/2011	2	15	123	2:00	2:05	Survey	419646	5002729	Douglas fir	None	highway audible, for health and safety- too steep and sheet of hardpack snow. Could not access point, so called from closest access.
5/18/2011	2	16	123	1:25	1:30	Survey	419578	5002781	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	17	123	22:49	22:55	Survey	420518	5002926	Ponderosa pine, Douglas fir	None	stream audible, moved point to compensate for stream noise
5/18/2011	2	18	123	2:35	2:40	Survey	419555	5002966	Douglas fir	None	-
5/18/2011	2	19	123	0:32	0:37	Survey	419787	5003016	Ponderosa pine, Douglas fir	None	-
5/18/2011	2	20	123	22:24	22:29	Survey	420689	5002897	Ponderosa pine, Douglas fir	None	stream audible. Point offset from original location because of stream noise.
5/18/2011	2	21	123	2:50	2:55	Survey	419388	5003094	Douglas fir	None	-
5/19/2011	2	22	122	1:39	1:45	Survey	418723	5003194	Ponderosa pine	None	Stream audible.
5/17/2011	2	23	123	22:35	22:40	Survey	420655	5003189	Ponderosa pine	None	highway and river audible. Point offset to compensate for stream noise.
5/18/2011	2	24	122	3:00	3:05	Survey	419232	5003215	-	None	-
5/18/2011	2	25	123	0:46	0:51	Survey	419928	5003260	Ponderosa pine, Douglas fir	None	highway audible
5/18/2011	2	26	122	3:10	3:15	Survey	419058	5003277	-	None	-
5/18/2011	2	27	123	0:59	1:05	Survey	420100	5003310	Ponderosa pine, Douglas fir	None	stream and highway audible. Moved point to minimize stream sound.
5/19/2011	2	28	122	2:30	2:35	Survey	418396	5003417	Douglas fir	None	-
5/19/2011	2	29	122	2:00	2:05	Survey	418555	5003372	Douglas fir	None	-

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5/19/2011	2	30	122	2:50	2:55	Survey	418681	5003530	Douglas fir	None	-
5/19/2011	2	31	122	2:10	2:15	Survey	418473	5003638	Douglas fir	None	-
5/19/2011	2	32	122	2:20	2:25	Survey	418357	5003699	Douglas fir	None	-
5/19/2011	2	33	122	3:00	3:05	Survey	418603	5003763	Douglas fir	None	-
5/18/2011	2	34	122	23:36	23:41	Survey	419744	5003744	Ponderosa pine, grand fir	None	-
5/19/2011	2	35	122	3:05	3:10	Survey	418477	5003945	Douglas fir	None	-
5/22/2011	2	36	123	0:05	0:10	Survey	421883	5003955	Douglas fir	None	Hwy noise
5/18/2011	2	37	122	23:52	23:57	Survey	419935	5003943	Grand fir, Douglas fir	None	highway audible
5/19/2011	2	38	122	0:59	1:05	Survey	419133	5003957	Ponderosa pine, grand fir	None	-
5/19/2011	2	39	122	0:15	0:20	Survey	419366	5004002	Ponderosa pine, rabbitbrush spp.	None	-
5/21/2011	2	40	123	23:55	12:00	Survey	421864	5004149	Douglas fir	None	Hwy noise
5/18/2011	2	41	122	23:10	23:15	Survey	419558	5004105	Ponderosa pine, Douglas fir, sagebrush	None	highway audible
5/19/2011	2	42	121	3:15	3:20	Survey	418262	5004107	Douglas fir	None	-
5/21/2011	2	43	123	22:25	22:30	Survey	421709	5004176	Douglas fir	None	Hwy noise
5/21/2011	2	44	123	22:40	22:45	Survey	421535	5004167	Douglas fir	None	Hwy noise
5/21/2011	2	45	123	22:15	22:20	Survey	421843	5004153	Douglas fir	None	Hwy noise
5/19/2011	2	46	122	0:32	0:37	Survey	419227	5004226	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	48	122	2:40	2:45	Survey	419056	5004349	Douglas fir	None	-
5/18/2011	2	49	122	22:56	23:02	Survey	419586	5004483	Ponderosa pine, Douglas fir	None	highway audible
5/17/2011	2	50	122	4:00	4:05	Survey	418854	5004699	Douglas fir	None	-
5/17/2011	2	51	121	4:30	4:35	Survey	418546	5004688	Douglas fir	None	-
5/17/2011	2	52	122	3:10	3:15	Survey	419147	5004748	Douglas fir	None	-
5/18/2011	2	53	122	22:44	22:50	Survey	419528	5004765	Douglas fir	None	highway audible
5/17/2011	2	54	121	1:30	1:35	Survey	418250	5004759	Douglas fir	None	-
5/17/2011	2	55	121	3:50	3:55	Survey	418817	5004833	Douglas fir	None	-
5/18/2011	2	56	122	22:31	22:38	Survey	419363	5004945	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	58	121	1:50	1:55	Survey	418071	5004967	Douglas fir	None	-

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5/18/2011	2	59	122	22:17	22:22	Survey	419607	5005115	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	60	121	3:40	3:45	Survey	418894	5005116	Douglas fir	None	-
5/17/2011	2	61	121	2:00	2:05	Survey	417984	5004991	Douglas fir	None	-
5/19/2011	2	62	121	4:05	4:10	Survey	417706	5005155	Douglas fir	None	-
5/17/2011	2	64	121	3:25	3:30	Survey	418999	5005268	Douglas fir	None	-
5/19/2011	2	66	121	4:10	4:15	Survey	417808	5005334	Douglas fir	None	-
5/18/2011	2	67	121	21:30	21:35	Survey	418623	5005379	Douglas fir	None	-
5/18/2011	2	69	121	21:00	21:05	Survey	418759	5005511	Ponderosa pine, Douglas fir	None	-
5/19/2011	2	70	121	4:16	4:20	Survey	417975	5005532	Douglas fir	None	-
5/18/2011	2	71	121	21:45	21:50	Survey	418478	5005473	Douglas fir	None	hillslope too steep to access point, so surveyed from closest access.
5/21/2011	2	78	121	3:25	3:30	Survey	418216	5005820	Douglas fir	None	stream audible
5/18/2011	2	79	121	21:10	21:15	Survey	418717	5005756	Douglas fir	None	hillslope too steep to access point, so surveyed from closest access.
5/21/2011	2	85	121	3:36	3:42	Survey	418352	5006053	Douglas fir	None	point too steep to access, so surved from closest safe location, strea, audible
5/21/2011	2	87	120	3:55	4:00	Survey	417803	5006095	Herbaceous groundcover	None	-
5/21/2011	2	88	120	3:45	3:50	Survey	418215	5006182	Douglas fir	None	stream audible
5/21/2011	2	143	116	21:50	21:55	Survey	413125	5010632	Douglas fir	None	Pt moved due to stream noise
5/21/2011	2	154	116	21:15	21:20	Survey	413604	5010897	Douglas fir	None	-
5/21/2011	2	162	116	20:54	21:00	Survey	413697	5011041	Douglas fir	None	-
5/21/2011	2	164	116	21:30	21:35	Survey	413443	5011061	Douglas fir	None	-
5/21/2011	2	224	4A	22:04	22:06	Survey	407032	5014294	Ponderosa pine	None	-
5/20/2011	2	226	4A	20:50	21:00	Survey	406866	5014515	Ponderosa pine	None	-
5/21/2011	2	230	3A	0:05	0:10	Survey	405875	5014785	Ponderosa pine	None	-
5/20/2011	2	233	3A	23:41	23:47	Survey	405614	5015390	Ponderosa pine	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/20/2011	2	235	2A	22:59	23:05	Survey	405986	5015359	Ponderosa pine	None	train audible
5/20/2011	2	253	109	2:10	2:15	Survey	118.184 7528W	45.30958 N	Douglas fir	None	stream audible
5/20/2011	2	254	109	1:45	1:50	Survey	406853	5018040	Douglas fir	None	-
5/20/2011	2	256	109	2:40	2:45	Survey	406735	5018297	Douglas Fir, ponderosa pine	None	point moved due to stream noise
5/19/2011	2	258	109	22:40	22:45	Survey	406239	5018281	Douglas fir	None	point moved due to stream noise
5/20/2011	2	263	109	2:20	2:25	Survey	407223	5018281	Douglas Fir, ponderosa pine	None	stream noise
5/19/2011	2	267	109	22:25	22:30	Survey	406116	5018508	Douglas fir	None	-
5/19/2011	2	275	108	22:05	22:10	Survey	405403	5049322	Douglas fir	None	-
5/19/2011	2	277	108	21:35	21:40	Survey	405022	5019458	Douglas fir	None	-
5/22/2011	2	278	107	2:35	2:40	Survey	403135	5019603	Ponderosa pine	None	Highway noise
5/22/2011	2	279	106	3:15	3:20	Survey	402421	5019648	Ponderosa pine	None	river audible
5/19/2011	2	280	108	21:45	21:50	Survey	405004	5019813	Douglas fir	None	point moved due to stream noise
5/22/2011	2	281	106	3:20	3:25	Survey	402594	5019866	Ponderosa pine	None	river audible
5/22/2011	2	282	107	2:20	2:25	Survey	403116	5019839	Ponderosa pine	None	Highway audible
5/22/2011	2	283	106	3:30	3:35	Survey	402761	5020100	Ponderosa pine	None	river audible
5/22/2011	2	284	106	2:05	2:05	Survey	402935	5020096	Douglas fir	None	Hwy noise, river audible
5/20/2011	2	285	107	4:05	4:10	Survey	404581	5020130	Ponderosa pine	None	-
5/20/2011	2	286	107	4:30	4:35	Survey	404225	5020250	Ponderosa pine	None	-
5/20/2011	2	287	107	4:45	4:50	Survey	404103	5020405	Ponderosa pine	None	-
5/23/2011	2	288	105	20:50	20:55	Survey	402291	5021048		None	
5/20/2011	2	289	106	3:30	3:35	Survey	404142	5021193	Douglas fir	None	-
5/20/2011	2	290	106	3:40	3:45	Survey	404020	5021294	Douglas fir	None	-
5/23/2011	2	291	105	21:00	21:05	Survey	402181	5021324		None	
5/23/2011	2	295	105	21:10	21:15	Survey	402169	5021833		None	
5/23/2011	2	296	105	21:20	21:25	Survey	401900	5021988		None	
5/23/2011	2	297	105	21:35	21:40	Survey	401833	5022150		None	

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/23/2011	2	298	104	22:00	22:05	Survey	401582	5022542		None	
5/23/2011	2	299	104	21:50	21:55	Survey	401863	5022557		None	
5/23/2011	2	300	104	22:10	22:15	Survey	401463	5022730		None	
5/23/2011	2	301	104	22:20	22:15	Survey	401253	5022783		None	
5/23/2011	2	302	104	22:30	22:35	Survey	401259	5023160		None	
5/22/2011	2	303	103	21:19	21:24	Survey	398961	5024106	Ponderosa pine	None	Highway, crickets and frogs very audible
5/22/2011	2	304	103	21:25	21:30	Survey	398867	5024279	Ponderosa pine	None	Highway audible
5/22/2011	2	305	102	21:58	22:05	Survey	397851	5024399	Ponderosa pine	None	Highway audible
5/22/2011	2	307	102	21:35	21:40	Survey	398740	5024487	Ponderosa pine	None	Highway audible
5/22/2011	2	308	102	22:55	23:00	Survey	398053	5024869	Ponderosa pine	None	Highway audible
5/22/2011	2	309	102	22:11	22:17	Survey	397154	5024895	Ponderosa pine	None	Highway and crickets audible
5/22/2011	2	312	101	22:25	22:30	Survey	397000	5025112	Ponderosa pine	None	Highway audible
5/22/2011	2	313	102	22:44	22:49	Survey	397611	5025118	Ponderosa pine	None	Highway audible, campers next to calling station
5/22/2011	2	314	101	22:34	22:39	Survey	396770	5025127	Ponderosa pine	None	Highway and train audible
5/23/2011	2	329	101	1:15	1:22	Survey	397076	5025630	Douglas Fir, ponderosa pine	None	-
5/23/2011	2	331	101	0:10	0:15	Survey	397158	5025714	Douglas fir	None	-
5/23/2011	2	333	101	1:47	1:55	Survey	396689	5025761	Ponderosa pine, Douglas fir	None	-
5/24/2011	2	334	101	0:13	0:20	Survey	396193	5025794		None	
5/23/2011	2	335	101	1:59	2:06	Survey	396481	5025850	Ponderosa pine	None	-
5/24/2011	2	337	100	0:45	0:50	Survey	396028	5025969		None	
5/23/2011	2	338	101	0:22	0:27	Survey	397350	5025891	Ponderosa pine	None	moved point to west to get away from highway noise
5/23/2011	2	339	101	1:27	1:34	Survey	396792	5025951	Ponderosa pine, Douglas fir	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/23/2011	2	341	101	2:40	2:48	Survey	396268	5026006	Ponderosa pine, Douglas fir	None	-
5/24/2011	2	343	100	0:55	1:00	Survey	395914	5026124		None	
5/24/2011	2	345	100	0:34	0:39	Survey	396115	5026192		None	
5/23/2011	2	347	101	2:17	2:24	Survey	396621	5026204	Fir spp.	None	-
5/24/2011	2	348	100	1:05	1:10	Survey	395773	5026224		None	
5/23/2011	2	356	100	21:10	21:18	Survey	395195	5026567	Douglas fir, fir spp.	None	moved point due to stream noise
5/24/2011	2	357	100	1:35	1:40	Survey	396122	5026607		None	
5/24/2011	2	359	100	1:45	1:50	Survey	396013	5026645		None	
5/23/2011	2	361	100	2:58	3:05	Survey	395563	5026913	Ponderosa pine	None	-
5/24/2011	2	368	99	0:16	0:23	Survey	395048	5027190	Lodgepole pine, Douglas fir	None	-
5/23/2011	2	369	100	3:10	3:17	Survey	395415	5027230	Ponderosa pine, Douglas fir	None	-
5/23/2011	2	371	99	3:37	3:45	Survey	395254	5027350	Ponderosa pine, Douglas fir	None	-
5/24/2011	2	373	99	0:02	0:09	Survey	394945	5027529	Ponderosa pine, lodgepole pine	None	-
5/23/2011	2	375	100	1:25	1:30	Survey	395800	5027544	Douglas fir	None	-
5/23/2011	2	376	99	3:51	3:58	Survey	395320	5027508	Douglas Fir, ponderosa pine	None	-
5/23/2011	2	377	99	2:10	2:15	Survey	395530	5027549	Douglas fir	None	-
5/23/2011	2	381	99	4:02	4:09	Survey	395255	5027673	Douglas Fir, ponderosa pine	None	-
5/23/2011	2	382	99	23:52	23:59	Survey	394838	5027746	Lodgepole pine, ponderosa pine	None	-
5/23/2011	2	383	99	2:00	2:05	Survey	395515	5027738	Douglas fir	None	-
5/23/2011	2	384	99	1:40	1:45	Survey	395800	5027544	Lodgepole pine	None	-
5/23/2011	2	386	99	4:14	4:22	Survey	395252	5027786	Ponderosa pine	None	-
5/23/2011	2	387	99	4:26	4:34	Survey	395107	5027924	Ponderosa pine, Douglas fir	None	-
5/23/2011	2	388	99	23:41	23:49	Survey	394686	5027974	Ponderosa pine, lodgepole pine	None	-
5/23/2011	2	389	99	2:30	2:35	Survey	395471	5028086	Douglas fir	None	-
5/24/2011	2	390	99	2:40	2:45	Survey	395204	5028021		None	
5/22/2011	2	391	99	23:30	23:35	Survey	34669	502877	Douglas fir	None	-
5/23/2011	2	392	99	23:23	23:39	Survey	394587	5028130	Douglas fir, fir spp., lodgepole pine	None	-
5/24/2011	2	393	99	2:58	3:05	Survey	395044	5028195		None	

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/23/2011	2	394	99	2:40	2:25	Survey	395373	5028215	Douglas fir	None	-
5/23/2011	2	395	99	23:12	23:19	Survey	394415	5028283	Lodgepole pine, fir spp., Douglas fir	None	-
5/24/2011	2	396	99	3:16	3:21	Survey	394777	5028321		None	
5/23/2011	2	397	99	2:50	2:55	Survey	395196	5028917	Douglas fir	None	-
5/24/2011	2	398	99	3:25	3:30	Survey	394625	5028459		None	
5/23/2011	2	399	98	23:01	23:09	Survey	394251	5028523	Lodgepole pine, Douglas fir	None	-
5/22/2011	2	400	98	23:45	23:50	Survey	394288	5028579	Douglas fir	None	-
5/23/2011	2	401	99	3:25	3:30	Survey	395093	5028693	Douglas fir	None	-
5/23/2011	2	402	98	22:52	22:59	Survey	394130	5028814	Lodgepole pine	None	-
5/22/2011	2	403	98	23:50	23:55	Survey	394188	5028808	Douglas fir	None	-
5/23/2011	2	405	98	22:43	22:49	Survey	394064	5028964	Lodgepole pine	None	-
5/23/2011	2	406	98	3:50	3:55	Survey	394774	5029051	Douglas fir	None	-
5/24/2011	2	407	98	4:10	4:15	Survey	394287	5028977		None	
5/24/2011	2	409	98	4:30	4:35	Survey	394526	5029177		None	
5/24/2011	2	410	98	4:29	4:38	Survey	394330	5029214	Ponderosa pine	None	-
5/24/2011	2	411	98	4:14	4:20	Survey	394128	5029214	Ponderosa pine	None	-
5/24/2011	2	412	98	3:36	3:45	Survey	393917	5029281	Ponderosa pine, lodgepole pine	None	-
5/22/2011	2	412	98	23:55	0:00	Survey	393901	5029253	Douglas fir	None	-
5/23/2011	2	413	98	22:30	22:37	Survey	393659	5029365	Lodgepole pine	None	-
5/24/2011	2	414	98	4:00	4:08	Survey	394072	5029392	Ponderosa pine, Douglas fir	None	-
5/24/2011	2	415	98	1:45	1:52	Survey	394666	5029375	Lodgepole pine, ponderosa pine, western larch	None	moderate highway noise
5/24/2011	2	416	98	3:20	3:28	Survey	393815	5029464	Ponderosa pine, Douglas fir	None	-
5/22/2011	2	417	98	4:22	4:29	Survey	393471	5029559	Lodgepole pine	None	-
5/24/2011	2	418	98	1:35	1:42	Survey	394527	5029471	Lodgepole pine, western larch	None	moderate highway noise
5/22/2011	2	419	98	4:34	4:41	Survey	393663	5029446	Lodgepole pine	None	-
5/22/2011	2	420	98	3:37	3:44	Survey	393541	5029621	Lodgepole pine	None	-

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				Start	End		Easting	Northing		Observation Type	
5/22/2011	2	421	97	3:17	3:33	Survey	393321	5029656	Lodgepole pine, ponderosa pine	None	-
5/22/2011	2	422	98	3:48	3:55	Survey	393578	5029812	Douglas fir, lodgepole pine	None	-
5/22/2011	2	423	97	3:06	3:14	Survey	392888	5029741	Lodgepole pine, ponderosa pine	None	-
5/22/2011	2	424	97	4:03	4:11	Survey	393408	5029848	Fir spp., western larch	None	-
5/24/2011	2	425	98	1:02	1:09	Survey	394274	5029898	Western larch, lodgepole pine, fir spp.	None	moderate highway noise
5/24/2011	2	426	98	1:12	1:19	Survey	394288	5030226	Ponderosa pine, lodgepole pine, Douglas fir	None	moderate highway noise
5/24/2011	2	427	98	1:22	1:29	Survey	394245	5030416	Fir spp., Douglas fir, ponderosa pine, lodgepole pine	None	moderate highway noise
5/22/2011	2	428	97	2:55	3:02	Survey	392456	5030337	Lodgepole pine, western larch	None	-
5/22/2011	2	429	97	23:58	0:05	Survey	393584	5030460	Western larch, fir spp., ponderosa pine	None	-
5/22/2011	2	430	97	23:33	23:40	Survey	393335	5030790	Western larch	None	-
5/22/2011	2	431	97	22:10	22:17	Survey	392396	5030852	Western larch, fir spp.	None	-
5/22/2011	2	432	97	23:08	23:16	Survey	393134	5030855	Western larch	None	-
5/22/2011	2	433	97	22:31	22:38	Survey	392592	5030868	Fir spp., western larch	None	-
5/22/2011	2	434	97	23:20	23:28	Survey	393196	5030960	Ponderosa pine, Douglas fir	None	-
5/22/2011	2	435	96	1:29	1:36	Survey	391865	5031033	Fir spp., western larch	None	-
5/22/2011	2	436	97	21:53	22:00	Survey	392504	5031084	Fir spp.	None	-
5/22/2011	2	437	96	1:08	1:15	Survey	391577	5031174	Lodgepole pine, fir spp., western larch	None	-
5/22/2011	2	438	96	1:18	1:26	Survey	391732	5031179	Lodgepole pine	None	-
5/22/2011	2	439	96	21:39	21:46	Survey	392304	5031221	Lodgepole pine, ponderosa pine, western larch	None	-

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5/22/2011	2	440	96	0:56	1:04	Survey	391465	5031327	Lodgepole pine	None	-
5/21/2011	2	441	95	22:46	22:53	Survey	389960	5031353	Lodgepole pine, spruce spp.	None	-
5/22/2011	2	442	96	21:24	21:31	Survey	392164	5031414	Lodgepole pine, western larch	None	-
5/21/2011	2	443	95	23:29	23:36	Survey	390706	5031451	Fir spp., Douglas fir, western larch	None	-
5/22/2011	2	444	96	0:37	0:44	Survey	391312	5031429	Lodgepole pine	None	-
5/21/2011	2	445	95	22:33	22:41	Survey	389869	5031513	Lodgepole pine	None	-
5/22/2011	2	446	96	1:42	1:49	Survey	391537	5031523	Fir spp., lodgepole pine	None	-
5/22/2011	2	447	96	20:22	20:28	Survey	391816	5031512	Ponderosa pine, Douglas fir, lodgepole pine	None	-
5/21/2011	2	448	95	23:43	23:52	Survey	390509	5031592	Lodgepole pine	None	-
5/21/2011	2	449	95	22:57	23:04	Survey	389896	5031777	Lodgepole pine	None	point moved due to large wetland
5/21/2011	2	450	95	23:13	23:24	Survey	390748	5031572	-	None	-
5/22/2011	2	451	96	0:22	0:29	Survey	391262	5031624	Spruce spp., fir spp.	None	-
5/21/2011	2	452	95	22:18	22:24	Survey	389752	5031722	Lodgepole pine	None	-
5/22/2011	2	453	96	20:44	20:52	Survey	391827	5031763	Lodgepole pine, western larch, ponderosa pine	None	-
5/22/2011	2	454	95	0:07	0:14	Survey	391087	5031805	Fir spp., Douglas fir	None	-
5/21/2011	2	455	95	22:05	22:13	Survey	389737	5031834	Lodgepole pine	None	-
5/21/2011	2	456	95	21:52	22:02	Survey	389579	5031877	Lodgepole pine, fir spp.	None	-
5/22/2011	2	457	96	20:57	21:03	Survey	391653	5031968	Fir spp., Douglas fir, western larch	None	-
5/22/2011	2	458	95	2:29	2:44	Survey	391220	5032084	Douglas fir	None	-
5/21/2011	2	459	95	21:25	21:32	Survey	389654	5032110	Lodgepole pine, spruce spp.	None	-
5/21/2011	2	461	94	20:55	21:04	Survey	389008	5032337	-	None	-

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				Start	End		Easting	Northing		Observation Type	
5/21/2011	2	462	94	4:30	4:38	Survey	388939	5032569	Fir spp., western larch	None	-
5/21/2011	2	463	94	4:17	4:25	Survey	388530	5032768	Lodgepole pine, fir spp.	None	-
5/21/2011	2	464	94	20:43	20:50	Survey	389080	5032751	Western larch, fir spp.	None	-
5/21/2011	2	465	94	4:06	4:14	Survey	388599	5032945	Lodgepole pine, fir spp.	None	-
5/21/2011	2	466	94	3:56	4:03	Survey	388503	5033093	Fir spp., lodgepole pine	None	-
5/21/2011	2	467	93	3:46	3:53	Survey	388361	5033304	Fir spp., Douglas fir	None	-
5/21/2011	2	468	93	1:04	1:15	Survey	388194	5033526	Fir spp.	None	-
5/20/2011	2	469	93	4:32	4:40	Survey	388127	5033606	Douglas fir, lodgepole pine, western larch	None	-
5/20/2011	2	470	93	4:23	4:30	Survey	387955	5033817	Lodgepole pine, fir spp., spruce spp., Douglas fir	None	-
5/21/2011	2	471	93	1:22	1:30	Survey	388243	5034074	Ponderosa pine, Spruce spp.	None	-
5/20/2011	2	472	93	4:10	4:19	Survey	387707	5034182	Spruce spp., lodgepole pine, fir spp.	None	-
5/21/2011	2	473	93	1:33	1:40	Survey	388217	5034246	Douglas fir, fir spp.	None	-
5/21/2011	2	474	93	1:43	1:52	Survey	388233	5034443	Fir spp., western larch, lodgepole pine	None	-
5/21/2011	2	475	93	1:58	2:06	Survey	388168	5034573	Douglas fir, fir spp., western larch	None	-
5/21/2011	2	476	92	0:13	0:21	Survey	387896	5034604	Ponderosa pine, lodgepole pine, Douglas fir, fir spp.	None	-
5/21/2011	2	477	92	2:16	2:24	Survey	388109	5034721	Lodgepole pine, fir spp., Douglas fir	None	-
5/20/2011	2	478	92	23:55	0:02	Survey	387633	5034761	Fir spp.	None	-
5/21/2011	2	479	92	0:30	0:37	Survey	387866	5034783	Lodgepole pine, western larch	None	-
5/20/2011	2	480	92	3:52	4:03	Survey	386929	5034917	Ponderosa pine, lodgepole pine, spruce spp., fir spp.	None	-

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				Start	End		Easting	Northing		Observation Type	
5/20/2011	2	481	92	23:35	23:47	Survey	387344	5034850	Douglas fir, fir spp., western larch	None	-
5/20/2011	2	482	92	23:18	23:26	Survey	387737	5035042	Lodgepole pine, ponderosa pine, Douglas fir	None	-
5/21/2011	2	483	92	2:29	2:38	Survey	388224	5035114	Lodgepole pine, fir spp., Douglas fir	None	-
5/20/2011	2	484	92	22:44	22:51	Survey	387621	5035352	Western larch, lodgepole pine, fir spp.	None	-
5/20/2011	2	485	92	23:02	23:09	Survey	387518	5035469	Douglas fir, western larch	None	-
5/20/2011	2	487	92	22:00	22:00	Survey	387599	5035814	Douglas fir, fir spp., spruce spp., western larch	None	-
5/20/2011	2	488	91	3:25	3:33	Survey	386910	5035881	Spruce spp., fir spp., lodgepole pine	None	-
5/20/2011	2	489	92	21:43	21:50	Survey	387496	5036056	Douglas fir, lodgepole pine, fir spp.	None	point moved due to stream noise
5/20/2011	2	490	91	3:09	3:20	Survey	386987	5035990	Spruce spp., lodgepole pine, western larch	None	-
5/20/2011	2	491	91	2:58	3:06	Survey	387136	5036187	Ponderosa pine, lodgepole pine	None	-
5/20/2011	2	492	91	21:19	21:26	Survey	387503	5036186	Fir spp., lodgepole pine, ponderosa pine	None	point moved due to stream noise
5/20/2011	2	493	91	2:47	2:54	Survey	387233	5036356	Lodgepole pine, spruce spp., fir spp.	None	-
5/20/2011	2	494	91	20:58	21:05	Survey	387554	5036431	Lodgepole pine, Douglas fir, western larch	None	-
5/20/2011	2	495	91	2:36	2:44	Survey	387358	5036539	Fir spp., lodgepole pine	None	-
5/19/2011	2	496	91	3:16	3:23	Survey	385974	5036563	Douglas fir, western larch	None	-
5/19/2011	2	497	91	3:57	4:05	Survey	386736	5036603	Ponderosa pine, western larch	None	-
5/19/2011	2	499	91	3:05	3:13	Survey	386031	5036730	Ponderosa pine, Douglas fir	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/19/2011	2	500	91	2:50	2:58	Survey	386214	5036794	Ponderosa pine, fir spp., Douglas fir	None	-
5/19/2011	2	501	91	3:42	3:50	Survey	386589	5036810	Western larch	None	-
5/20/2011	2	503	91	20:44	20:50	Survey	387765	5036817	Lodgepole pine, fir spp., western larch	None	-
5/20/2011	2	504	91	2:09	2:17	Survey	387513	5036826	Fir spp., lodgepole pine, Spruce spp.	None	point moved due to stream noise
5/18/2011	2	505	90	23:57	0:04	Survey	385287	5037001	Lodgepole pine, fir spp., spruce spp.	None	-
5/19/2011	2	506	90	1:08	1:15	Survey	385803	5037012	Lodgepole pine	None	-
5/20/2011	2	508	91	1:55	2:02	Survey	387622	5037015	Fir spp., Spruce spp.	None	-
5/18/2011	2	509	90	23:29	23:37	Survey	384984	5037099	Spruce spp., fir spp.	None	-
5/19/2011	2	510	90	2:32	2:39	Survey	386249	5037153	Douglas Fir, ponderosa pine	None	-
3/28/2011	2	511	90	0:50	0:55	Survey	385832	5037224	Douglas fir	None	-
5/18/2011	2	512	90	23:43	23:51	Survey	385193	5037177	Lodgepole pine, fir spp., spruce spp.	None	-
5/20/2011	2	513	91	1:41	1:50	Survey	387742	5037270	Spruce spp., lodgepole pine, Douglas fir	None	point moved due to stream noise
5/18/2011	2	514	90	23:11	23:18	Survey	385037	5037267	Fir spp.	None	-
5/19/2011	2	515	90	2:19	2:26	Survey	386371	5037252	Lodgepole pine, spruce spp., fir spp.	None	-
5/18/2011	2	517	90	22:53	23:01	Survey	384862	5037352	Lodgepole pine, fir spp.	None	-
5/19/2011	2	518	90	1:54	2:02	Survey	385971	5037408	Fir spp.	None	-
5/18/2011	2	519	90	22:36	22:44	Survey	384605	5037349	Ponderosa pine, Douglas fir	None	-
5/19/2011	2	520	90	2:07	2:14	Survey	386170	5037360	Ponderosa pine	None	-
5/19/2011	2	521	90	0:39	0:47	Survey	385805	5037422	Fir spp., lodgepole pine, Douglas fir, western larch	None	-
5/19/2011	2	522	91	21:33	21:44	Survey	387812	5037364	Lodgepole pine, fir spp.	None	-
5/18/2011	2	523	90	22:26	22:33	Survey	384665	5037496	Ponderosa pine, fir spp.	None	-

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				Start	End		Easting	Northing		Observation Type	
5/19/2011	2	525	90	1:38	1:45	Survey	386035	5037492	Ponderosa pine, Douglas fir	None	-
5/18/2011	2	526	90	4:04	4:12	Survey	384456	5037603	Ponderosa pine, fir spp.	None	-
5/19/2011	2	527	90	0:25	0:33	Survey	385814	5037576	Fir spp., lodgepole pine	None	-
5/18/2011	2	528	89	3:39	3:46	Survey	384066	5037732	Ponderosa pine, fir spp.	None	-
5/18/2011	2	529	89	3:27	3:34	Survey	383846	5037837	Ponderosa pine	None	-
5/19/2011	2	531	90	4:33	4:47	Survey	386148	5037779	Douglas fir, lodgepole pine, western larch, fir spp.	None	-
5/18/2011	2	532	89	2:31	2:40	Survey	383591	5037836	Ponderosa pine	None	-
5/18/2011	2	533	89	3:51	3:59	Survey	384357	5037818	Ponderosa pine, fir spp.	None	-
5/18/2011	2	534	90	4:21	4:29	Survey	384793	5037809	Ponderosa pine	None	-
5/19/2011	2	535	90	4:20	4:28	Survey	385962	5037906	Spruce spp., fir spp., lodgepole pine	None	-
5/18/2011	2	537	88	1:32	1:40	Survey	382874	5038056	Fir spp., Douglas fir, ponderosa pine	None	-
5/18/2011	2	538	89	2:43	2:50	Survey	383789	5038062	Ponderosa pine, Douglas fir, fir spp., western larch	None	-
5/18/2011	2	539	89	2:17	2:25	Survey	383458	5038122	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	540	86	2:10	2:18	Survey	379270	5038223	Ponderosa pine	None	-
5/17/2011	2	541	87	22:24	22:31	Survey	380838	5038393	Ponderosa pine, Douglas fir	None	-
5/16/2011	2	542	86	23:49	23:57	Survey	378671	5038229	Ponderosa pine	None	-
5/18/2011	2	544	89	3:12	3:19	Survey	383733	5038225	Ponderosa pine, western larch	None	-
5/18/2011	2	547	89	1:53	2:01	Survey	383240	5038333	Douglas fir, fir spp., ponderosa pine	None	-
5/18/2011	2	548	89	2:57	3:04	Survey	383902	5038268	Ponderosa pine	None	-
5/18/2011	2	549	89	2:05	2:13	Survey	383364	5038323	Ponderosa pine, fir spp., western larch	None	-
5/18/2011	2	550	88	1:07	1:16	Survey	382990	5038395	Ponderosa pine, fir spp.	None	-

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				Start	End		Easting	Northing		Observation Type	
5/17/2011	2	551	87	22:10	22:18	Survey	380718	5038464	Ponderosa pine	None	-
5/17/2011	2	555	86	0:09	0:15	Survey	378879	5038506	Ponderosa pine	None	-
5/18/2011	2	556	88	0:55	1:03	Survey	383099	5038491	Ponderosa pine, fir spp., western larch	None	-
5/18/2011	2	558	89	21:42	21:51	Survey	384076	5038489	Douglas fir	None	-
5/18/2011	2	561	88	0:42	0:50	Survey	383101	5038673	Ponderosa pine, western larch	None	-
5/17/2011	2	563	86	0:26	0:34	Survey	378941	5038727	Ponderosa pine	None	-
5/17/2011	2	565	87	2:57	3:06	Survey	380067	5038744	Fir spp., Douglas fir, ponderosa pine	None	-
5/17/2011	2	568	87	21:45	21:52	Survey	380717	5038755	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	569	86	0:41	0:50	Survey	379178	5038898	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	570	86	2:43	2:51	Survey	379872	5038867	Western larch, ponderosa pine	None	moved point slightly due to small lake
5/17/2011	2	571	87	21:30	21:37	Survey	380623	5038915	Ponderosa pine	None	-
5/17/2011	2	572	87	21:18	21:25	Survey	380531	5039050	Ponderosa pine	None	-
5/17/2011	2	573	87	21:05	21:12	Survey	380550	5039187	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	574	87	23:03	23:11	Survey	380602	5039373	Douglas Fir, ponderosa pine	None	-
5/17/2011	2	575	87	23:16	23:24	Survey	380713	5039520	Ponderosa pine, Douglas fir	None	-
5/17/2011	2	576	87	23:30	23:39	Survey	380809	5039683	Douglas Fir, ponderosa pine, western larch	None	-
6/24/2011	3	1	125	3:58	4:03	Survey	424244	5000925	Ponderosa pine, herbaceous understory	None	Loud Highway Noise
6/21/2011	3	3	124	21:12	21:17	Survey	420699	5001882	Douglas fir, herbaceous understory	None	Highway noise faint
6/21/2011	3	4	124	21:27	21:32	Survey	420852	5002064	Douglas fir, ponderosa pine, herbaceous understory	None	Highway noise faint, Common Poorwill calls 200m to NE

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				Start	End		Easting	Northing		Observation Type	
6/21/2011	3	5	123	23:32	23:37	Survey	450262	5002224	Ponderosa pine, Douglas fir	None	Highway audible
6/21/2011	3	6	123	23:46	23:51	Survey	420035	5002274	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/21/2011	3	7	123	21:47	21:52	Survey	420657	5002443	Douglas fir, ponderosa pine, herbaceous understory	None	Highway audible
6/21/2011	3	8	123	21:56	22:01	Survey	420484	5002458	Douglas fir, ponderosa pine, herbaceous understory, grand fir	None	Highway audible
6/21/2011	3	9	123	23:19	23:24	Survey	420333	5002446	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/21/2011	3	10	123	23:56	0:01	Survey	420032	5002492	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/22/2011	3	11	123	1:11	1:16	Survey	419967	5002633	Douglas fir, ponderosa pine, herbaceous understory	None	Highway audible
6/22/2011	3	12	123	1:02	1:07	Survey	419800	5002644	Douglas fir, ponderosa pine, herbaceous understory	None	Highway audible
6/21/2011	3	13	123	22:10	22:15	Survey	420614	5002682	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway noise, coyotes calling, Common Nighthawk call from 80 degrees at 200 m
6/21/2011	3	14	123	23:07	23:12	Survey	420416	5002688	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/22/2011	3	15	123	1:41	1:46	Survey	419796	5002780	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/22/2011	3	16	123	1:27	1:32	Survey	419602	5002779	Douglas fir, ponderosa pine, herbaceous understory	None	Highway audible
6/21/2011	3	17	123	22:55	23:00	Survey	420551	5002830	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/22/2011	3	18	123	2:10	2:15	Survey	419562	5002952	Douglas fir, herbaceous understory, shrubs	None	Highway noise, common nighthawk calls from 280 degrees at 150 m
6/22/2011	3	19	123	0:35	0:40	Survey	419789	5002980	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/21/2011	3	20	123	22:25	0:00	Survey	420678	5002962	Ponderosa pine, Douglas fir, herbaceous understory, riparian species	None	Highway and stream audible
6/22/2011	3	21	123	2:21	2:26	Survey	419391	5003062	Douglas fir, ponderosa pine, herbaceous understory	None	Highway noise, common nighthawk calls from 300 degrees at 180 m
6/22/2011	3	22	122	3:12	3:17	Survey	418718	5003204	Ponderosa pine, Douglas fir, herbaceous understory	None	Stream noise, common nighthawk calls from 60 degrees at 150 m
6/21/2011	3	23	123	22:40	22:45	Survey	420716	5003200	Ponderosa pine, Douglas fir, herbaceous understory, riparian species	None	Highway and stream audible
6/22/2011	3	24	122	2:41	2:46	Survey	419212	5003252	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway noise, common nighthawk calls from 120 degrees at 200m

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/22/2011	3	25	123	21:09	-	Survey	419903	5003258	Sagebrush steppe	None	-
6/22/2011	3	26	122	2:53	2:58	Survey	419041	5003292	Douglas fir, ponderosa pine, herbaceous understory	None	Highway noise faint
6/22/2011	3	28	122	3:57	4:02	Survey	418335	5003350	Douglas fir, herbaceous understory, shrubs	None	Light stream noise
6/22/2011	3	29	122	3:25	3:30	Survey	418550	5003390	Ponderosa pine, Douglas fir, herbaceous understory	None	Light stream noise, common nighthawk calls from 90 degrees at 190 m
6/24/2011	3	30	122	2:06	2:11	Survey	418690	5003486	Douglas fir, ponderosa pine, riparian species	None	Stream noise loud
6/22/2011	3	31	122	3:34	3:39	Survey	418486	5003606	Douglas fir, ponderosa pine, herbaceous understory	None	Stream noise
6/22/2011	3	32	122	3:42	3:47	Survey	418303	5003644	Douglas fir, herbaceous understory	None	Light traffic noise, common poorwill calls from 360 degrees at 200m
6/24/2011	3	33	122	1:59	2:04	Survey	418626	5003701	Douglas fir, ponderosa pine, riparian species	None	Stream noise loud
6/22/2011	3	34	122	21:46	-	Survey	419733	5003761	Douglas fir	None	-
6/24/2011	3	35	122	1:52	1:57	Survey	418496	5003922	Douglas fir, riparian species, herbaceous understory	None	Stream noise loud
6/25/2011	3	36	123	22:27	22:32	Survey	421887	5003942	Ponderosa pine, Douglas fir	None	Highway audible
6/22/2011	3	37	122	21:30	-	Survey	419932	5003933	Ponderosa pine, Douglas fir	None	Red tail hawk heard
6/23/2011	3	38	122	3:06	-	Survey	419137	5003993	Ponderosa pine, Douglas fir, shrub understory	None	-
6/22/2011	3	39	122	22:09	-	Survey	419337	5003961	Ponderosa pine, Douglas fir	None	-

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				Start	End		Easting	Northing		Observation Type	
6/25/2011	3	40	123	22:35	22:40	Survey	421710	5003965	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/22/2011	3	41	122	22:22	-	Survey	419568	5004088	Douglas fir	None	Highway audible
6/24/2011	3	42	121	1:45	1:50	Survey	418254	5004091	Douglas fir, ponderosa pine, riparian species	None	Stream noise loud
6/25/2011	3	43	123	22:54	22:59	Survey	421717	5004132	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/25/2011	3	44	123	22:44	22:49	Survey	421501	5004136	Ponderosa pine, Douglas fir, herbaceous understory, western larch	None	Highway audible
6/25/2011	3	45	123	23:02	23:07	Survey	421863	5004142	Ponderosa pine, Douglas fir, herbaceous understory	None	Highway audible
6/23/2011	3	46	122	2:36	-	Survey	419221	5004210	Ponderosa pine	None	-
6/23/2011	3	47	122	3:23	-	Survey	418841	5004307	Ponderosa pine, Douglas fir, grasses, forbs	None	-
6/23/2011	3	48	122	2:44	-	Survey	419033	5004358	Ponderosa pine, Douglas fir	None	-
6/22/2011	3	49	122	22:43	-	Survey	419592	5004476	Sagebrush steppe	None	Highway audible, herd of cows in vicinity
6/23/2011	3	50	122	2:19	-	Survey	418910	5004601	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	-
6/22/2011	3	52	122	23:08	-	Survey	419167	5004711	Ponderosa pine, sagebrush steppe	None	-
6/22/2011	3	53	122	22:57	-	Survey	419526	5004750	Douglas fir, sagebrush steppe	None	Highway audible, herd of cows in vicinity
6/23/2011	3	54	121	3:40	-	Survey	418237	5004776	Douglas fir, shrubs, grasses, forbs	None	-
6/23/2011	3	55	121	4:17	-	Survey	418710	5004815	Douglas fir, shrubs, grasses, forbs	None	-

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				Start	End		Easting	Northing		Observation Type	
6/22/2011	3	56	122	23:21	-	Survey	419373	5004931	Ponderosa pine, sagebrush steppe	None	-
6/23/2011	3	57	121	4:06	-	Survey	418463	5004955	Ponderosa pine, Douglas fir, grasses, forbs	None	-
6/23/2011	3	58	121	3:48	-	Survey	418208	5005001	Douglas fir, grasses	None	-
6/22/2011	3	59	122	23:39	-	Survey	419609	5005056	Ponderosa pine, Douglas fir, shrub understory	None	Highway audible
6/23/2011	3	60	121	0:20	-	Survey	418869	5005029	Ponderosa pine	None	-
6/23/2011	3	61	121	3:55	-	Survey	418016	5005087	Ponderosa pine, Douglas fir, grasses, forbs	None	-
6/21/2011	3	62	121	4:13	4:18	Survey	417675	5005136	Ponderosa pine, riparian species	None	Stream audible
6/21/2011	3	63	121	4:25	4:30	Survey	417405	5005038	Douglas fir	None	Streams audible, moved point due to stream noise and overgrown vegetation.
6/23/2011	3	64	121	0:04	-	Survey	418989	5005294	Ponderosa pine	None	-
6/21/2011	3	66	121	4:07	4:12	Survey	417824	5005362	Ponderosa pine	None	Stream audible
6/23/2011	3	67	121	1:35	-	Survey	418602	5005372	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	-
6/23/2011	3	69	121	0:50	-	Survey	418799	5005489	Ponderosa pine, herbaceous understory	None	-
6/21/2011	3	70	121	4:00	4:05	Survey	417953	5005499	Ponderosa pine	None	Stream audible
6/23/2011	3	71	121	1:47	-	Survey	418487	5005464	Ponderosa pine, grasses, forbs	None	Point moved due to steep slope
6/23/2011	3	72	121	1:39	-	Survey	418432	5005489	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	Moved point due to steep slope
6/21/2011	3	77	121	3:55	4:00	Survey	418318	5005821	Douglas fir	None	Stream audible, moved point due to in accessible slope
6/23/2011	3	79	121	1:07	-	Survey	418786	5005782	Ponderosa pine, Douglas fir, herbaceous understory	None	Moved point due to steep slope

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				Start	End		Eastings	Northing		Observation Type	
6/21/2011	3	80	121	3:47	3:52	Survey	418450	5005952	Douglas fir	None	Stream audible, moved point due to in accessible slope
6/24/2011	3	85	121	2:44	2:49	Survey	418359	5006032	Douglas fir, herbaceous understory	None	Stream noise
6/24/2011	3	87	120	3:03	3:08	Survey	417809	5006102	Herbaceous understory	None	Wind noise
6/24/2011	3	88	120	2:54	2:59	Survey	418201	5006178	Douglas fir, ponderosa pine, herbaceous understory	None	Stream noise, common nighthawk from 350 derees at 200m
6/25/2011	3	137	116	20:27	20:32	Survey	412991	5010374	Douglas fir, ponderosa pine, western larch, herbaceous understory	None	Stream audible
6/25/2011	3	143	116	20:38	20:43	Survey	413152	5010545	Spruce spp., grand fir, western larch, Herbaceous, Douglas Fir, Riparian	None	Stream noise loud
6/25/2011	3	164	116	21:00	21:05	Survey	413442	5011048	Ponderosa pine, Douglas fir, herbaceous understory, grand fir	None	-
6/25/2011	3	224	4A	2:00	-	Survey	407034	5014289	Ponderosa pine, grasses, forbs	None	-
6/25/2011	3	226	4A	2:15	-	Survey	406849	5014509	Ponderosa pine, grasses	None	-
6/25/2011	3	230	3A	0:25	-	Survey	405871	5014793	Ponderosa pine, grasses	None	Herd of cows in vicinity
6/25/2011	3	233	3A	0:03	-	Survey	405614	5015405	Ponderosa pine, grasses	None	Herd of cows mooing.
6/25/2011	3	235	2A	1:26	-	Survey	405985	5016357	Ponderosa pine, grasses, forbs	None	-
6/23/2011	3	253	109	21:58	22:03	Survey	407076	5017990	Ponderosa pine, Douglas fir, herbaceous understory	None	Stream noise loud

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/23/2011	3	254	109	22:05	22:10	Survey	406873	5018023	Douglas fir, ponderosa pine, herbaceous understory, riparian species	None	Stream noise loud
6/23/2011	3	256	109	22:17	22:22	Survey	406668	5018140	Douglas fir, ponderosa pine, herbaceous understory	None	Point moved away from stream, stream noise still loud
6/24/2011	3	258	109	20:45	-	Survey	406271	5018158	Douglas fir, shrub and herbaceous understory	None	Moved point due to steep slope.
6/23/2011	3	260	109	21:50	21:55	Survey	407209	5018119	Ponderosa pine, Douglas fir, herbaceous understory, riparian species	None	Stream noise loud
6/23/2011	3	263	109	21:34	21:39	Survey	407250	5018296	Ponderosa pine, Douglas fir, herbaceous understory	None	Stream noise
6/24/2011	3	267	109	20:58	-	Survey	406102	5018463	Ponderosa pine, Douglas fir, shrub and herbaceous understory	None	River audible
6/23/2011	3	270	109	21:15	21:20	Survey	407271	5018565	Ponderosa pine, Douglas fir, herbaceous understory	None	Stream noise
6/23/2011	3	272	110	21:00	21:05	Survey	407555	5018608	Douglas fir, herbaceous understory	None	Stream noise
6/24/2011	3	275	108	21:12	-	Survey	405424	5019267	Ponderosa pine, Douglas fir, shrub understory	None	Herd of cows in vicinity
6/24/2011	3	277	108	0:18	0:23	Survey	404978	5019429	Douglas fir, ponderosa pine, herbaceous understory	None	Highway audible
6/25/2011	3	278	107	3:28	-	Survey	403136	5019619	Ponderosa pine, grasses, forbs	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/25/2011	3	279	106	3:58	-	Survey	402400	5019647	Ponderosa pine, cherry spp., grasses	None	Stream and river audible
6/24/2011	3	280	108	0:09	0:14	Survey	405011	5019639	Douglas fir, ponderosa pine, herbaceous understory	None	Stream noise
6/25/2011	3	281	106	4:03	-	Survey	402615	5019886	Douglas fir, grasses	None	River audible
6/25/2011	3	282	107	3:18	-	Survey	403093	5019828	Ponderosa pine, grasses, forbs	None	-
6/25/2011	3	283	106	4:09	-	Survey	402731	5020079	Douglas fir, ponderosa pine, shrubs, grasses, forbs	None	River audible
6/25/2011	3	284	106	3:05	-	Survey	402941	5020095	Ponderosa pine, grasses, forbs	None	-
6/24/2011	3	285	107	22:40	-	Survey	404480	5020100	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	-
6/24/2011	3	286	107	23:01	-	Survey	404242	5020317	Ponderosa pine, Douglas fir, shrub and herbaceous understory	None	Moved point due to steep slope
6/24/2011	3	287	107	23:15	-	Survey	404138	5020437	Douglas fir, herbaceous understory	None	Moved point due to steep slope
6/26/2011	3	288	105	2:34	2:39	Survey	402380	5090986	Herbaceous understory	None	Point moved due to steep slope, highway audible
6/24/2011	3	289	106	21:37	-	Survey	404194	5021175	Ponderosa pine, grasses, shrubs	None	Stream audible
6/24/2011	3	290	106	22:14	-	Survey	404013	5021289	Grasses, forbs	None	Stream audible
6/26/2011	3	291	105	2:24	2:29	Survey	402302	5021273	Ponderosa pine, herbaceous understory	None	Point moved due to steep slope, highway audible
6/24/2011	3	292	106	21:48	-	Survey	403963	5021465	Ponderosa pine, shrubs, grasses, forbs	None	Stream audible

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
6/24/2011	3	293	105	21:58	-	Survey	403708	5021521	Ponderosa pine, Douglas fir, riparian shrubs, herbaceous understory	None	Moved point due to steep slope. Highway and river audible.
6/25/2011	3	294	105	4:28	-	Survey	403385	5021542	Douglas fir, riparian species, forbs, grasses	None	Highway audible. Point moved due to steep slope.
6/26/2011	3	295	105	2:10	2:15	Survey	402194	5021661	Ponderosa pine, herbaceous understory	None	Point moved due to steep slope, highway audible
6/26/2011	3	296	105	1:58	2:03	Survey	402028	5021942	Ponderosa pine, herbaceous understory	None	Point moved due to steep slope, highway audible
6/26/2011	3	297	105	1:49	1:54	Survey	401926	5022085	Ponderosa pine, Douglas fir, herbaceous understory	None	Point moved due to steep slope, highway audible
6/26/2011	3	298	104	1:28	1:33	Survey	401163	5022534	Ponderosa pine, herbaceous understory	None	Highway audible
6/26/2011	3	299	104	1:37	1:42	Survey	401695	5022448	Ponderosa pine, Douglas fir, herbaceous understory	None	Point moved due to steep slope, highway audible
6/26/2011	3	300	104	1:18	1:23	Survey	401508	5022732	Herbaceous understory	None	Highway audible
6/26/2011	3	301	104	1:10	1:15	Survey	401254	5022815	Ponderosa pine, herbaceous understory	None	Highway audible
6/26/2011	3	302	104	1:02	1:07	Survey	401158	5023104	Ponderosa pine, herbaceous understory	None	Highway audible
6/21/2011	3	303	103	2:55	3:00	Survey	398987	5024109	Ponderosa pine, herbaceous understory	None	Highway very audible
6/21/2011	3	304	103	2:45	2:50	Survey	398857	5024277	Ponderosa pine, herbaceous understory	None	Highway audible
6/21/2011	3	307	102	2:32	2:37	Survey	398731	5024476	Lodgepole pine, sedge spp.	None	Train and highway very audible
6/21/2011	3	308	102	2:10	2:15	Survey	398071	5024842	Ponderosa pine	None	Train and highway very audible

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				Start	End		Easting	Northing		Observation Type	
6/20/2011	3	309	102	11:20	11:25	Survey	397146	5024905	Ponderosa pine, Douglas fir	None	Highway and crickets audible.
6/21/2011	3	312	101	1:26	1:31	Survey	397004	5025110	Ponderosa pine	None	Highway audible
6/21/2011	3	313	102	2:02	2:07	Survey	397698	5025050	Lodgepole pine, ponderosa pine, herbaceous understory	None	Highway and crickets audible. Moved point due to large camp (~10 trucks)
6/21/2011	3	314	101	1:35	1:40	Survey	396779	5025134	Ponderosa pine, lodgepole pine	None	Highway and crickets audible
6/26/2011	3	328	101	4:05	4:10	Survey	396335	5025549	Ponderosa pine, Douglas fir, herbaceous understory	None	Stream audible
6/26/2011	3	329	101	22:36	-	Survey	397097	5025614	Ponderosa pine, grasses, forbs	None	Train went by. Highway audible.
6/26/2011	3	331	101	22:58	-	Survey	397651	5025696	Ponderosa pine, lodgepole pine, Douglas fir, grasses, forbs	None	Highway audible.
6/26/2011	3	332	100	20:56	-	Survey	395794	5025737	Douglas fir, western larch, ponderosa pine	None	-
6/26/2011	3	333	101	22:29	-	Survey	396683	5025764	Ponderosa pine, Douglas fir, grasses, forbs	None	Highway audible
6/26/2011	3	334	101	21:56	-	Survey	396194	5025798	Douglas fir, grand fir, grasses, forbs	None	-
6/26/2011	3	335	101	22:22	-	Survey	396471	5025854	Ponderosa pine, grasses, forbs	None	Highway and crickets audible.
6/26/2011	3	337	100	21:02	-	Survey	396025	5025946	Ponderosa pine, Douglas fir, shrubs, forbs, grasses	None	Highway audible.
6/26/2011	3	338	101	22:50	-	Survey	397434	5025948	Ponderosa pine, lodgepole pine, Douglas fir, grasses, forbs	None	Highway audible.
6/26/2011	3	339	101	21:43	-	Survey	396790	5025966	Ponderosa pine, Douglas fir, grasses, forbs	None	Highway audible. Edge of meadow.
6/26/2011	3	340	100	4:14	4:19	Survey	395680	5025922	Herbaceous understory	None	Stream audible

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				Start	End		Easting	Northing		Observation Type	
6/26/2011	3	341	101	22:15	-	Survey	396258	5026009	Douglas fir, ponderosa pine, grasses, forbs	None	Highway and crickets audible.
6/26/2011	3	343	100	20:54	-	Survey	395917	5026120	Ponderosa pine, grasses, forbs	None	-
6/26/2011	3	345	100	22:09	-	Survey	396120	5026170	Ponderosa pine, grasses, forbs	None	Train went by. Crickets audible.
6/26/2011	3	347	101	21:27	-	Survey	396603	5026197	Douglas fir, shrubs, grasses, forbs	None	Highway audible. Edge of clearcut.
6/26/2011	3	348	100	20:45	-	Survey	395778	5026223	Ponderosa pine, grasses, forbs	None	-
6/26/2011	3	350	100	4:20	4:25	Survey	395542	5026335	Ponderosa pine, herbaceous understory	None	Light stream noise
6/26/2011	3	351	100	23:32	-	Survey	395464	5026341	Ponderosa pine, Douglas fir, lodgepole pine	None	-
6/26/2011	3	356	100	23:22	-	Survey	395280	5026624	Douglas fir, lodgepole pine	None	-
6/26/2011	3	357	100	4:34	-	Survey	396116	5026597	Douglas fir, fir spp.	None	-
6/26/2011	3	359	100	4:19	-	Survey	395924	5026673	Western larch, Douglas fir, fir spp.	None	-
6/26/2011	3	361	100	3:58	-	Survey	395562	5026905	Ponderosa pine	None	-
6/26/2011	3	364	100	3:47	-	Survey	395340	5027094	Ponderosa pine	None	-
6/26/2011	3	368	99	23:10	-	Survey	395052	5027171	Douglas fir, fir spp.	None	-
6/26/2011	3	369	100	3:35	-	Survey	395450	5027273	Douglas fir, ponderosa pine	None	-
6/26/2011	3	371	99	3:26	-	Survey	395257	5027357	Ponderosa pine	None	-
6/26/2011	3	373	99	23:01	-	Survey	394952	5027523	Lodgepole pine, fir spp.	None	-
6/25/2011	3	375	100	20:55	-	Survey	395828	5027491	Ponderosa pine, Douglas fir	None	-
6/26/2011	3	376	99	2:43	-	Survey	395292	5027496	Ponderosa pine	None	-
6/25/2011	3	377	99	21:11	-	Survey	395555	5027492	Douglas fir, ponderosa pine	None	-
6/26/2011	3	381	99	2:26	-	Survey	395255	5027645	Douglas fir, ponderosa pine	None	-
6/26/2011	3	382	99	22:41	-	Survey	394843	5027752	Fir spp., western larch	None	-
6/26/2011	3	383	99	3:02	-	Survey	395488	5027719	Ponderosa pine	None	-

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				Start	End		Easting	Northing		Observation Type	
6/25/2011	3	384	99	21:27	-	Survey	395705	5027726	Lodgepole pine, western larch	None	moderate highway noise
6/26/2011	3	386	99	2:19	-	Survey	395269	5027779	Ponderosa pine	None	-
6/26/2011	3	387	99	2:10	-	Survey	395100	5027904	Douglas fir, lodgepole pine, ponderosa spp.	None	-
6/26/2011	3	388	99	22:35	-	Survey	394720	5027925	Lodgepole pine, western larch, fir spp.	None	-
6/25/2011	3	389	99	21:35	-	Survey	395535	5027995	Western larch, Douglas fir, ponderosa pine	None	moderate highway noise
6/26/2011	3	390	99	2:00	-	Survey	395235	5028044	Douglas fir, ponderosa pine	None	-
6/26/2011	3	391	99	4:29	4:34	Survey	394665	5028082	Ponderosa pine, herbaceous understory	None	Distant train noise
6/26/2011	3	392	99	22:26	-	Survey	394559	5028168	Douglas fir, fir spp.	None	-
6/26/2011	3	393	99	1:40	-	Survey	395045	5028177	Ponderosa pine, Douglas fir	None	-
6/25/2011	3	394	99	21:49	-	Survey	395390	5028166	Fir spp., Douglas fir, lodgepole pine	None	moderate highway noise
6/26/2011	3	395	99	22:19	-	Survey	394415	5028288	Fir spp.	None	-
6/26/2011	3	396	99	1:28	-	Survey	394781	5028322	Douglas fir, ponderosa pine	None	-
6/25/2011	3	397	99	21:57	-	Survey	395169	5028314	Lodgepole pine, western larch, Douglas fir	None	-
6/26/2011	3	398	99	1:12	-	Survey	394629	5028469	Ponderosa pine	None	-
6/26/2011	3	399	98	21:58	-	Survey	394268	5028484	Fir spp., lodgepole pine	None	-
6/26/2011	3	400	98	4:42	4:47	Survey	394325	5028486	Douglas fir, ponderosa pine	None	Stream audible
6/25/2011	3	401	99	22:15	-	Survey	395038	5028679	Lodgepole pine, Douglas fir	None	moderate highway noise
6/26/2011	3	402	98	21:50	-	Survey	394137	5028807	Lodgepole pine, fir spp.	None	-

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6/26/2011	3	403	98	4:35	4:40	Survey	394184	5028816	Douglas fir, ponderosa pine, herbaceous understory	None	Distant train noise
6/26/2011	3	404	98	0:50	-	Survey	394472	5028872	Ponderosa pine, Douglas fir, lodgepole pine	None	-
6/26/2011	3	405	98	21:40	-	Survey	394057	5028980	Lodgepole pine, fir spp., western larch	None	-
6/25/2011	3	406	98	22:35	-	Survey	394870	5028944	Fir spp.	None	-
6/26/2011	3	407	98	0:31	-	Survey	394267	5028977	Ponderosa pine, Douglas fir	None	-
6/26/2011	3	409	98	0:17	-	Survey	394520	5029178	Douglas fir, ponderosa pine	None	-
6/26/2011	3	410	98	0:08	-	Survey	394346	5029198	Ponderosa pine, Douglas fir	None	-
6/25/2011	3	411	98	23:57	-	Survey	394138	5029216	Ponderosa pine	None	-
6/26/2011	3	412	98	21:02	-	Survey	393867	5029253	Ponderosa pine, lodgepole pine	None	-
6/26/2011	3	413	98	21:31	-	Survey	393657	5029373	Lodgepole pine, fir spp.	None	-
6/25/2011	3	414	98	23:36	-	Survey	394059	5029402	Douglas fir, ponderosa pine	None	-
6/25/2011	3	415	98	2:52	-	Survey	394656	5029390	Ponderosa pine, lodgepole pine	None	moderate highway noise
6/25/2011	3	416	98	23:17	-	Survey	393820	5029463	Ponderosa pine, Douglas fir	None	-
6/26/2011	3	417	98	21:26	-	Survey	393492	5029549	Lodgepole pine	None	-
6/25/2011	3	418	98	2:46	-	Survey	394508	5029481	Lodgepole pine, ponderosa pine, fir spp.	None	moderate highway noise
6/26/2011	3	419	98	21:11	-	Survey	393649	5029508	Lodgepole pine	None	-
6/25/2011	3	420	98	3:38	-	Survey	393514	5029653	Lodgepole pine	None	-
6/25/2011	3	422	98	3:08	-	Survey	393576	5029817	Douglas fir, lodgepole pine, fir spp.	None	-
6/25/2011	3	423	97	4:16	-	Survey	392876	5029762	Lodgepole pine, ponderosa pine	None	-

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6/25/2011	3	424	97	3:25	-	Survey	393409	5029892	Ponderosa pine, western larch	None	-
6/25/2011	3	425	98	2:21	-	Survey	394260	5029908	Western larch	None	-
6/25/2011	3	426	98	2:30	-	Survey	394294	5030233	Lodgepole pine, fir spp.	None	moderate highway noise
6/25/2011	3	427	98	2:36	-	Survey	394246	5030422	Douglas fir, ponderosa pine, western larch	None	moderate highway noise
6/25/2011	3	428	97	4:06	-	Survey	392433	5030422	Douglas fir, western larch, lodgepole pine	None	-
6/25/2011	3	429	97	2:08	-	Survey	393546	5030442	Western larch, ponderosa pine	None	-
6/25/2011	3	430	97	1:39	-	Survey	393304	5030758	Western larch, fir spp.	None	-
6/25/2011	3	431	97	0:58	-	Survey	392407	5030844	Fir spp., Douglas fir, western larch	None	-
6/25/2011	3	432	97	1:46	-	Survey	393156	5030904	Lodgepole pine, Douglas fir	None	-
6/25/2011	3	433	97	0:45	-	Survey	392602	5030877	Fir spp.	None	-
6/25/2011	3	434	97	1:56	-	Survey	393201	5030983	Ponderosa pine, Douglas fir	None	-
6/24/2011	3	435	96	22:42	-	Survey	391846	5031096	Lodgepole pine, western larch	None	-
6/25/2011	3	436	97	0:32	-	Survey	392503	5031103	Fir spp.	None	-
6/24/2011	3	437	96	22:07	-	Survey	391568	5031172	Western larch, fir spp.	None	-
6/24/2011	3	438	96	22:14	-	Survey	391731	5031181	Lodgepole pine	None	-
6/25/2011	3	439	96	0:14	-	Survey	392299	5031259	Lodgepole pine	None	-
6/24/2011	3	440	96	22:00	-	Survey	391467	5031309	Lodgepole pine, western larch, Douglas fir	None	-
6/24/2011	3	441	95	2:23	-	Survey	389951	5031361	Lodgepole pine	None	-
6/25/2011	3	442	96	0:03	-	Survey	392157	5031415	Lodgepole pine, western larch	None	-
6/24/2011	3	443	95	21:00	-	Survey	390704	5031451	Fir spp., lodgepole pine	None	-
6/24/2011	3	444	96	21:43	-	Survey	391346	5031457	Fir spp., lodgepole pine	None	-
6/24/2011	3	445	95	2:29	-	Survey	389864	5031530	Lodgepole pine	None	-

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6/24/2011	3	446	96	22:23	-	Survey	391538	5031556	Lodgepole pine, fir spp., spruce spp.	None	-
6/24/2011	3	447	96	23:30	-	Survey	391823	5031597	Lodgepole pine, ponderosa pine	None	-
6/24/2011	3	448	95	21:08	-	Survey	390517	5031590	Western larch, lodgepole pine, Douglas fir	None	-
6/24/2011	3	449	95	2:38	-	Survey	389883	5031786	Lodgepole pine	None	point moved due to large wetland
6/24/2011	3	450	95	20:52	-	Survey	390746	5031570	Lodgepole pine, western larch, fir spp., Douglas fir	None	-
6/24/2011	3	451	96	21:33	-	Survey	391258	5031631	Lodgepole pine, fir spp., spruce spp.	None	-
6/24/2011	3	452	95	2:08	-	Survey	389743	5031727	Lodgepole pine, spruce spp.	None	-
6/24/2011	3	453	96	23:45	-	Survey	391837	5031761	Douglas fir, western larch, lodgepole pine	None	-
6/24/2011	3	454	95	21:20	-	Survey	391083	5031802	Lodgepole pine, fir spp.	None	-
6/24/2011	3	455	95	2:00	-	Survey	389736	5031836	Lodgepole pine	None	-
6/24/2011	3	456	95	1:54	-	Survey	389586	5031879	Lodgepole pine, fir spp.	None	-
6/24/2011	3	457	96	23:54	-	Survey	391677	5032004	Ponderosa pine, lodgepole pine, Douglas fir, fir spp., western larch	None	-
6/24/2011	3	458	95	23:18	-	Survey	391227	5032098	Lodgepole pine, Douglas fir	None	-
6/24/2011	3	459	95	1:42	-	Survey	389678	5032155	Lodgepole pine, western larch	None	-
6/24/2011	3	460	94	1:32	-	Survey	389451	5032211	Lodgepole pine	None	-
6/24/2011	3	461	94	1:22	-	Survey	389002	5032341	Ponderosa pine	None	-
6/24/2011	3	462	94	1:00	-	Survey	388942	5032566	Western larch, fir spp.	None	-
6/24/2011	3	463	94	0:52	-	Survey	388522	5032737	Lodgepole pine, Douglas fir	None	-
6/24/2011	3	464	94	1:10	-	Survey	389084	5032755	Fir spp., Douglas fir, lodgepole pine	None	-
6/24/2011	3	465	94	0:45	-	Survey	388596	5032923	Lodgepole pine, Douglas fir	None	-

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6/24/2011	3	466	94	0:38	-	Survey	388506	5033099	Fir spp., Douglas fir	None	-
6/24/2011	3	467	93	0:26	-	Survey	388349	5033318	Douglas fir, fir spp.	None	-
6/23/2011	3	468	93	2:44	-	Survey	388204	5033521	Fir spp., Douglas fir	None	-
6/23/2011	3	469	93	2:36	-	Survey	388100	5033660	Fir spp., Douglas fir	None	-
6/23/2011	3	470	93	2:28	-	Survey	387963	5033810	Fir spp., Douglas fir	None	-
6/23/2011	3	471	93	23:38	-	Survey	388252	5034082	Spruce spp., fir spp., western larch	None	-
6/23/2011	3	472	93	2:20	-	Survey	387702	5034184	Douglas fir, lodgepole pine	None	-
6/23/2011	3	473	93	23:45	-	Survey	388216	5034241	Douglas fir, fir spp.	None	-
6/23/2011	3	474	93	23:52	-	Survey	388231	5034443	Douglas fir, fir spp., lodgepole pine	None	-
6/23/2011	3	475	93	23:58	-	Survey	388172	5034568	Douglas fir, fir spp., western larch	None	-
6/23/2011	3	476	92	23:01	-	Survey	387913	5034638	Western larch, fir spp.	None	-
6/24/2011	3	477	92	0:06	-	Survey	388141	5034746	Lodgepole pine, fir spp.	None	-
6/23/2011	3	478	92	22:52	-	Survey	387610	5034757	Lodgepole pine, fir spp., western larch	None	-
6/23/2011	3	479	92	23:09	-	Survey	387872	5034783	Douglas fir, western larch, fir spp.	None	-
6/23/2011	3	480	92	2:07	-	Survey	386955	5034878	Ponderosa pine, lodgepole pine	None	-
6/23/2011	3	481	92	22:40	-	Survey	387357	5034876	Fir spp., lodgepole pine	None	-
6/23/2011	3	482	92	22:20	-	Survey	387771	5035055	Lodgepole pine, ponderosa pine, fir spp., western larch	None	-
6/24/2011	3	483	92	0:13	-	Survey	388218	5035121	Fir spp., lodgepole pine	None	-
6/23/2011	3	484	92	22:12	-	Survey	387616	5035367	Lodgepole pine, ponderosa pine, fir spp., western larch	None	-
6/23/2011	3	485	92	22:03	-	Survey	387520	5035421	Douglas fir, western larch, ponderosa pine	None	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/23/2011	3	486	92	21:51	-	Survey	387773	5035621	Ponderosa pine, lodgepole pine, western larch, fir spp.	None	-
6/23/2011	3	487	92	21:43	-	Survey	387678	5035805	Fir spp., lodgepole pine, western larch	None	-
6/23/2011	3	488	91	1:57	-	Survey	386911	5035886	Douglas fir, lodgepole pine, ponderosa spp., fir spp.	None	-
6/23/2011	3	489	92	21:32	-	Survey	387542	5035901	Lodgepole pine, fir spp., western larch	None	-
6/23/2011	3	490	91	1:44	-	Survey	386998	5036012	Fir spp., spruce spp., western larch, lodgepole pine	None	-
6/23/2011	3	491	91	1:38	-	Survey	387137	5036188	Fir spp., ponderosa pine	None	-
6/23/2011	3	492	91	21:19	-	Survey	387498	5036125	Douglas fir, fir spp., lodgepole pine	None	-
6/23/2011	3	493	91	1:31	-	Survey	387230	5036358	Spruce spp., fir spp., lodgepole pine	None	-
6/23/2011	3	494	91	21:07	-	Survey	387563	5036370	Fir spp., Douglas fir, ponderosa pine	None	-
6/23/2011	3	495	91	1:24	-	Survey	387352	5036531	Lodgepole pine, fir spp.	None	-
6/22/2011	3	496	91	23:18	-	Survey	385979	5036570	Douglas fir, lodgepole pine	None	-
6/22/2011	3	497	91	22:15	-	Survey	386738	5036581	Western larch, ponderosa pine	None	-
6/22/2011	3	499	91	23:10	-	Survey	386026	5036727	Fir spp., Douglas fir	None	-
6/22/2011	3	500	91	23:01	-	Survey	386202	5036795	Fir spp., Douglas fir	None	-
6/22/2011	3	501	91	22:28	-	Survey	386605	5036779	Lodgepole pine, fir spp.	None	active hawk nest (sounded like RTHA) very close to point - hawk screaming and circling during entire survey
6/23/2011	3	503	91	20:54	-	Survey	387778	5036833	Lodgepole pine, western larch, fir spp.	None	-

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				Start	End		Easting	Northing		Observation Type	
6/23/2011	3	504	91	1:13	-	Survey	387512	5036827	Douglas fir, lodgepole pine	None	-
6/22/2011	3	505	90	2:29	-	Survey	385286	5037002	Fir spp.	None	-
6/22/2011	3	506	90	21:00	-	Survey	385800	5037023	Ponderosa pine, lodgepole pine, spruce spp.	None	-
6/22/2011	3	507	91	22:40	-	Survey	386783	5037006	Fir spp., lodgepole pine	None	-
6/23/2011	3	508	91	1:02	-	Survey	387629	5037049	Fir spp.	None	-
6/22/2011	3	509	90	2:12	-	Survey	384986	5037095	Fir spp., spruce spp., lodgepole pine	None	-
6/22/2011	3	510	90	21:59	-	Survey	386259	5037173	Fir spp., Douglas fir, ponderosa pine	None	-
6/22/2011	3	511	90	20:52	-	Survey	385795	5037192	Fir spp., spruce spp.	None	-
6/22/2011	3	512	90	2:21	-	Survey	385187	5037177	Fir spp., spruce spp., lodgepole pine	None	-
6/23/2011	3	513	91	0:49	-	Survey	387860	5037232	Lodgepole pine	None	point moved because it was too close to where we moved point 522 to
6/22/2011	3	514	90	1:58	-	Survey	385042	5037262	Fir spp.	None	-
6/22/2011	3	515	90	21:51	-	Survey	386349	5037238	Ponderosa pine, Douglas fir	None	-
6/22/2011	3	517	90	1:49	-	Survey	384901	5037464	Fir spp., ponderosa pine, lodgepole pine	None	-
6/22/2011	3	518	90	21:35	-	Survey	386007	5037388	Fir spp., spruce spp., lodgepole pine	None	point moved due to stream crossing
6/22/2011	3	519	90	1:29	-	Survey	384606	5037350	Ponderosa pine, Douglas fir	None	-
6/22/2011	3	520	90	21:43	-	Survey	386168	5037359	Ponderosa pine, fir spp., Douglas fir	None	-
6/22/2011	3	521	90	20:42	-	Survey	385789	5037419	Fir spp., lodgepole pine, ponderosa pine, western larch	None	-
6/23/2011	3	522	91	0:27	-	Survey	388101	5037843	Lodgepole pine, fir spp., spruce spp.	None	point moved due to stream crossing
6/22/2011	3	523	90	1:21	-	Survey	384662	5037477	Fir spp.	None	-

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				Start	End		Easting	Northing		Observation Type	
6/22/2011	3	525	90	21:25	-	Survey	386039	5037491	Douglas fir, lodgepole pine, ponderosa spp.	None	-
6/22/2011	3	526	90	0:34	-	Survey	384454	5037606	Ponderosa pine, Douglas fir	None	-
6/22/2011	3	527	90	20:32	-	Survey	385820	5037576	Lodgepole pine, fir spp.	None	-
6/22/2011	3	528	89	0:18	-	Survey	384100	5037795	Ponderosa pine	None	-
6/22/2011	3	529	89	0:11	-	Survey	383864	5037870	Ponderosa pine	None	-
6/22/2011	3	530	90	0:52	-	Survey	385078	5037747	Lodgepole pine, ponderosa pine, Douglas fir	None	-
6/22/2011	3	531	90	23:49	-	Survey	386139	5037787	Douglas fir, spruce spp., fir spp.	None	-
6/21/2011	3	532	89	23:09	-	Survey	383594	5037833	Douglas fir, ponderosa pine	None	-
6/22/2011	3	533	89	0:25	-	Survey	384336	5037759	Ponderosa pine	None	-
6/22/2011	3	534	90	1:06	-	Survey	384795	5037832	Ponderosa pine	None	-
6/22/2011	3	535	90	23:39	-	Survey	385960	5037947	Fir spp., spruce spp.	None	-
6/21/2011	3	537	88	22:29	-	Survey	382863	5038115	Fir spp., ponderosa pine	None	-
6/22/2011	3	538	89	0:04	-	Survey	383803	5038086	Fir spp., western larch, ponderosa pine	None	-
6/21/2011	3	539	89	23:01	-	Survey	383498	5038094	Ponderosa pine	None	-
6/21/2011	3	540	86	1:10	-	Survey	379264	5038213	Ponderosa pine	None	-
6/21/2011	3	541	87	23:17	-	Survey	380857	5038407	Fir spp., Douglas fir, ponderosa pine	None	-
6/20/2011	3	542	86	23:50	-	Survey	378661	5038229	Ponderosa pine	None	-
6/21/2011	3	544	89	23:19	-	Survey	383746	5038252	Ponderosa pine	None	-
6/21/2011	3	547	89	22:49	-	Survey	383297	5038286	Ponderosa pine, Douglas fir	None	-
6/21/2011	3	548	89	23:33	-	Survey	383875	5038265	Ponderosa pine	None	-
6/21/2011	3	549	89	22:56	-	Survey	383405	5038191	Ponderosa pine	None	-

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				Start	End		Easting	Northing		Observation Type	
6/21/2011	3	550	88	22:15	-	Survey	383012	5038402	Fir spp., ponderosa pine	None	-
6/21/2011	3	551	87	21:08	-	Survey	380799	5038559	Ponderosa pine	None	-
6/21/2011	3	553	86	1:00	-	Survey	379288	5038491	Ponderosa pine	None	-
6/21/2011	3	555	86	0:16	-	Survey	378856	5038484	Ponderosa pine	None	-
6/21/2011	3	556	88	22:08	-	Survey	383066	5038489	Fir spp., ponderosa pine, Douglas fir	None	-
6/21/2011	3	558	89	23:46	-	Survey	384060	5038481	Ponderosa pine, Douglas fir	None	-
6/21/2011	3	561	88	21:52	-	Survey	383099	5038668	Fir spp., western larch, ponderosa pine	None	-
6/21/2011	3	563	86	0:25	-	Survey	378930	5038721	Ponderosa pine	None	-
6/21/2011	3	564	86	0:50	-	Survey	378593	5038713	Ponderosa pine, Douglas fir	None	-
6/21/2011	3	565	87	1:48	-	Survey	380069	5038742	Fir spp., ponderosa pine	None	-
6/21/2011	3	568	87	2:57	-	Survey	380595	5038922	Ponderosa pine	None	point moved due to stream noise
6/22/2011	3	569	86	0:37	-	Survey	379174	5038896	Douglas fir, ponderosa pine	None	-
6/21/2011	3	570	86	1:34	-	Survey	379857	5038930	Douglas fir	None	-
6/21/2011	3	572	87	3:14	-	Survey	380413	5039099	Ponderosa pine, Douglas fir	None	-
6/21/2011	3	574	87	2:35	-	Survey	380649	5039294	Douglas fir, ponderosa pine	None	-
6/21/2011	3	575	87	2:27	-	Survey	380743	5039419	Douglas fir, ponderosa pine	None	-
6/21/2011	3	576	87	2:19	-	Survey	380814	5039543	Douglas fir, ponderosa pine	None	-
3/26/2011	1	1	125	2:15	2:20	Too Noisy	-	-	Ponderosa pine	-	Point less than 40 meters from Interstate 84. Too much noise.
3/29/2011	1	41	122	2:40	2:45	Too Noisy	-	-	Douglas fir	-	No survey conducted due to high winds
3/29/2011	1	49	122	2:30	2:35	Too Noisy	-	-	Douglas fir	-	No survey conducted due to high winds
3/26/2011	1	62	121	0:36	-	Too Noisy	417720	5005150	-	-	stream noise at 60 dB - too loud

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3/26/2011	1	63	121	0:03	-	Too Noisy	-	-	-	-	too loud b/c of rushing stream - NO SURVEY - so are 68, 69, 71, 73, 72, 70, 67, 62, 61, 58, 53, 51 - the road to these on the map is closed: undriveable and practically unwalkable
-	1	65	121	-	-	Too Noisy	-	-	-	-	-
3/26/2011	1	66	121	0:43	-	Too Noisy	417807	5005345	-	-	stream noise at 55 dB - too loud
-	1	68	120	-	-	Too Noisy	-	-	-	-	-
3/26/2011	1	70	121	0:47	-	Too Noisy	417968	5005532	-	-	stream noise at 53 dB - too loud
-	1	73	120	-	-	Too Noisy	-	-	-	-	-
-	1	75	120	-	-	Too Noisy	-	-	-	-	-
-	1	82	120	-	-	Too Noisy	-	-	-	-	-
-	1	91	120	-	-	Too Noisy	-	-	-	-	-
-	1	92	120	-	-	Too Noisy	-	-	-	-	-
-	1	94	120	-	-	Too Noisy	-	-	-	-	-
3/27/2011	1	95	120	-	-	Too Noisy	-	-	-	-	stream noise too loud
-	1	103	119	-	-	Too Noisy	-	-	-	-	-
3/22/2011	1	293	105	21:43	-	Too Noisy	403711	5021510	Ponderosa pine, Douglas fir	-	Highway and river too loud
3/22/2011	1	294	105	21:56	-	Too Noisy	403381	5021534	Douglas fir	-	Highway and river too loud
-	1	315	102	-	-	Too Noisy	-	-	-	-	-
-	1	551	87	-	-	Too Noisy	-	-	-	-	-
-	1	571	87	-	-	Too Noisy	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	1	572	87	-	-	Too Noisy	-	-	-	-	-
-	1	573	87	-	-	Too Noisy	-	-	-	-	-
3/29/2011	1	574	87	21:39	-	Too Noisy	380520	5039427	-	-	85 db stream noise
3/26/2011	1	585	121	-	-	Too Noisy	-	-	-	-	stream noise too loud
-	1	586	121	-	-	Too Noisy	-	-	-	-	-
3/25/2011	1	588	121	20:48	n/a	Too Noisy	417061	5004890	Fir spp., Douglas fir	-	water noise - too loud
-	1	589	119	-	-	Too Noisy	-	-	-	-	-
-	1	590	119	-	-	Too Noisy	-	-	-	-	-
-	1	591	119	-	-	Too Noisy	-	-	-	-	-
3/29/2011	1	628	85	0:06	-	Too Noisy	-	-	Ponderosa pine	-	too windy/exposed, scattered Pinus ponderosa in otherwise open rocky and brushy slope
5/21/2011	2	76	121	-	-	Too Noisy	-	-	-	-	Point too close to Hwy, Too noisy to conduct survey.
5/22/2011	2	315	102	-	-	Too Noisy	-	-	-	-	did not survey because located on Hwy on ramp, hwy noise.
-	3	76	121	-	-	Too Noisy	-	-	-	-	Did not survey due to proximity to highway.
-	3	315	102	-	-	Too Noisy	-	-	-	-	Did not survey due to proximity to highway.
-	1	20	123	-	-	Access blocked	-	-	-	-	-
-	1	23	123	-	-	Access blocked	-	-	-	-	-
-	1	25	123	-	-	Access blocked	-	-	-	-	-
-	1	34	122	-	-	Access blocked	-	-	-	-	-
-	1	52	122	-	-	Access blocked	-	-	-	-	-
-	1	57	121	-	-	Access blocked	-	-	-	-	-

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				Start	End		Easting	Northing		Observation Type	
-	1	58	121	-	-	Access blocked	-	-	-	-	-
-	1	59	122	-	-	Access blocked	-	-	-	-	-
-	1	67	121	-	-	Access blocked	-	-	-	-	-
-	1	104	119	-	-	Access blocked	-	-	-	-	-
-	1	108	118	-	-	Access blocked	-	-	-	-	-
-	1	110	119	-	-	Access blocked	-	-	-	-	-
-	1	111	118	-	-	Access blocked	-	-	-	-	-
-	1	124	117	-	-	Access blocked	-	-	-	-	-
-	1	129	117	-	-	Access blocked	-	-	-	-	-
-	1	230	3A	-	-	Access blocked	-	-	-	-	-
-	1	235	2A	-	-	Access blocked	-	-	-	-	-
-	1	253	109	-	-	Access blocked	-	-	-	-	-
-	1	254	109	-	-	Access blocked	-	-	-	-	-
-	1	263	109	-	-	Access blocked	-	-	-	-	-
-	1	270	109	-	-	Access blocked	-	-	-	-	-
-	1	361	100	-	-	Access blocked	-	-	-	-	-
-	1	364	100	-	-	Access blocked	-	-	-	-	-
-	1	369	100	-	-	Access blocked	-	-	-	-	-
-	1	371	99	-	-	Access blocked	-	-	-	-	-
-	1	376	99	-	-	Access blocked	-	-	-	-	-

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				Start	End		Easting	Northing		Observation Type	
-	1	381	99	-	-	Access blocked	-	-	-	-	-
-	1	386	99	-	-	Access blocked	-	-	-	-	-
-	1	387	99	-	-	Access blocked	-	-	-	-	-
-	1	393	99	-	-	Access blocked	-	-	-	-	-
-	1	399	98	-	-	Access blocked	-	-	-	-	-
-	1	401	99	-	-	Access blocked	-	-	-	-	-
-	1	402	98	-	-	Access blocked	-	-	-	-	-
-	1	405	98	-	-	Access blocked	-	-	-	-	-
-	1	413	98	-	-	Access blocked	-	-	-	-	-
-	1	415	98	-	-	Access blocked	-	-	-	-	-
-	1	417	98	-	-	Access blocked	-	-	-	-	-
-	1	418	98	-	-	Access blocked	-	-	-	-	-
-	1	429	97	-	-	Access blocked	-	-	-	-	-
-	1	430	97	-	-	Access blocked	-	-	-	-	-
-	1	432	97	-	-	Access blocked	-	-	-	-	-
-	1	434	97	-	-	Access blocked	-	-	-	-	-
-	1	505	90	-	-	Access blocked	-	-	-	-	-
-	1	509	90	-	-	Access blocked	-	-	-	-	-
-	1	512	90	-	-	Access blocked	-	-	-	-	-
-	1	519	90	-	-	Access blocked	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	1	526	90	-	-	Access blocked	-	-	-	-	-
-	1	528	89	-	-	Access blocked	-	-	-	-	-
-	1	529	89	-	-	Access blocked	-	-	-	-	-
-	1	530	90	-	-	Access blocked	-	-	-	-	-
-	1	532	89	-	-	Access blocked	-	-	-	-	-
-	1	533	89	-	-	Access blocked	-	-	-	-	-
-	1	534	90	-	-	Access blocked	-	-	-	-	-
-	1	537	88	-	-	Access blocked	-	-	-	-	-
-	1	538	89	-	-	Access blocked	-	-	-	-	-
-	1	539	89	-	-	Access blocked	-	-	-	-	-
-	1	541	87	-	-	Access blocked	-	-	-	-	-
-	1	544	89	-	-	Access blocked	-	-	-	-	-
-	1	547	89	-	-	Access blocked	-	-	-	-	-
-	1	548	89	-	-	Access blocked	-	-	-	-	-
-	1	549	89	-	-	Access blocked	-	-	-	-	-
-	1	550	88	-	-	Access blocked	-	-	-	-	-
-	1	556	88	-	-	Access blocked	-	-	-	-	-
-	1	558	89	-	-	Access blocked	-	-	-	-	-
-	1	561	88	-	-	Access blocked	-	-	-	-	-
-	1	568	87	-	-	Access blocked	-	-	-	-	-

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				Start	End		Easting	Northing		Observation Type	
-	1	581	123	-	-	Access blocked	-	-	-	-	-
-	1	582	124	-	-	Access blocked	-	-	-	-	-
-	1	583	124	-	-	Access blocked	-	-	-	-	-
-	1	584	122	-	-	Access blocked	-	-	-	-	-
-	1	597	116	-	-	Access blocked	-	-	-	-	-
-	1	607	101	-	-	Access blocked	-	-	-	-	-
-	1	608	101	-	-	Access blocked	-	-	-	-	-
-	2	57	121	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	63	121	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	65	121	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	68	120	-	-	Access blocked	-	-	-	-	-
5/18/2011	2	72	121	-	-	Access blocked	-	-	-	-	did not survey because terrain was too steep to access.
5/21/2011	2	73	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	74	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	75	120	-	-	Access blocked	-	-	-	-	-
5/18/2011	2	77	121	-	-	Access blocked	-	-	-	-	did not survey because terrain was too steep to access.
5/18/2011	2	80	121	-	-	Access blocked	-	-	-	-	did not survey because terrain was too steep to access.
5/21/2011	2	81	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	82	120	-	-	Access blocked	-	-	-	-	-

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5/21/2011	2	83	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	84	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	86	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	89	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	90	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	91	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	92	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	93	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	94	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	95	120	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	99	119	-	-	Access blocked	-	-	-	-	-
-	2	100	119	-	-	Access blocked	-	-	-	-	-
-	2	101	119	-	-	Access blocked	-	-	-	-	-
-	2	102	119	-	-	Access blocked	-	-	-	-	-
-	2	111	118	-	-	Access blocked	-	-	-	-	-
-	2	124	117	-	-	Access blocked	-	-	-	-	-
-	2	129	117	-	-	Access blocked	-	-	-	-	-
5/21/2011	2	137	116	21:55	22:00	Access blocked	-	-	-	-	Could not reach point due to stream crossing no survey conducted.
-	2	139	117	-	-	Access blocked	-	-	-	-	-
5/20/2011	2	270	109	-	-	Access blocked	-	-	-	-	unable to access due to river crossing

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
5/20/2011	2	272	110	-	-	Access blocked	-	-	-	-	unable to access due to river crossing
-	2	351	100	-	-	Access blocked	-	-	-	-	
-	2	507	91	-	-	Access blocked	-	-	-	-	-
-	3	51	121	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	65	121	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	68	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	73	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	74	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	75	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	81	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	82	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	83	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	84	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	86	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	89	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	90	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	91	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	92	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	93	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	94	120	-	-	Access blocked	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
6/23/2011	3	95	120	-	-	Access blocked	-	-	-	-	-
6/23/2011	3	99	119	-	-	Access blocked	-	-	-	-	-
-	3	100	119	-	-	Access blocked	-	-	-	-	-
-	3	101	119	-	-	Access blocked	-	-	-	-	-
-	3	102	119	-	-	Access blocked	-	-	-	-	-
-	3	111	118	-	-	Access blocked	-	-	-	-	-
-	3	124	117	-	-	Access blocked	-	-	-	-	-
-	3	129	117	-	-	Access blocked	-	-	-	-	-
-	3	139	117	-	-	Access blocked	-	-	-	-	-
6/26/2011	3	342	100	23:55	-	Access blocked	-	-	-	-	-
-	3	573	87	-	-	Access blocked	-	-	-	-	-
-	1	3	124	-	-	Access denied	-	-	-	-	-
-	1	97	120	-	-	Access denied	-	-	-	-	-
-	1	112	118	-	-	Access denied	-	-	-	-	-
-	1	128	7A	-	-	Access denied	-	-	-	-	-
-	1	130	6A	-	-	Access denied	-	-	-	-	-
-	1	131	7A	-	-	Access denied	-	-	-	-	-
-	1	134	116	-	-	Access denied	-	-	-	-	-
-	1	135	116	-	-	Access denied	-	-	-	-	-
-	1	136	116	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	1	138	116	-	-	Access denied	-	-	-	-	-
-	1	146	117	-	-	Access denied	-	-	-	-	-
-	1	147	116	-	-	Access denied	-	-	-	-	-
-	1	149	116	-	-	Access denied	-	-	-	-	-
-	1	150	6A	-	-	Access denied	-	-	-	-	-
-	1	156	6A	-	-	Access denied	-	-	-	-	-
-	1	157	7A	-	-	Access denied	-	-	-	-	-
-	1	158	115	-	-	Access denied	-	-	-	-	-
-	1	160	117	-	-	Access denied	-	-	-	-	-
-	1	163	6A	-	-	Access denied	-	-	-	-	-
-	1	168	6A	-	-	Access denied	-	-	-	-	-
-	1	171	5A	-	-	Access denied	-	-	-	-	-
-	1	173	7A	-	-	Access denied	-	-	-	-	-
-	1	174	5A	-	-	Access denied	-	-	-	-	-
-	1	176	5A	-	-	Access denied	-	-	-	-	-
-	1	179	5A	-	-	Access denied	-	-	-	-	-
-	1	180	6A	-	-	Access denied	-	-	-	-	-
-	1	181	5A	-	-	Access denied	-	-	-	-	-
-	1	182	7A	-	-	Access denied	-	-	-	-	-
-	1	185	7A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	1	187	5A	-	-	Access denied	-	-	-	-	-
-	1	189	114	-	-	Access denied	-	-	-	-	-
-	1	190	6A	-	-	Access denied	-	-	-	-	-
-	1	191	114	-	-	Access denied	-	-	-	-	-
-	1	192	6A	-	-	Access denied	-	-	-	-	-
-	1	193	5A	-	-	Access denied	-	-	-	-	-
-	1	196	6A	-	-	Access denied	-	-	-	-	-
-	1	197	114	-	-	Access denied	-	-	-	-	-
-	1	198	114	-	-	Access denied	-	-	-	-	-
-	1	199	5A	-	-	Access denied	-	-	-	-	-
-	1	201	114	-	-	Access denied	-	-	-	-	-
-	1	203	114	-	-	Access denied	-	-	-	-	-
-	1	206	114	-	-	Access denied	-	-	-	-	-
-	1	218	113	-	-	Access denied	-	-	-	-	-
-	1	222	113	-	-	Access denied	-	-	-	-	-
-	1	228	113	-	-	Access denied	-	-	-	-	-
-	1	229	113	-	-	Access denied	-	-	-	-	-
-	1	231	113	-	-	Access denied	-	-	-	-	-
-	1	232	112	-	-	Access denied	-	-	-	-	-
-	1	236	111	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	1	238	111	-	-	Access denied	-	-	-	-	-
-	1	239	111	-	-	Access denied	-	-	-	-	-
-	1	242	111	-	-	Access denied	-	-	-	-	-
-	1	243	111	-	-	Access denied	-	-	-	-	-
-	1	246	111	-	-	Access denied	-	-	-	-	-
-	1	249	110	-	-	Access denied	-	-	-	-	-
-	1	250	110	-	-	Access denied	-	-	-	-	-
-	1	260	109	-	-	Access denied	-	-	-	-	-
-	1	261	110	-	-	Access denied	-	-	-	-	-
-	1	262	110	-	-	Access denied	-	-	-	-	-
-	1	264	110	-	-	Access denied	-	-	-	-	-
-	1	269	110	-	-	Access denied	-	-	-	-	-
-	1	408	98	-	-	Access denied	-	-	-	-	-
-	1	498	91	-	-	Access denied	-	-	-	-	-
-	1	502	91	-	-	Access denied	-	-	-	-	-
-	1	536	88	-	-	Access denied	-	-	-	-	-
-	1	543	89	-	-	Access denied	-	-	-	-	-
-	1	545	88	-	-	Access denied	-	-	-	-	-
-	1	546	88	-	-	Access denied	-	-	-	-	-
-	1	552	88	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	1	554	88	-	-	Access denied	-	-	-	-	-
-	1	557	88	-	-	Access denied	-	-	-	-	-
-	1	559	87	-	-	Access denied	-	-	-	-	-
-	1	560	88	-	-	Access denied	-	-	-	-	-
-	1	562	88	-	-	Access denied	-	-	-	-	-
-	1	566	87	-	-	Access denied	-	-	-	-	-
-	1	567	88	-	-	Access denied	-	-	-	-	-
-	1	580	124	-	-	Access denied	-	-	-	-	-
-	1	595	116	-	-	Access denied	-	-	-	-	-
-	1	596	116	-	-	Access denied	-	-	-	-	-
-	1	598	106	-	-	Access denied	-	-	-	-	-
-	1	599	106	-	-	Access denied	-	-	-	-	-
-	1	625	88	-	-	Access denied	-	-	-	-	-
-	2	2	124	-	-	Access denied	-	-	-	-	-
-	2	3	124	-	-	Access denied	-	-	-	-	-
-	2	96	120	-	-	Access denied	-	-	-	-	-
-	2	97	120	-	-	Access denied	-	-	-	-	-
-	2	98	119	-	-	Access denied	-	-	-	-	-
-	2	103	119	-	-	Access denied	-	-	-	-	-
-	2	104	119	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	105	119	-	-	Access denied	-	-	-	-	-
-	2	106	119	-	-	Access denied	-	-	-	-	-
-	2	107	119	-	-	Access denied	-	-	-	-	-
-	2	108	118	-	-	Access denied	-	-	-	-	-
-	2	109	119	-	-	Access denied	-	-	-	-	-
-	2	110	119	-	-	Access denied	-	-	-	-	-
-	2	112	118	-	-	Access denied	-	-	-	-	-
-	2	113	6A	-	-	Access denied	-	-	-	-	-
-	2	114	6A	-	-	Access denied	-	-	-	-	-
-	2	115	6A	-	-	Access denied	-	-	-	-	-
-	2	116	6A	-	-	Access denied	-	-	-	-	-
-	2	117	6A	-	-	Access denied	-	-	-	-	-
-	2	118	6A	-	-	Access denied	-	-	-	-	-
-	2	119	6A	-	-	Access denied	-	-	-	-	-
-	2	120	7A	-	-	Access denied	-	-	-	-	-
-	2	121	6A	-	-	Access denied	-	-	-	-	-
-	2	122	7A	-	-	Access denied	-	-	-	-	-
-	2	123	6A	-	-	Access denied	-	-	-	-	-
-	2	125	115	-	-	Access denied	-	-	-	-	-
-	2	126	7A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	127	6A	-	-	Access denied	-	-	-	-	-
-	2	128	7A	-	-	Access denied	-	-	-	-	-
-	2	130	6A	-	-	Access denied	-	-	-	-	-
-	2	131	7A	-	-	Access denied	-	-	-	-	-
-	2	132	7A	-	-	Access denied	-	-	-	-	-
-	2	133	116	-	-	Access denied	-	-	-	-	-
-	2	134	116	-	-	Access denied	-	-	-	-	-
-	2	135	116	-	-	Access denied	-	-	-	-	-
-	2	136	116	-	-	Access denied	-	-	-	-	-
-	2	138	116	-	-	Access denied	-	-	-	-	-
-	2	140	116	-	-	Access denied	-	-	-	-	-
-	2	141	6A	-	-	Access denied	-	-	-	-	-
-	2	142	7A	-	-	Access denied	-	-	-	-	-
-	2	144	6A	-	-	Access denied	-	-	-	-	-
-	2	145	6A	-	-	Access denied	-	-	-	-	-
-	2	146	117	-	-	Access denied	-	-	-	-	-
-	2	147	116	-	-	Access denied	-	-	-	-	-
-	2	148	7A	-	-	Access denied	-	-	-	-	-
-	2	149	116	-	-	Access denied	-	-	-	-	-
-	2	150	6A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	2	151	6A	-	-	Access denied	-	-	-	-	-
-	2	152	6A	-	-	Access denied	-	-	-	-	-
-	2	153	7A	-	-	Access denied	-	-	-	-	-
-	2	155	6A	-	-	Access denied	-	-	-	-	-
-	2	156	6A	-	-	Access denied	-	-	-	-	-
-	2	157	7A	-	-	Access denied	-	-	-	-	-
-	2	158	115	-	-	Access denied	-	-	-	-	-
-	2	159	6A	-	-	Access denied	-	-	-	-	-
-	2	160	117	-	-	Access denied	-	-	-	-	-
-	2	161	6A	-	-	Access denied	-	-	-	-	-
-	2	163	6A	-	-	Access denied	-	-	-	-	-
-	2	165	7A	-	-	Access denied	-	-	-	-	-
-	2	166	6A	-	-	Access denied	-	-	-	-	-
-	2	167	6A	-	-	Access denied	-	-	-	-	-
-	2	168	6A	-	-	Access denied	-	-	-	-	-
-	2	169	6A	-	-	Access denied	-	-	-	-	-
-	2	170	7A	-	-	Access denied	-	-	-	-	-
-	2	171	5A	-	-	Access denied	-	-	-	-	-
-	2	172	6A	-	-	Access denied	-	-	-	-	-
-	2	173	7A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	174	5A	-	-	Access denied	-	-	-	-	-
-	2	175	6A	-	-	Access denied	-	-	-	-	-
-	2	176	5A	-	-	Access denied	-	-	-	-	-
-	2	177	6A	-	-	Access denied	-	-	-	-	-
-	2	178	6A	-	-	Access denied	-	-	-	-	-
-	2	179	5A	-	-	Access denied	-	-	-	-	-
-	2	180	6A	-	-	Access denied	-	-	-	-	-
-	2	181	5A	-	-	Access denied	-	-	-	-	-
-	2	182	7A	-	-	Access denied	-	-	-	-	-
-	2	183	6A	-	-	Access denied	-	-	-	-	-
-	2	184	114	-	-	Access denied	-	-	-	-	-
-	2	185	7A	-	-	Access denied	-	-	-	-	-
-	2	186	6A	-	-	Access denied	-	-	-	-	-
-	2	187	5A	-	-	Access denied	-	-	-	-	-
-	2	188	5A	-	-	Access denied	-	-	-	-	-
-	2	189	114	-	-	Access denied	-	-	-	-	-
-	2	190	6A	-	-	Access denied	-	-	-	-	-
-	2	191	114	-	-	Access denied	-	-	-	-	-
-	2	192	6A	-	-	Access denied	-	-	-	-	-
-	2	193	5A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	194	5A	-	-	Access denied	-	-	-	-	-
-	2	195	6A	-	-	Access denied	-	-	-	-	-
-	2	196	6A	-	-	Access denied	-	-	-	-	-
-	2	197	114	-	-	Access denied	-	-	-	-	-
-	2	198	114	-	-	Access denied	-	-	-	-	-
-	2	199	5A	-	-	Access denied	-	-	-	-	-
-	2	200	6A	-	-	Access denied	-	-	-	-	-
-	2	201	114	-	-	Access denied	-	-	-	-	-
-	2	202	6A	-	-	Access denied	-	-	-	-	-
-	2	203	114	-	-	Access denied	-	-	-	-	-
-	2	204	6A	-	-	Access denied	-	-	-	-	-
-	2	205	114	-	-	Access denied	-	-	-	-	-
-	2	206	114	-	-	Access denied	-	-	-	-	-
-	2	207	113	-	-	Access denied	-	-	-	-	-
-	2	208	5A	-	-	Access denied	-	-	-	-	-
-	2	209	114	-	-	Access denied	-	-	-	-	-
-	2	210	5A	-	-	Access denied	-	-	-	-	-
-	2	211	114	-	-	Access denied	-	-	-	-	-
-	2	212	113	-	-	Access denied	-	-	-	-	-
-	2	213	114	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	2	214	5A	-	-	Access denied	-	-	-	-	-
-	2	215	4A	-	-	Access denied	-	-	-	-	-
-	2	216	114	-	-	Access denied	-	-	-	-	-
-	2	217	114	-	-	Access denied	-	-	-	-	-
-	2	218	113	-	-	Access denied	-	-	-	-	-
-	2	219	113	-	-	Access denied	-	-	-	-	-
-	2	220	113	-	-	Access denied	-	-	-	-	-
-	2	221	113	-	-	Access denied	-	-	-	-	-
-	2	222	113	-	-	Access denied	-	-	-	-	-
-	2	223	113	-	-	Access denied	-	-	-	-	-
-	2	225	113	-	-	Access denied	-	-	-	-	-
-	2	227	113	-	-	Access denied	-	-	-	-	-
-	2	228	113	-	-	Access denied	-	-	-	-	-
-	2	229	113	-	-	Access denied	-	-	-	-	-
-	2	231	113	-	-	Access denied	-	-	-	-	-
-	2	232	112	-	-	Access denied	-	-	-	-	-
-	2	234	112	-	-	Access denied	-	-	-	-	-
-	2	236	111	-	-	Access denied	-	-	-	-	-
-	2	237	111	-	-	Access denied	-	-	-	-	-
-	2	238	111	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	239	111	-	-	Access denied	-	-	-	-	-
-	2	240	111	-	-	Access denied	-	-	-	-	-
-	2	241	111	-	-	Access denied	-	-	-	-	-
-	2	242	111	-	-	Access denied	-	-	-	-	-
-	2	243	111	-	-	Access denied	-	-	-	-	-
-	2	244	111	-	-	Access denied	-	-	-	-	-
-	2	245	110	-	-	Access denied	-	-	-	-	-
-	2	246	111	-	-	Access denied	-	-	-	-	-
-	2	247	110	-	-	Access denied	-	-	-	-	-
-	2	248	111	-	-	Access denied	-	-	-	-	-
-	2	249	110	-	-	Access denied	-	-	-	-	-
-	2	250	110	-	-	Access denied	-	-	-	-	-
-	2	251	110	-	-	Access denied	-	-	-	-	-
-	2	252	110	-	-	Access denied	-	-	-	-	-
-	2	255	110	-	-	Access denied	-	-	-	-	-
-	2	257	110	-	-	Access denied	-	-	-	-	-
-	2	259	110	-	-	Access denied	-	-	-	-	-
-	2	260	109	-	-	Access denied	-	-	-	-	-
-	2	261	110	-	-	Access denied	-	-	-	-	-
-	2	262	110	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	264	110	-	-	Access denied	-	-	-	-	-
-	2	265	110	-	-	Access denied	-	-	-	-	-
-	2	266	110	-	-	Access denied	-	-	-	-	-
-	2	268	110	-	-	Access denied	-	-	-	-	-
-	2	269	110	-	-	Access denied	-	-	-	-	-
-	2	271	110	-	-	Access denied	-	-	-	-	-
-	2	273	110	-	-	Access denied	-	-	-	-	-
-	2	274	110	-	-	Access denied	-	-	-	-	-
-	2	276	107	-	-	Access denied	-	-	-	-	-
-	2	292	106	-	-	Access denied	-	-	-	-	-
-	2	293	105	-	-	Access denied	-	-	-	-	-
-	2	294	105	-	-	Access denied	-	-	-	-	-
-	2	318	101	-	-	Access denied	-	-	-	-	-
-	2	319	101	-	-	Access denied	-	-	-	-	-
-	2	320	101	-	-	Access denied	-	-	-	-	-
-	2	321	101	-	-	Access denied	-	-	-	-	-
-	2	323	101	-	-	Access denied	-	-	-	-	-
-	2	324	101	-	-	Access denied	-	-	-	-	-
-	2	326	101	-	-	Access denied	-	-	-	-	-
-	2	327	101	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
5/22/2011	2	328	101	-	-	Access denied	-	-	-	-	-
-	2	332	100	-	-	Access denied	-	-	-	-	-
5/22/2011	2	340	100	-	-	Access denied	-	-	-	-	-
5/22/2011	2	350	100	-	-	Access denied	-	-	-	-	-
-	2	408	98	-	-	Access denied	-	-	-	-	-
-	2	498	91	-	-	Access denied	-	-	-	-	-
-	2	502	91	-	-	Access denied	-	-	-	-	-
-	2	516	91	-	-	Access denied	-	-	-	-	-
-	2	524	91	-	-	Access denied	-	-	-	-	-
-	2	536	88	-	-	Access denied	-	-	-	-	-
-	2	543	89	-	-	Access denied	-	-	-	-	-
-	2	545	88	-	-	Access denied	-	-	-	-	-
-	2	546	88	-	-	Access denied	-	-	-	-	-
-	2	552	88	-	-	Access denied	-	-	-	-	-
-	2	554	88	-	-	Access denied	-	-	-	-	-
-	2	557	88	-	-	Access denied	-	-	-	-	-
-	2	559	87	-	-	Access denied	-	-	-	-	-
-	2	560	88	-	-	Access denied	-	-	-	-	-
-	2	562	88	-	-	Access denied	-	-	-	-	-
-	2	566	87	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	2	567	88	-	-	Access denied	-	-	-	-	-
-	3	2	124	-	-	Access denied	-	-	-	-	-
-	3	96	120	-	-	Access denied	-	-	-	-	-
-	3	97	120	-	-	Access denied	-	-	-	-	-
-	3	98	119	-	-	Access denied	-	-	-	-	-
-	3	103	119	-	-	Access denied	-	-	-	-	-
-	3	104	119	-	-	Access denied	-	-	-	-	-
-	3	105	119	-	-	Access denied	-	-	-	-	-
-	3	106	119	-	-	Access denied	-	-	-	-	-
-	3	107	119	-	-	Access denied	-	-	-	-	-
-	3	108	118	-	-	Access denied	-	-	-	-	-
-	3	109	119	-	-	Access denied	-	-	-	-	-
-	3	110	119	-	-	Access denied	-	-	-	-	-
-	3	112	118	-	-	Access denied	-	-	-	-	-
-	3	113	6A	-	-	Access denied	-	-	-	-	-
-	3	114	6A	-	-	Access denied	-	-	-	-	-
-	3	115	6A	-	-	Access denied	-	-	-	-	-
-	3	116	6A	-	-	Access denied	-	-	-	-	-
-	3	117	6A	-	-	Access denied	-	-	-	-	-
-	3	118	6A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	119	6A	-	-	Access denied	-	-	-	-	-
-	3	120	7A	-	-	Access denied	-	-	-	-	-
-	3	121	6A	-	-	Access denied	-	-	-	-	-
-	3	122	7A	-	-	Access denied	-	-	-	-	-
-	3	123	6A	-	-	Access denied	-	-	-	-	-
-	3	125	115	-	-	Access denied	-	-	-	-	-
-	3	126	7A	-	-	Access denied	-	-	-	-	-
-	3	127	6A	-	-	Access denied	-	-	-	-	-
-	3	128	7A	-	-	Access denied	-	-	-	-	-
-	3	130	6A	-	-	Access denied	-	-	-	-	-
-	3	131	7A	-	-	Access denied	-	-	-	-	-
-	3	132	7A	-	-	Access denied	-	-	-	-	-
-	3	133	116	-	-	Access denied	-	-	-	-	-
-	3	134	116	-	-	Access denied	-	-	-	-	-
-	3	135	116	-	-	Access denied	-	-	-	-	-
-	3	136	116	-	-	Access denied	-	-	-	-	-
-	3	138	116	-	-	Access denied	-	-	-	-	-
-	3	140	116	-	-	Access denied	-	-	-	-	-
-	3	141	6A	-	-	Access denied	-	-	-	-	-
-	3	142	7A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	144	6A	-	-	Access denied	-	-	-	-	-
-	3	145	6A	-	-	Access denied	-	-	-	-	-
-	3	146	117	-	-	Access denied	-	-	-	-	-
-	3	147	116	-	-	Access denied	-	-	-	-	-
-	3	148	7A	-	-	Access denied	-	-	-	-	-
-	3	149	116	-	-	Access denied	-	-	-	-	-
-	3	150	6A	-	-	Access denied	-	-	-	-	-
-	3	151	6A	-	-	Access denied	-	-	-	-	-
-	3	152	6A	-	-	Access denied	-	-	-	-	-
-	3	153	7A	-	-	Access denied	-	-	-	-	-
-	3	155	6A	-	-	Access denied	-	-	-	-	-
-	3	156	6A	-	-	Access denied	-	-	-	-	-
-	3	157	7A	-	-	Access denied	-	-	-	-	-
-	3	158	115	-	-	Access denied	-	-	-	-	-
-	3	159	6A	-	-	Access denied	-	-	-	-	-
-	3	160	117	-	-	Access denied	-	-	-	-	-
-	3	161	6A	-	-	Access denied	-	-	-	-	-
-	3	163	6A	-	-	Access denied	-	-	-	-	-
-	3	165	7A	-	-	Access denied	-	-	-	-	-
-	3	166	6A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	167	6A	-	-	Access denied	-	-	-	-	-
-	3	168	6A	-	-	Access denied	-	-	-	-	-
-	3	169	6A	-	-	Access denied	-	-	-	-	-
-	3	170	7A	-	-	Access denied	-	-	-	-	-
-	3	171	5A	-	-	Access denied	-	-	-	-	-
-	3	172	6A	-	-	Access denied	-	-	-	-	-
-	3	173	7A	-	-	Access denied	-	-	-	-	-
-	3	174	5A	-	-	Access denied	-	-	-	-	-
-	3	175	6A	-	-	Access denied	-	-	-	-	-
-	3	176	5A	-	-	Access denied	-	-	-	-	-
-	3	177	6A	-	-	Access denied	-	-	-	-	-
-	3	178	6A	-	-	Access denied	-	-	-	-	-
-	3	179	5A	-	-	Access denied	-	-	-	-	-
-	3	180	6A	-	-	Access denied	-	-	-	-	-
-	3	181	5A	-	-	Access denied	-	-	-	-	-
-	3	182	7A	-	-	Access denied	-	-	-	-	-
-	3	183	6A	-	-	Access denied	-	-	-	-	-
-	3	184	114	-	-	Access denied	-	-	-	-	-
-	3	185	7A	-	-	Access denied	-	-	-	-	-
-	3	186	6A	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	187	5A	-	-	Access denied	-	-	-	-	-
-	3	188	5A	-	-	Access denied	-	-	-	-	-
-	3	189	114	-	-	Access denied	-	-	-	-	-
-	3	190	6A	-	-	Access denied	-	-	-	-	-
-	3	191	114	-	-	Access denied	-	-	-	-	-
-	3	192	6A	-	-	Access denied	-	-	-	-	-
-	3	193	5A	-	-	Access denied	-	-	-	-	-
-	3	194	5A	-	-	Access denied	-	-	-	-	-
-	3	195	6A	-	-	Access denied	-	-	-	-	-
-	3	196	6A	-	-	Access denied	-	-	-	-	-
-	3	197	114	-	-	Access denied	-	-	-	-	-
-	3	198	114	-	-	Access denied	-	-	-	-	-
-	3	199	5A	-	-	Access denied	-	-	-	-	-
-	3	200	6A	-	-	Access denied	-	-	-	-	-
-	3	201	114	-	-	Access denied	-	-	-	-	-
-	3	202	6A	-	-	Access denied	-	-	-	-	-
-	3	203	114	-	-	Access denied	-	-	-	-	-
-	3	204	6A	-	-	Access denied	-	-	-	-	-
-	3	205	114	-	-	Access denied	-	-	-	-	-
-	3	206	114	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	207	113	-	-	Access denied	-	-	-	-	-
-	3	208	5A	-	-	Access denied	-	-	-	-	-
-	3	209	114	-	-	Access denied	-	-	-	-	-
-	3	210	5A	-	-	Access denied	-	-	-	-	-
-	3	211	114	-	-	Access denied	-	-	-	-	-
-	3	212	113	-	-	Access denied	-	-	-	-	-
-	3	213	114	-	-	Access denied	-	-	-	-	-
-	3	214	5A	-	-	Access denied	-	-	-	-	-
-	3	215	4A	-	-	Access denied	-	-	-	-	-
-	3	216	114	-	-	Access denied	-	-	-	-	-
-	3	217	114	-	-	Access denied	-	-	-	-	-
-	3	218	113	-	-	Access denied	-	-	-	-	-
-	3	219	113	-	-	Access denied	-	-	-	-	-
-	3	220	113	-	-	Access denied	-	-	-	-	-
-	3	221	113	-	-	Access denied	-	-	-	-	-
-	3	222	113	-	-	Access denied	-	-	-	-	-
-	3	223	113	-	-	Access denied	-	-	-	-	-
-	3	225	113	-	-	Access denied	-	-	-	-	-
-	3	227	113	-	-	Access denied	-	-	-	-	-
-	3	228	113	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	3	229	113	-	-	Access denied	-	-	-	-	-
-	3	231	113	-	-	Access denied	-	-	-	-	-
-	3	232	112	-	-	Access denied	-	-	-	-	-
-	3	234	112	-	-	Access denied	-	-	-	-	-
-	3	236	111	-	-	Access denied	-	-	-	-	-
-	3	237	111	-	-	Access denied	-	-	-	-	-
-	3	238	111	-	-	Access denied	-	-	-	-	-
-	3	239	111	-	-	Access denied	-	-	-	-	-
-	3	240	111	-	-	Access denied	-	-	-	-	-
-	3	241	111	-	-	Access denied	-	-	-	-	-
-	3	242	111	-	-	Access denied	-	-	-	-	-
-	3	243	111	-	-	Access denied	-	-	-	-	-
-	3	244	111	-	-	Access denied	-	-	-	-	-
-	3	245	110	-	-	Access denied	-	-	-	-	-
-	3	246	111	-	-	Access denied	-	-	-	-	-
-	3	247	110	-	-	Access denied	-	-	-	-	-
-	3	248	111	-	-	Access denied	-	-	-	-	-
-	3	249	110	-	-	Access denied	-	-	-	-	-
-	3	250	110	-	-	Access denied	-	-	-	-	-
-	3	251	110	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Eastings	Northing		Observation Type	
-	3	252	110	-	-	Access denied	-	-	-	-	-
-	3	255	110	-	-	Access denied	-	-	-	-	-
-	3	257	110	-	-	Access denied	-	-	-	-	-
-	3	259	110	-	-	Access denied	-	-	-	-	-
-	3	261	110	-	-	Access denied	-	-	-	-	-
-	3	262	110	-	-	Access denied	-	-	-	-	-
-	3	264	110	-	-	Access denied	-	-	-	-	-
-	3	265	110	-	-	Access denied	-	-	-	-	-
-	3	266	110	-	-	Access denied	-	-	-	-	-
-	3	268	110	-	-	Access denied	-	-	-	-	-
-	3	269	110	-	-	Access denied	-	-	-	-	-
-	3	271	110	-	-	Access denied	-	-	-	-	-
-	3	273	110	-	-	Access denied	-	-	-	-	-
-	3	274	110	-	-	Access denied	-	-	-	-	-
-	3	276	107	-	-	Access denied	-	-	-	-	-
-	3	318	101	-	-	Access denied	-	-	-	-	-
-	3	319	101	-	-	Access denied	-	-	-	-	-
-	3	320	101	-	-	Access denied	-	-	-	-	-
-	3	321	101	-	-	Access denied	-	-	-	-	-
-	3	323	101	-	-	Access denied	-	-	-	-	-

Date	Survey Period	Calling station number	Nearest Milepost	Time		Survey Type	UTM (NAD83, Zone 11)		Vegetation (Common Name)	Owl Observations	Notes
				Start	End		Easting	Northing		Observation Type	
-	3	324	101	-	-	Access denied	-	-	-	-	-
-	3	326	101	-	-	Access denied	-	-	-	-	-
-	3	408	98	-	-	Access denied	-	-	-	-	-
-	3	498	91	-	-	Access denied	-	-	-	-	-
-	3	502	91	-	-	Access denied	-	-	-	-	-
-	3	516	91	-	-	Access denied	-	-	-	-	-
-	3	524	91	-	-	Access denied	-	-	-	-	-
-	3	536	88	-	-	Access denied	-	-	-	-	-
-	3	543	89	-	-	Access denied	-	-	-	-	-
-	3	545	88	-	-	Access denied	-	-	-	-	-
-	3	546	88	-	-	Access denied	-	-	-	-	-
-	3	552	88	-	-	Access denied	-	-	-	-	-
-	3	554	88	-	-	Access denied	-	-	-	-	-
-	3	557	88	-	-	Access denied	-	-	-	-	-
-	3	559	87	-	-	Access denied	-	-	-	-	-
-	3	560	88	-	-	Access denied	-	-	-	-	-
-	3	562	88	-	-	Access denied	-	-	-	-	-
-	3	566	87	-	-	Access denied	-	-	-	-	-
-	3	567	88	-	-	Access denied	-	-	-	-	-

2012 Report



TETRA TECH

Boardman to Hemingway Transmission Line Project

2012 Great Gray and Flammulated Owl Surveys



**January 2013
4370RPT.DOC**



Great Gray and Flammulated Owl Surveys

Boardman to Hemingway Transmission Line Project

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Appendix A Example Survey Form

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1.0 INTRODUCTION

1.1 Project Overview

Idaho Power Company (Idaho Power) is proposing to construct and operate a new, approximately 300-mile-long, single-circuit 500 kilovolt (kV) electric transmission line between northeast Oregon and southwest Idaho (hereinafter the B2H Project or Project). The overhead 500 kV transmission line will carry energy bi-directionally between a Portland General Electric planned substation (Grassland Substation) adjacent to the Boardman Generating Plant, near Boardman in Morrow County, Oregon, and Idaho Power's existing Hemingway Substation, located in Owyhee County, Idaho (Figure 1). The Project will traverse Federal, state, and private lands in 6 counties in Oregon and Idaho.

The Project would result in disturbances related to the construction of permanent facilities such as transmission tower pads, substations, and communication stations and permanent access roads, as well as temporary disturbances related to fly yards, multiuse areas, tensioning sites, and temporary access roads. In addition, the Project would include the initial clearing and long-term vegetation management within and adjacent to the right-of-way. This includes the removal of trees that could interfere with the safe construction and operation of the line. To help determine the degree of impact that could occur from construction and operation of these Project components, the location of occupied territories and nests for great gray owls (*Strix nebulosa*) and flammulated owls (*Otus flammeolus*) that occur along the Project have been identified by this survey.

The Project, as proposed, would cross both public and private lands. Public lands that would be crossed are managed, in part, with the intent of conserving and improving wildlife populations, and public land managers have gathered data on lands they manage. Data for private lands, with the exception of some statewide data gathered by state fish and game agencies, are largely unavailable. This means that existing databases could not always be used to determine the locations of great gray and flammulated owls and their habitats, territories, and nests that could be impacted by the Project. Therefore, surveys for great gray and flammulated owls were implemented to supplement existing data. Field surveys could not be conducted in all suitable habitat crossed by the Project because IPC does not currently have access to all private land crossed by the Proposed Route and alternate corridor segments.

The objective of these surveys was to identify the presence and/or absence of great gray and flammulated owls in the vicinity of the proposed and alternate Project corridors so that Project impacts to these species may be avoided and/or minimized. Surveys were conducted in 2011 and 2012. This report summarizes the findings of the 2012 surveys. Findings of the 2011 surveys are presented in the 2011 technical report *2011 Great Gray and Flammulated Owl Surveys* (Tetra Tech 2011a).

1.2 Target Species

The great gray owl is the largest owl in North America. It inhabits coniferous and hardwood forests, pine and spruce in particular, and utilize older seral stages of forest and second-growth stands, typically near a water source. The great gray owl nests in broken-top snags or uses abandoned stick nests of other species such as goshawks. It usually forages in open areas where scattered trees or forest margins provide suitable sites for visual searching. When the owl is nesting, it hunts during both day and night (Quintana-Coyer et al. 2004). Great gray owl nesting habitat that is crossed by the Project has been identified as having a minimum of 60

percent canopy cover (Bull and Henjum 1990), and generally occurs in the Blue Mountains of Oregon.

The flammulated owl is North America's smallest eared owl. It is generally associated with montane forests with brushy understory. It prefers aspen and ponderosa pine and can occur in mixed conifer forests of oak, Douglas fir, white fir, incense cedar, or sugar pine. Flammulated owls typically nest in cavities made by northern flickers and similar-sized woodpeckers. They are almost exclusively insectivorous, foraging at dawn and dusk (BLM 1997). The flammulated owl is one of the most migratory owls in North America. Even with lengthy migrations, breeding site fidelity is high and nests are used for multiple years.

2.0 SURVEY AREA

Under the Oregon Department of Energy's Energy Facility Siting Council process, the applicant describes a site boundary within which the facility will be permitted by the Department of Energy. The site boundary was used to guide the establishment of the appropriate survey area for great gray and flammulated owls. The site boundary along the proposed route passes through a variety of ownerships including U.S. Forest Service (USFS), Bureau of Land Management (BLM), state, and private lands. Great gray and flammulated owl habitat is located in lands under the administration of all the aforementioned entities.

In general, access to the lands under the administration of the USFS, BLM, and State of Oregon was only limited by logistical constraints, primarily road coverage and conditions, and weather-related issues (e.g., storms and snow accumulations). In contrast, private lands were only accessible where landowners had provided access for the purposes of the survey. At the time of the 2012 survey, access was available to approximately 70 percent of the lands within the survey area (Figure 3).

The survey area generally occurs in the Blue Mountains, outside of La Grande, Oregon, from milepost (MP) 85 to 127 of the proposed transmission line (Figure 2). The survey area for great gray and flammulated owls is all areas within 0.25 mile of the site boundary between MPs 85 and 127 and encompasses 27,380 acres. While not all of the survey area is suitable nesting habitat for either species, this entire area was considered during placement of calling stations (Section 3.0).

3.0 METHODS

There were two main components to the great gray owl and flammulated owl survey. The first was a pre-field survey data collection, which was conducted in 2010 and early 2011 to establish survey areas and identify calling station locations prior to the 2011 great gray and flammulated owl surveys. Both the 2011 owl survey report (Tetra Tech 2011a) and the survey work plan (Tetra Tech 2011b) for the Project describe in more detail the data review process and agency coordination that occurred prior to the start of the 2011 field survey. The second component was field surveys that consisted of nocturnal acoustical callback surveys for both species at the established calling stations. Field survey methods used for this study were based on Quintana-Coyer et al. (2004) for great gray owls, and Smucker et al. (2008) for flammulated owls.

Nocturnal calling is recognized as the most efficient method for detecting great gray and flammulated owls because most owls respond more readily at night. In addition, sound travels more readily at night with less background noise, so both owls and observers are more likely to hear one another.

Great gray owls typically defend and call from a small area around their nest site (Bull and Duncan 1993). The primary territorial call can be heard as far away as 1,350 feet under ideal conditions, but typically it is heard within 650 feet. Within the survey areas, calling stations are placed at approximately 0.10-mile (528 foot) intervals (Quintana-Coyer et al. 2004). This spacing varies based on topography and habitat, while trying to establish stations at useful geographic features to ensure complete coverage of habitat. Some stations may have been dropped if they were in steep or unsafe terrain. Calling stations were identified by a unique number, and Universal Transverse Mercator geographic coordinates for each point were identified. This resulted in the establishment of 569 calling stations for 2012.

2012 survey efforts focused on finishing protocol survey methods for calling stations that were deemed incomplete during the 2011 surveys, where right of entry to calling stations was granted between the 2011 and 2012 surveys, and where modifications of the site boundary between 2011 and 2012 shifted the survey area.

Two calling station visits for both species, within the same year during unique survey periods, is required for a station to be considered complete for this report. The first survey period was for great gray owls and was selected to correspond with their nesting stage (late March). The second survey period was for great gray and flammulated owls and was selected to correspond with the late nestling and early fledgling period for great gray owls and nesting period for flammulated owls (late May). The third survey period was for flammulated owls and was developed to correspond with their fledgling period (late June). Calling stations that were considered incomplete for great gray owls because only one visit was made during the first two survey periods were completed during the third survey period if possible. The third survey period is still within the acceptable timeframe for surveying great gray owls (Quintana-Coyer et al. 2004). Survey period, dates, and species surveyed are presented in Table 1.

Table 1. Survey Period, Survey Date, and Species Surveyed

Survey Period	Survey Dates	Species Detected
1	April 10 - 17	great gray owl
2	May 14 - 21	great gray owl and flammulated owl
3	June 18 - 22	flammulated owl and great gray owl if needed

Field survey methods used for this study were based on Quintana-Coyer et al. (2004) for great gray owls and Smucker et al. (2008) for flammulated owls. All stations were called as described in these two protocols. The great gray owl survey consisted of 1 minute of listening upon arrival at a calling station followed by playing of Track #1 from the recommended CD/playlist (Quintana-Coyer et al. 2004). This track contains 5 minutes of male territorial calls and female contact calls interspersed with blocks of silence to listen for response and to change calling direction. The flammulated owl survey consisted of 1 minute of broadcast calling followed by 3 minutes of listening and then repeated. Calls were broadcast using Edge® digital game callers made by Expedite, Inc., or MP3 players with amplifiers.

Field crews used Global Positioning System technology for data collection activities. Trimble GeoXT survey grade receivers loaded with ESRI ArcPAD 10 software were used by crews conducting field surveys.

Survey data was gathered at each calling station whether or not an owl was detected. Data recorded included the date, survey start and stop time, and weather conditions (Appendix A). Responses from great gray or flammulated owls as well as other owl species were recorded with the following information: approximate distance from station, sex and age, time of first response, and type of detection (audio, visual, or both).

4.0 RESULTS

Of the 569 calling stations in the survey area, 181 met the requirements to be considered complete during the 2011 survey efforts (Table 2). Of the remaining 388 calling stations, 201 needed to be surveyed for both species during the 2012 survey; 121 needed to be surveyed for great gray owls only (2011 surveys met protocol for flammulated owls); and 66 needed to be surveyed for flammulated owls (2011 surveys met protocol for great gray owls).

Of the 388 calling stations that required survey in 2012, a total of 268 were completed. Combined with the 2011 effort, 449 out of the 569 calling stations have been completed (Table 2). The calling stations surveyed in 2011 and 2012 represent 79 percent of the total established calling stations within the great gray and flammulated owl survey area (Figures 5 through 11). Denial of property access accounts for a majority of the call stations that were not surveyed.

Table 2. Summary of 2011 & 2012 Survey Calling Station Access

Survey Year	Total Calling Stations Identified	Survey Completed	Target Species Observed	Access Denied ¹
2011	NA ²	181	5	NA ²
2012	569	268	10	120
Total	569	449	15	120

¹ Survey not conducted. Property owner denied access and/or access was blocked.

² Because of the shift in the site boundary, the survey area changed and the number and locations of calling stations changed between 2011 and 2012. Therefore, the total number of stations established in 2011 and the total number that were not accessed in 2011 are not applicable to the 2012 survey effort. These numbers are available in the 2011 report (Tetra Tech 2011a).

A total of 4 great gray owl and 6 flammulated owl detections were logged during surveys between April 10 and June 22, 2012. The four great gray owl observations occurred at three unique calling stations (two observations at one calling station). The six flammulated owl observations occurred at six unique calling stations. Daytime follow-up visits were conducted in response to the great gray and flammulated owl nocturnal detections. None of the follow-up visits resulted in additional detections or visual observations of the birds.

4.1 Survey Period 1

The first great gray owl observation occurred on April 11th, 2012 at calling station #77 near MP 122 (Figure 10). The observation was listed as a “possible great gray owl” by the field crew.

4.2 Survey Period 2

The second great gray owl observation occurred on May 18th, 2012 at calling station #632 near MP 119 (Figure 10). This observation was also listed as a “possible great gray owl” by the field crew. The third observation of a great gray owl occurred at calling station #714 (near MP 108, Figure 8) on May 21st. This observation was of a female great gray owl and was confirmed by a vocal response to the nocturnal callback survey.

The first flammulated owl observation occurred on May 16th, at calling station #35 near MP 124 (Figure 10).

4.3 Survey Period 3

The fourth observation of a great gray owl occurred at calling station #714 (near MP 108, Figure 8) on June 21st, 2012. This was the second vocal response from a great gray owl that occurred during nocturnal callbacks at calling station #714.

Two flammulated owl observations occurred on June 19th, 2012 during at calling stations #51 and #58 near MP 123 (Figure 10). Three flammulated owl observations occurred on June 20th, 2012 at calling stations #68, #74, and #75 near MP 122 (Figure 10).

During the course of the three survey periods, several additional owl species were heard, including barred owl (*Strix varia*), great horned owl (*Bubo virginianus*), northern pygmy owl (*Glaucidium californicum*), and northern saw-whet owl (*Aegolius acadicus*). All owl observations and some incidental wildlife observations are included in Table 3 and displayed in Figure 5 through Figure 11.

Table 3. Summary of 2012 Owl Observations and Incidental Wildlife Observations

Species	Date	Call Station	Milepost
Barred Owl	4/11/2012	77	123
Great Gray Owl	4/11/2012	77	123
Northern Pygmy Owl	4/11/2012	67	123
Unknown Owl	4/11/2012	71	123
Western Screech Owl	4/11/2012	72	123
Barred Owl	4/12/2012	34	124
Barred Owl	4/12/2012	38	124
Great Horned Owl	4/12/2012	25	124
Northern Saw-whet Owl	4/13/2012	517	91
Northern Saw-whet Owl	4/13/2012	509	91
Northern Saw-whet Owl	4/13/2012	512	91
Northern Saw-whet Owl	4/13/2012	519	91
Northern Saw-whet Owl	4/13/2012	534	91
Northern Saw-whet Owl	4/13/2012	526	91
Great Horned Owl	4/13/2012	59	123
Black Bear	4/13/2012	4	125
Great Horned Owl	4/14/2012	529	90
Great Horned Owl	4/14/2012	532	90
Great Horned Owl	4/15/2012	554	90
Northern Saw-whet Owl	4/15/2012	631	119
Northern Saw-whet Owl	4/15/2012	632	119
Northern Saw-whet Owl	4/15/2012	633	119
Northern Saw-whet Owl	4/15/2012	634	120
Great Horned Owl	4/17/2012	494	93
Pacific Chorus Frog	5/14/2012	626	87
Pacific Chorus Frog	5/14/2012	627	87
Great Horned Owl	5/14/2012	517	91
Great Horned Owl	5/14/2012	509	91
Northern Saw-whet Owl	5/14/2012	90	122
Great Horned Owl	5/15/2012	549	90
Great Horned Owl	5/15/2012	543	91

Table 3. Summary of 2012 Owl Observations and Incidental Wildlife Observations

Species	Date	Call Station	Milepost
Great Horned Owl	5/15/2012	534	91
Great Horned Owl	5/15/2012	530	91
Great Horned Owl	5/15/2012	519	91
Great Horned Owl	5/15/2012	526	91
Northern Saw-whet Owl	5/15/2012	88	122
Northern Saw-whet Owl	5/15/2012	21	124
Northern Saw-whet Owl	5/15/2012	18	124
Pacific Chorus Frog	5/16/2012	566	89
Flammulated Owl	5/16/2012	35	123
Great Horned Owl	5/16/2012	71	123
Northern Saw-whet Owl	5/16/2012	72	123
Northern Saw-whet Owl	5/16/2012	719	123
Northern Saw-whet Owl	5/16/2012	718	123
Great Horned Owl	5/16/2012	37	124
Pacific Chorus Frog	5/17/2012	507	92
Great Horned Owl	5/17/2012	620	103
Great Horned Owl	5/18/2012	698	94
Great Horned Owl	5/18/2012	697	94
Northern Pygmy Owl	5/18/2012	703	96
Great Horned Owl	5/18/2012	133	118
Great Gray Owl	5/18/2012	632	119
Great Horned Owl	5/18/2012	635	120
Great Horned Owl	5/18/2012	722	126
Great Horned Owl	5/18/2012	2	126
Great Horned Owl	5/19/2012	623	97
Great Horned Owl	5/19/2012	624	97
Northern Saw-whet Owl	5/20/2012	347	102
Northern Saw-whet Owl	5/20/2012	334	102
Great Horned Owl	5/20/2012	285	109
Red-tailed Hawk	5/20/2012	285	109
Great Horned Owl	5/20/2012	258	110
Great Horned Owl	5/20/2012	270	111
Great Gray Owl	5/21/2012	714	108
Great Horned Owl	6/19/2012	559	89
Great Horned Owl	6/19/2012	543	91
Flammulated Owl	6/19/2012	58	123
Flammulated Owl	6/19/2012	51	123
Great Horned Owl	6/19/2012	72	123
Great Horned Owl	6/19/2012	76	123
Great Horned Owl	6/19/2012	718	123
Flammulated Owl	6/20/2012	68	122
Flammulated Owl	6/20/2012	75	122
Flammulated Owl	6/20/2012	74	122
Great Horned Owl	6/21/2012	702	94
Great Gray Owl	6/21/2012	714	108

5.0 CONCLUSION

The objective of the great gray owl and flammulated owl surveys was to identify territories within or overlapping the Proposed Route and alternate corridor segments and to identify all nesting pairs of owls. The 2012 survey effort used the best available data and the appropriate recommended procedures for identifying the locations of great gray and flammulated owls that may be affected by the Project. No nest locations of great gray or flammulated owls were positively identified during this survey. However, observations during the survey confirm that both species are present within the survey area. Presence within the survey area indicates that there is a potential for the survey area to be within a breeding pair's territory.

A total of 4 great gray owl and 6 flammulated owl detections were obtained during the 2012 survey effort. Several additional owl species were heard, including barred owl, great horned owl, northern pygmy owl, and northern saw-whet owl.

Of the 4 great gray owl detections, the 2 detections at calling station #714 were confident detections by surveyors as compared to the other 2 detections which were identified as "potential great gray" owls. The two detections at #714 (Figure 8) indicate that a great gray owl may have an established territory in that location. Follow-up visits did not confirm a nest site within the general vicinity. However, additional site visits could help to determine if there is an established territory and whether the individual detected is a resident single or if a mated pair exists within the area.

While the other 2 great gray owl detections were less confident, the detections should be considered as great gray owl sightings. Given that previous or subsequent visits to those call stations did not result in additional great gray owl detections, it is unlikely that those areas contain a nest site or are within an established territory.

The six flammulated owl detections all occurred within a relatively small portion of the survey area from MP 122 to MP 124 (Figure 10). The detection at calling station #35 appears to be isolated from all other detections. Detections at calling stations #51 and #58 occurred on the same night and are within 1,500 ft. of each other. These detections could indicate a single owl from which the field crew was eliciting a territorial response. Calling stations #68, #74, and #75 are within 1,500 ft. of each other and cover an area of 13 acres. The three detections occurred on the same night and could indicate a territorial response from a single owl as well.

While no flammulated owl nests or individuals were identified in follow-up surveys at the six calling stations, the detections in this small area indicate that flammulated owls may have established at least two territories in that area. Additional site visits could help determine the breeding status in this area.

While the survey did not identify any nests for great gray or flammulated owls, the detections indicate activity near the survey area. This information can aid in Project planning and provide insight for potential pre-construction clearance surveys if needed. Appropriate field surveys to close data gaps where access was previously denied will be conducted once right of access to private property is obtained.

Prepared by:

Matt Cambier
Staff Biologist

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FIGURES

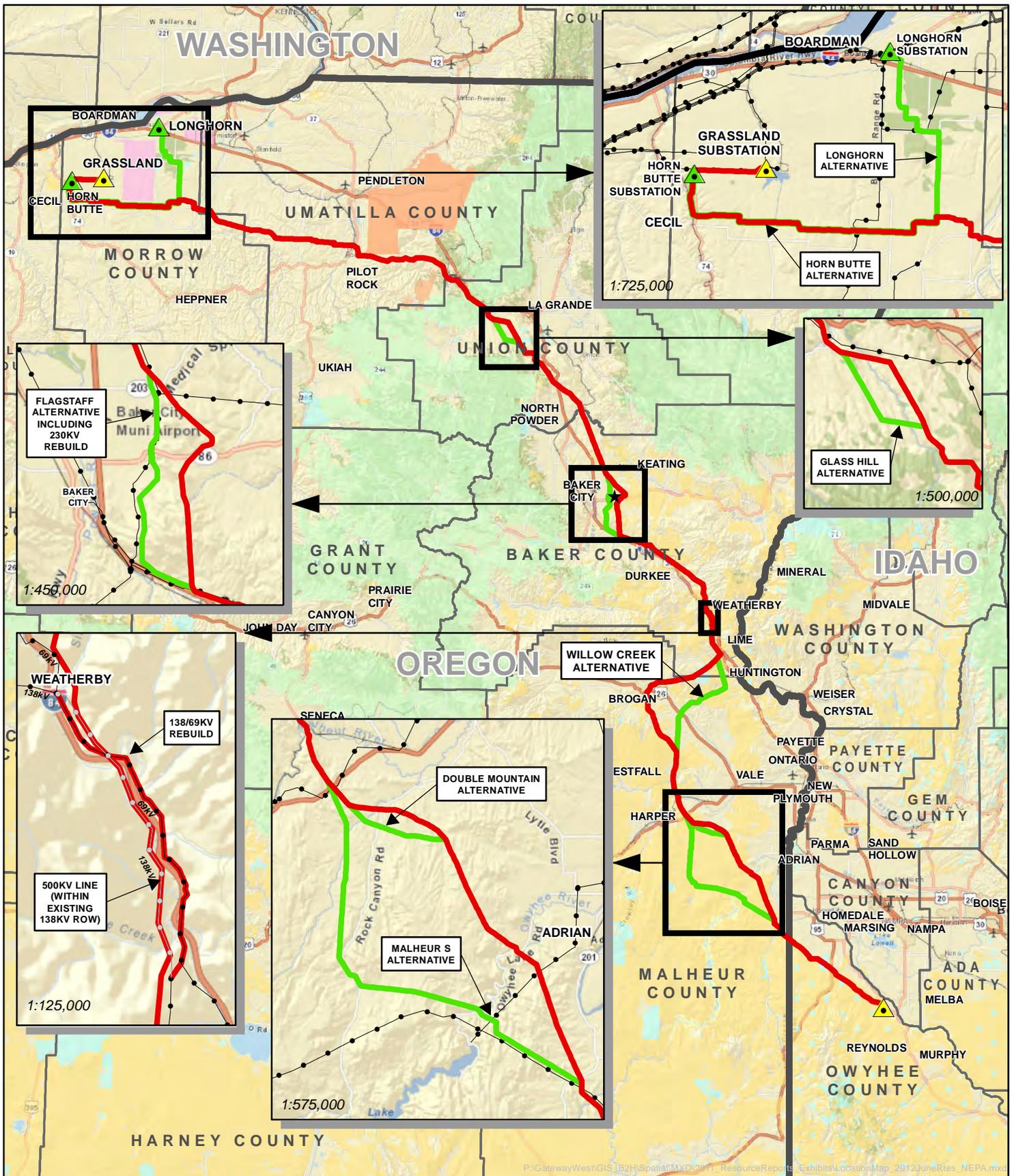
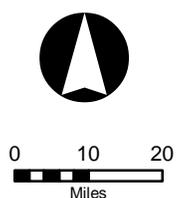


FIGURE 1
PROJECT OVERVIEW
2012 GREAT GRAY OWL AND
FLAMMULATED OWL SURVEYS
TECHNICAL REPORT
BOARDMAN TO HEMINGWAY
500KV TRANSMISSION LINE PROJECT
OREGON-IDAHO
 JANUARY 2013



- ★ National Historic Oregon Trail Interpretive Center
- ▲ Proposed Substation
- ▲ Alternate Substation
- Proposed Route 20120301
- IPC Alternative 20120301
- Proposed Rebuild 20120301
- ▭ State Boundary
- ▭ County Boundary
- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Department of Defense
- ▭ Forest Service
- ▭ CTUIR Lands
- ▭ State



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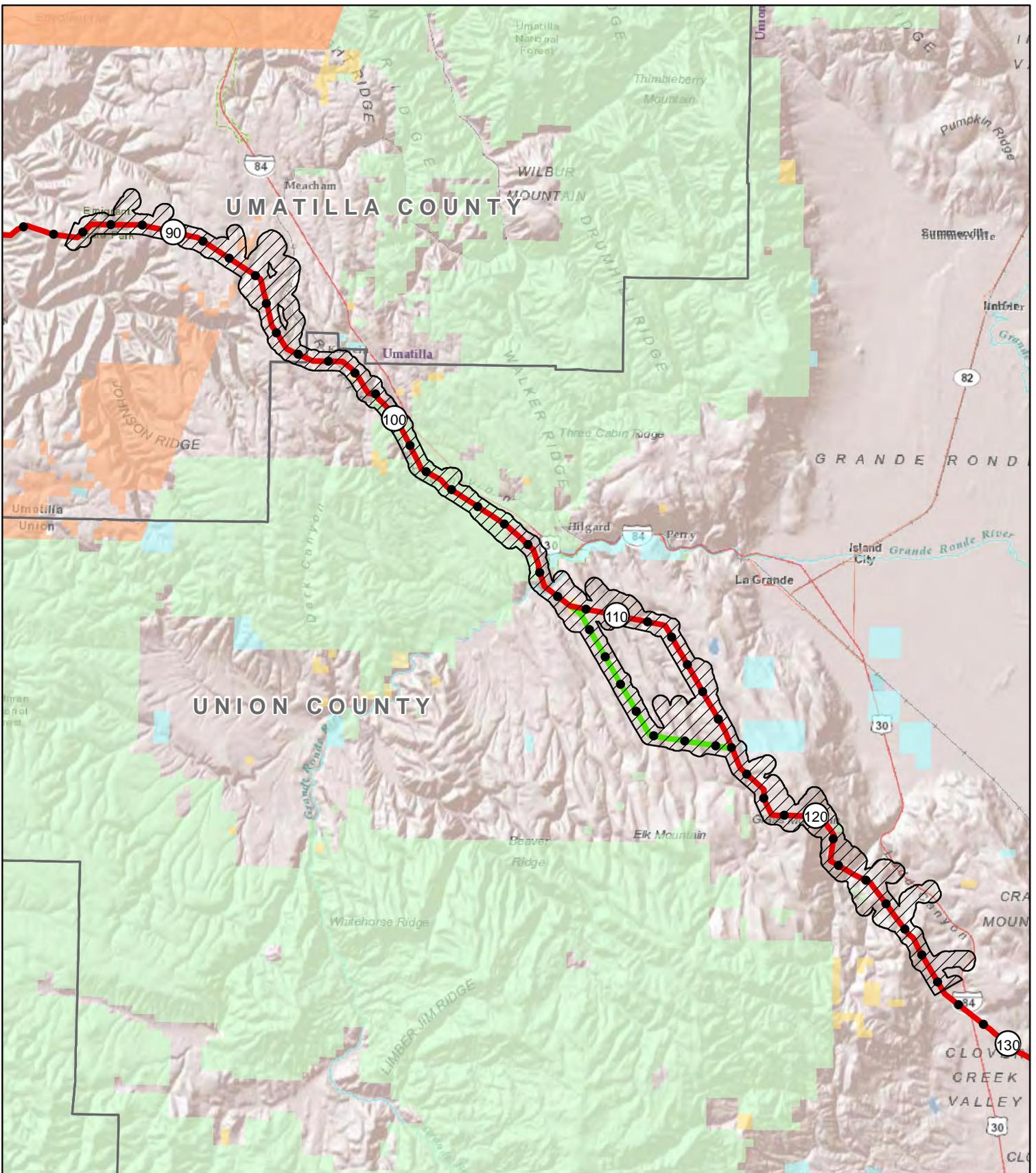
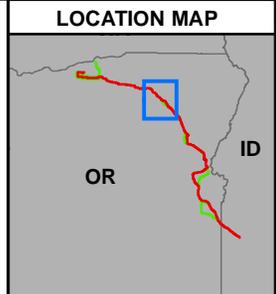


FIGURE 2
SURVEY AREA
2012 GREAT GRAY AND
FLAMMULATED OWL SURVEYS
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



- Milepost
- Milepost (10-mile)
- ▨ 0.25-mi Buffer of EFSC Site Boundary
- Proposed Route 20120301
- IPC Alternative 20120301
- ▭ State Boundary
- ▭ County Boundary
- ▭ Bureau of Land Management
- ▭ Bureau of Reclamation
- ▭ Forest Service
- ▭ CTUIR Lands
- ▭ State



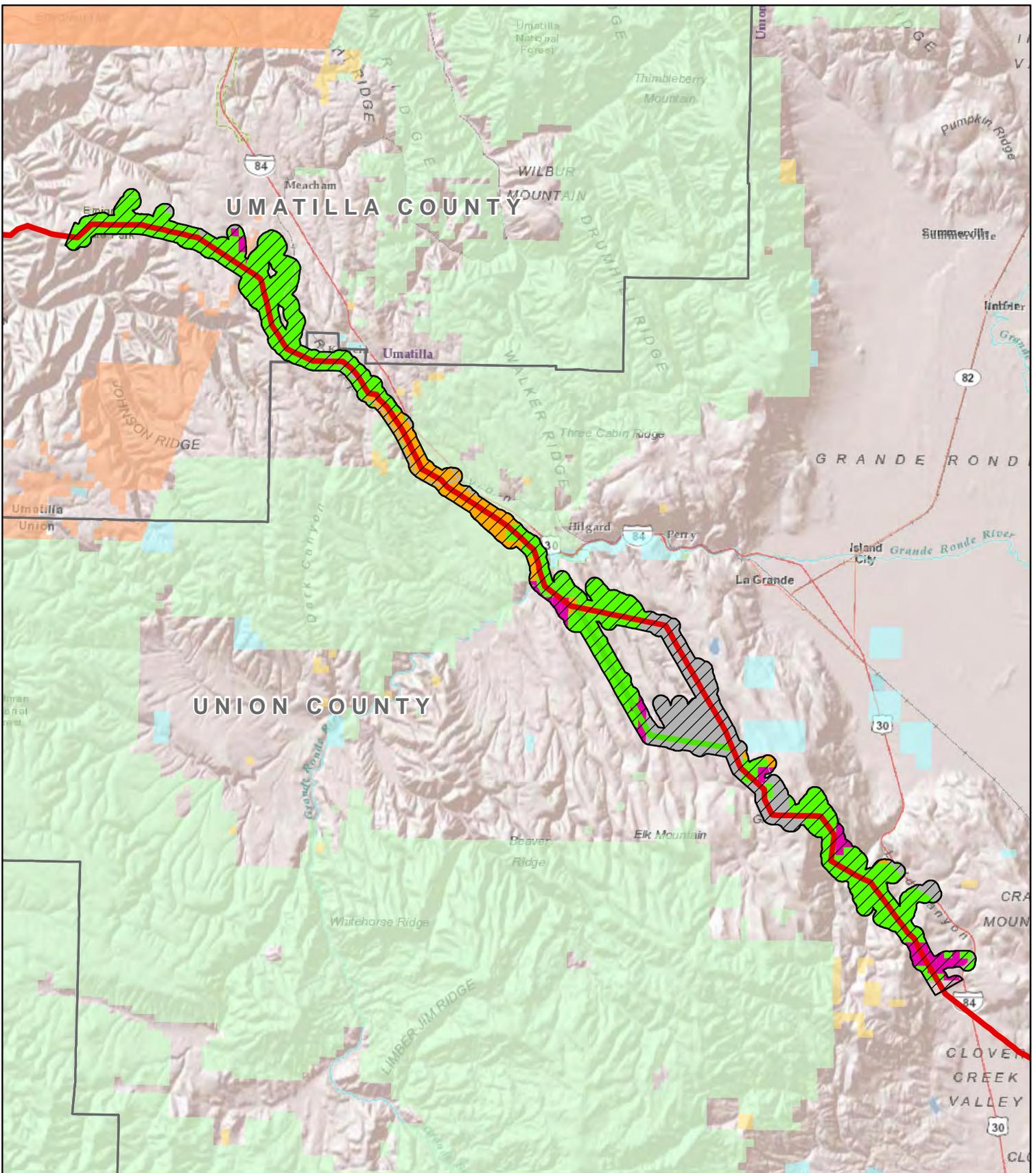


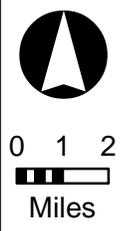
FIGURE 3
RIGHT OF ENTRY STATUS
2012 GREAT GRAY AND
FLAMMULATED OWL SURVEYS
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

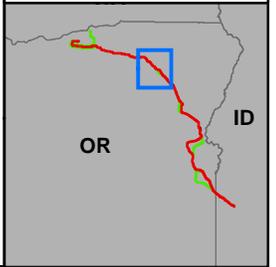
JANUARY 2013



- | | |
|--------------------------|--------------------------------------|
| Right-of-Entry Denied | 0.25-mi Buffer of EFSC Site Boundary |
| Right-of-Entry Granted | County Boundary |
| Public Land | Bureau of Land Management |
| No Landowner Response | Forest Service |
| Proposed Route 20120301 | CTUIR Lands |
| IPC Alternative 20120301 | Private |
| Milepost | State |
| Milepost (10-mile) | |



LOCATION MAP



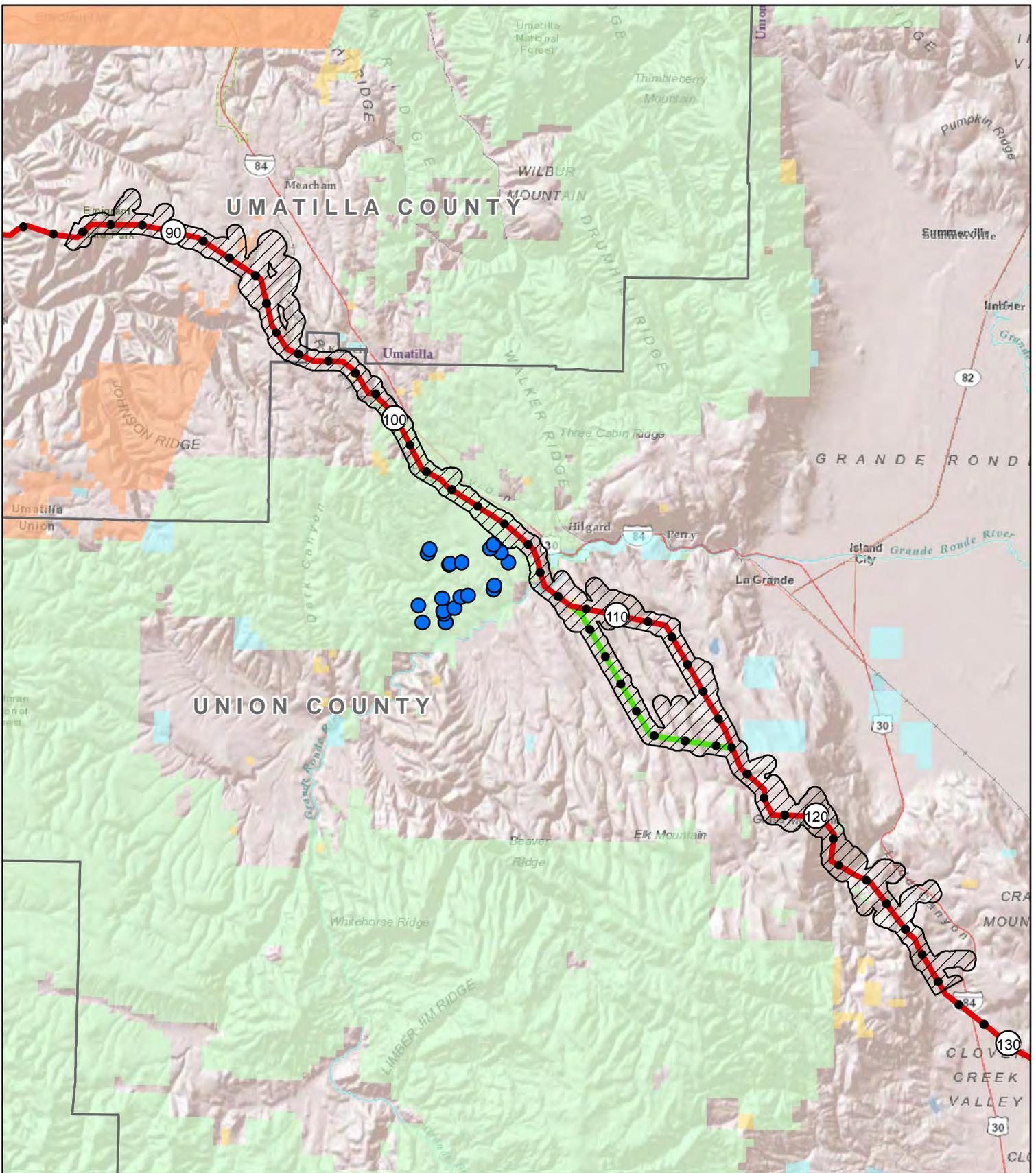
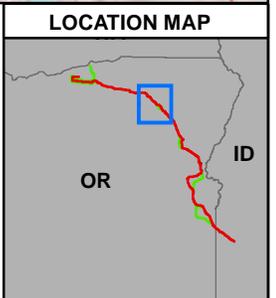
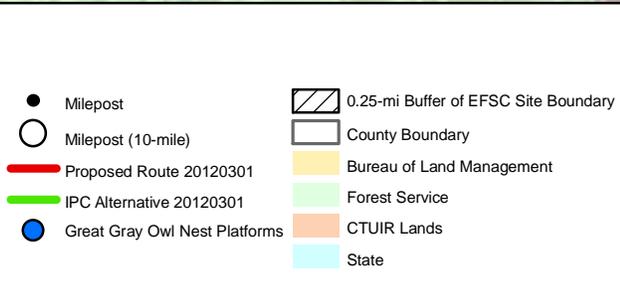


FIGURE 4
U.S. FOREST SERVICE EXISTING DATA
2012 GREAT GRAY OWL AND
FLAMMULATED OWL SURVEYS
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



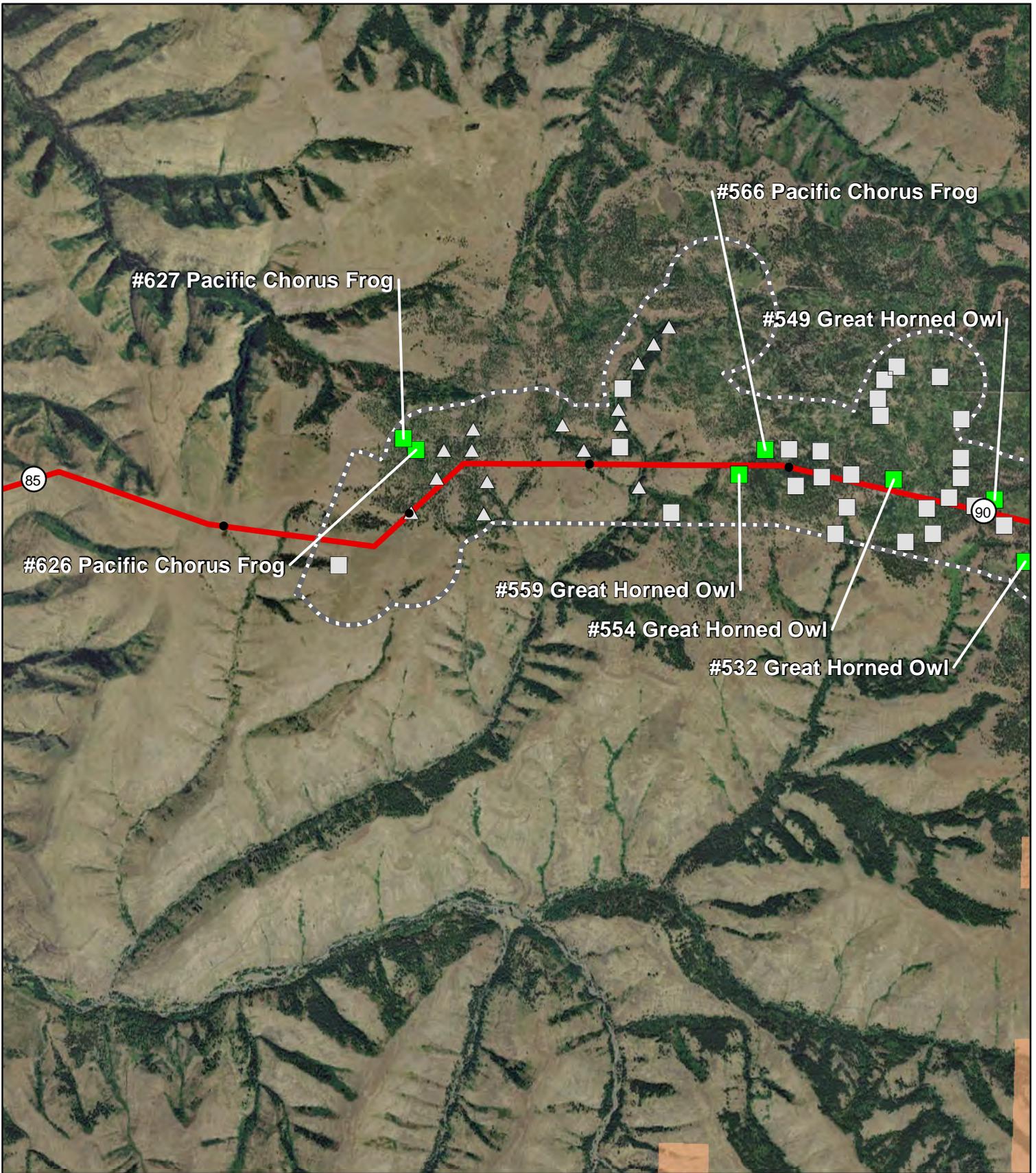
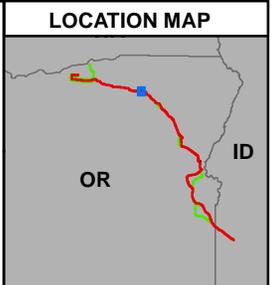
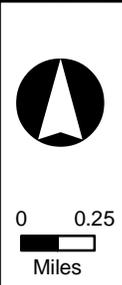
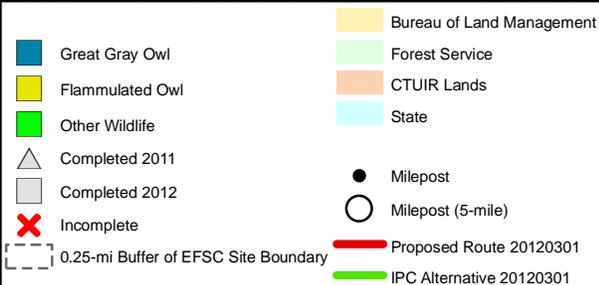


FIGURE 5
SURVEY RESULTS - MILEPOSTS 86 TO 90
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



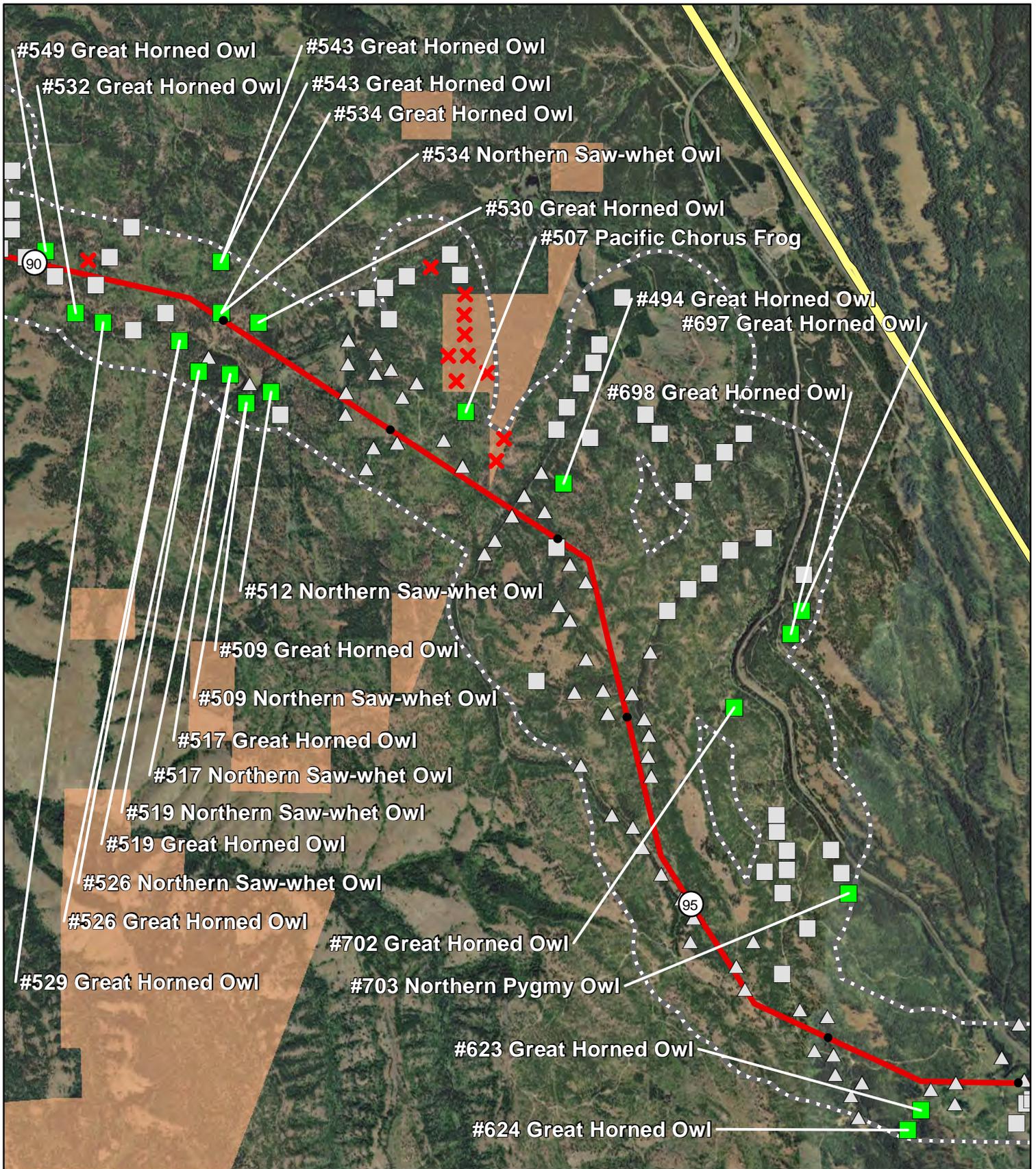
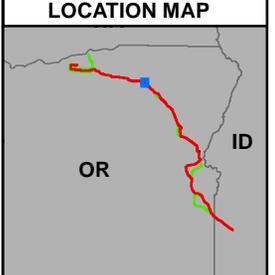
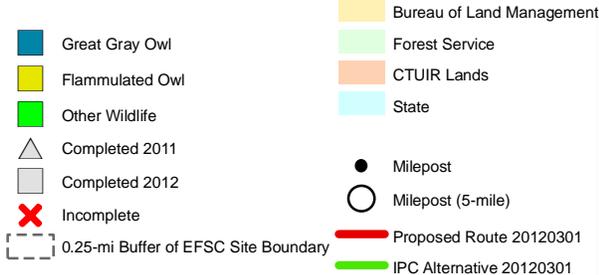


FIGURE 6
SURVEY RESULTS - MILEPOSTS 90 TO 97
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



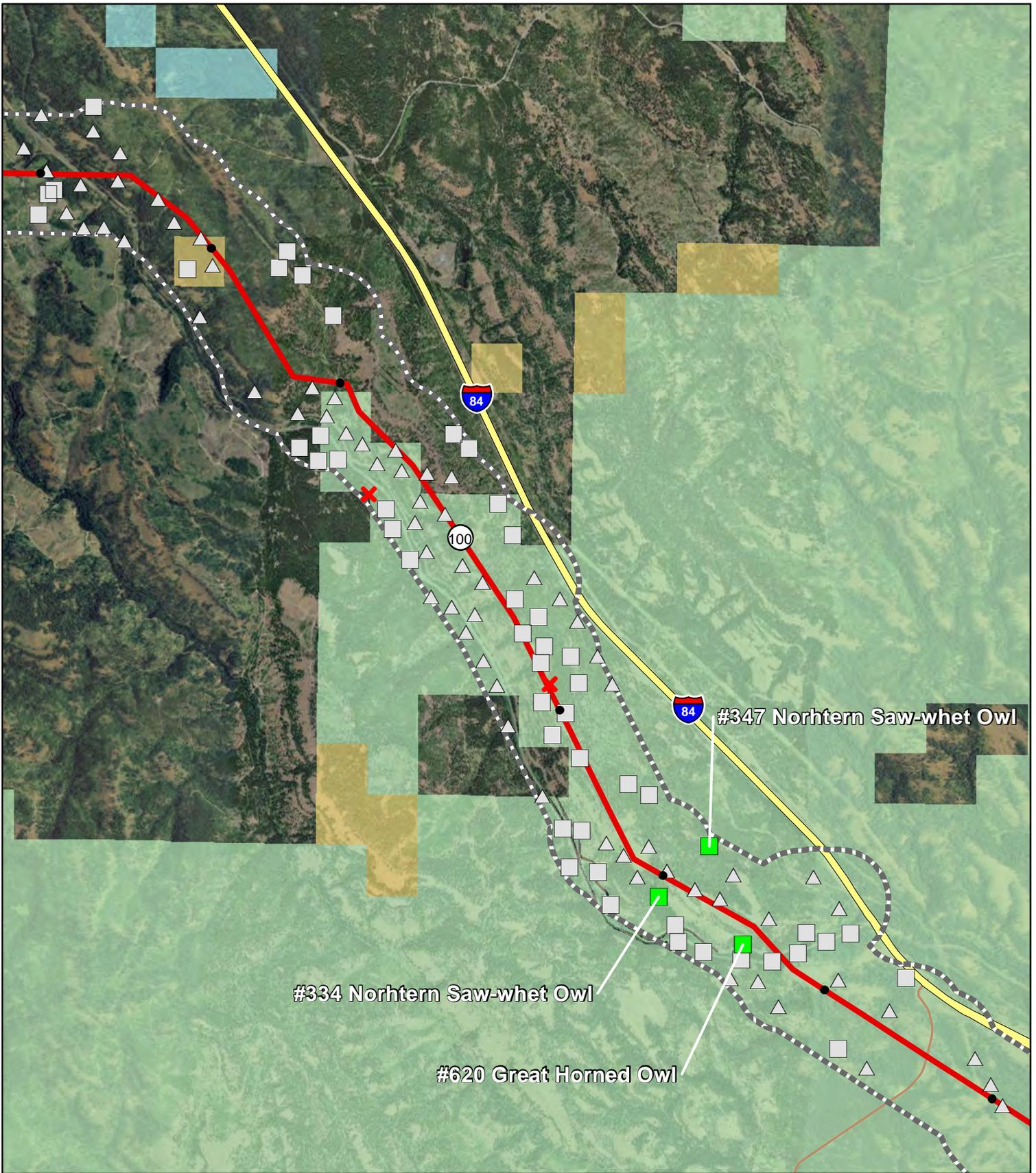


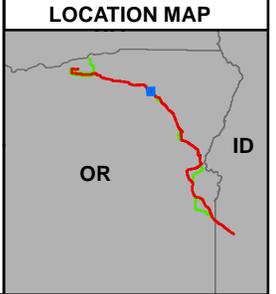
FIGURE 7
SURVEY RESULTS - MILEPOSTS 97 to 104
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



- Great Gray Owl
- Flammulated Owl
- Other Wildlife
- Completed 2011
- Completed 2012
- Incomplete
- 0.25-mi Buffer of EFSC Site Boundary
- Bureau of Land Management
- Forest Service
- CTUIR Lands
- State
- Milepost
- Milepost (5-mile)
- Proposed Route 20120301
- IPC Alternative 20120301


 0 0.25

 Miles



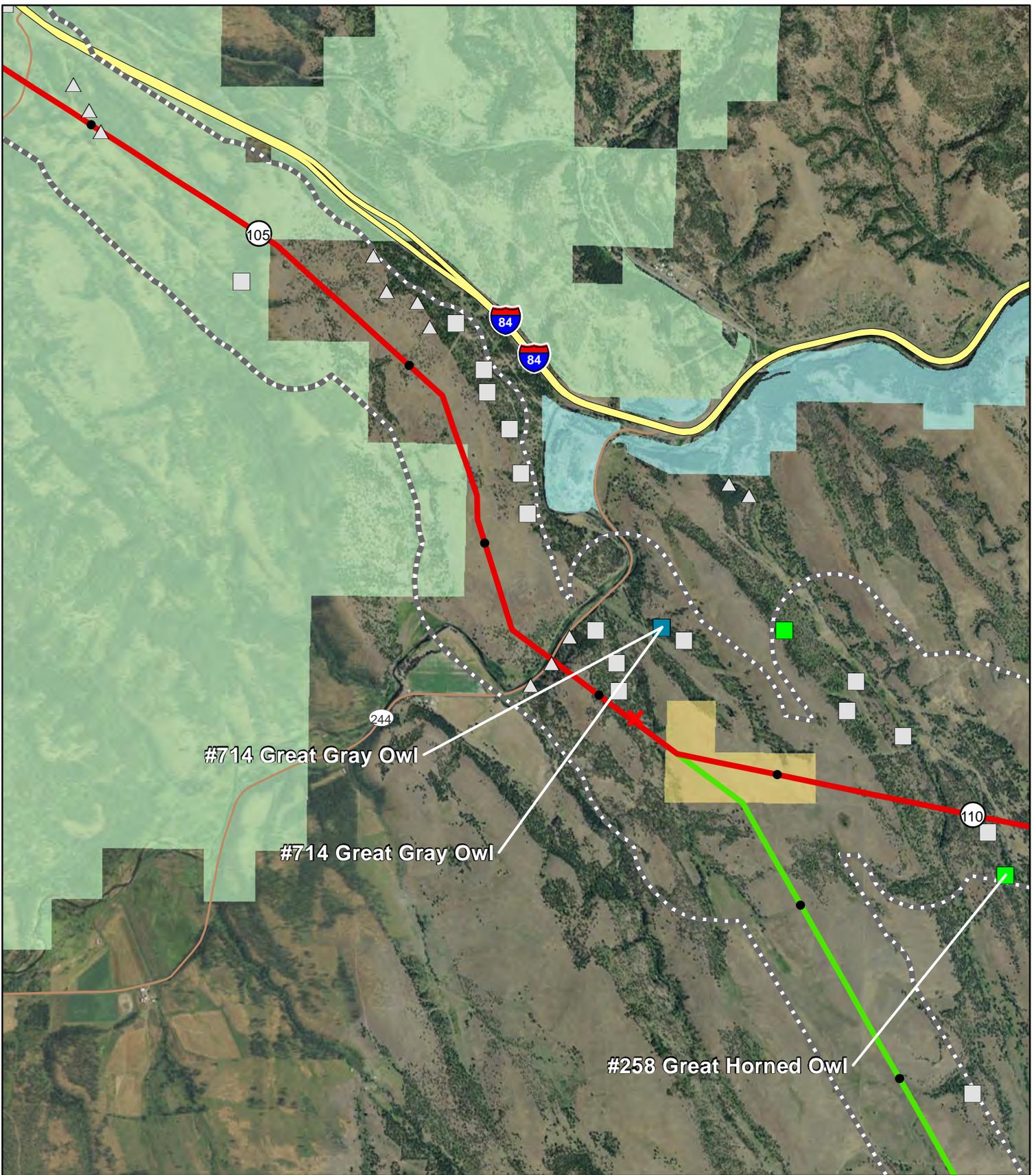


FIGURE 8
SURVEY RESULTS - MILEPOSTS 104 TO 110
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



Great Gray Owl	Bureau of Land Management
Flammulated Owl	Forest Service
Other Wildlife	CTUIR Lands
Completed 2011	State
Completed 2012	Milepost
Incomplete	Milepost (5-mile)
0.25-mi Buffer of EFSC Site Boundary	Proposed Route 20120301
	IPC Alternative 20120301

0 0.25
 Miles

LOCATION MAP

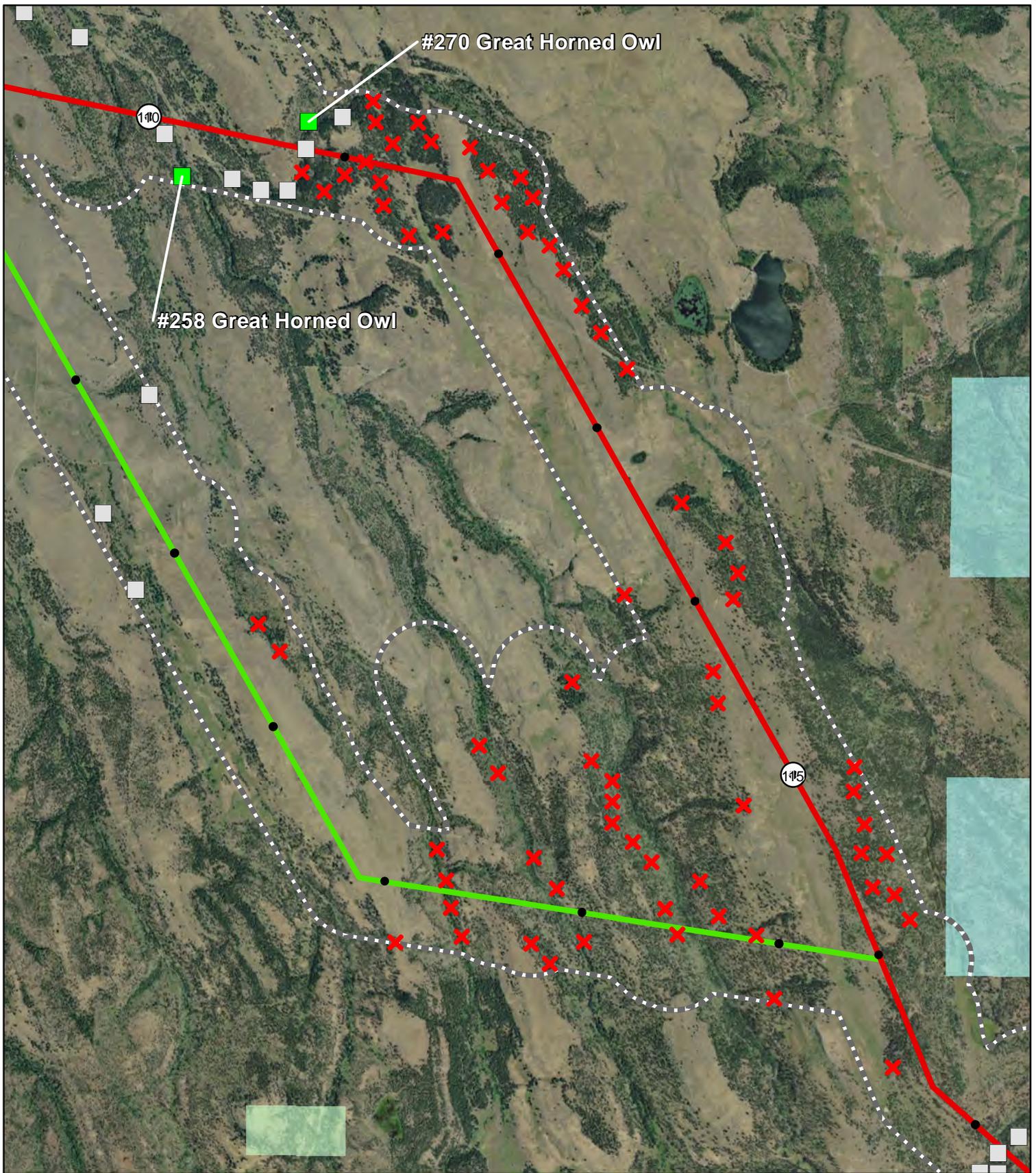
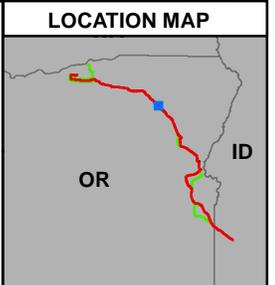
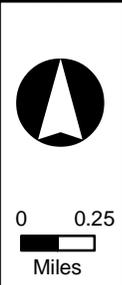
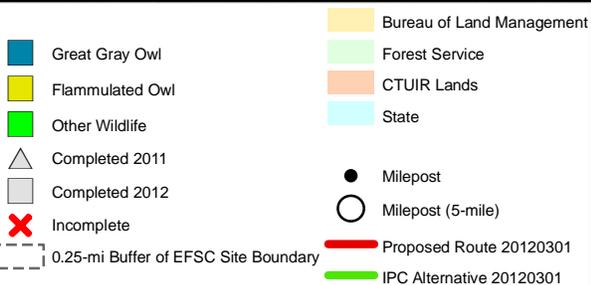


FIGURE 9
SURVEY RESULTS - MILEPOSTS 110 TO 116
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



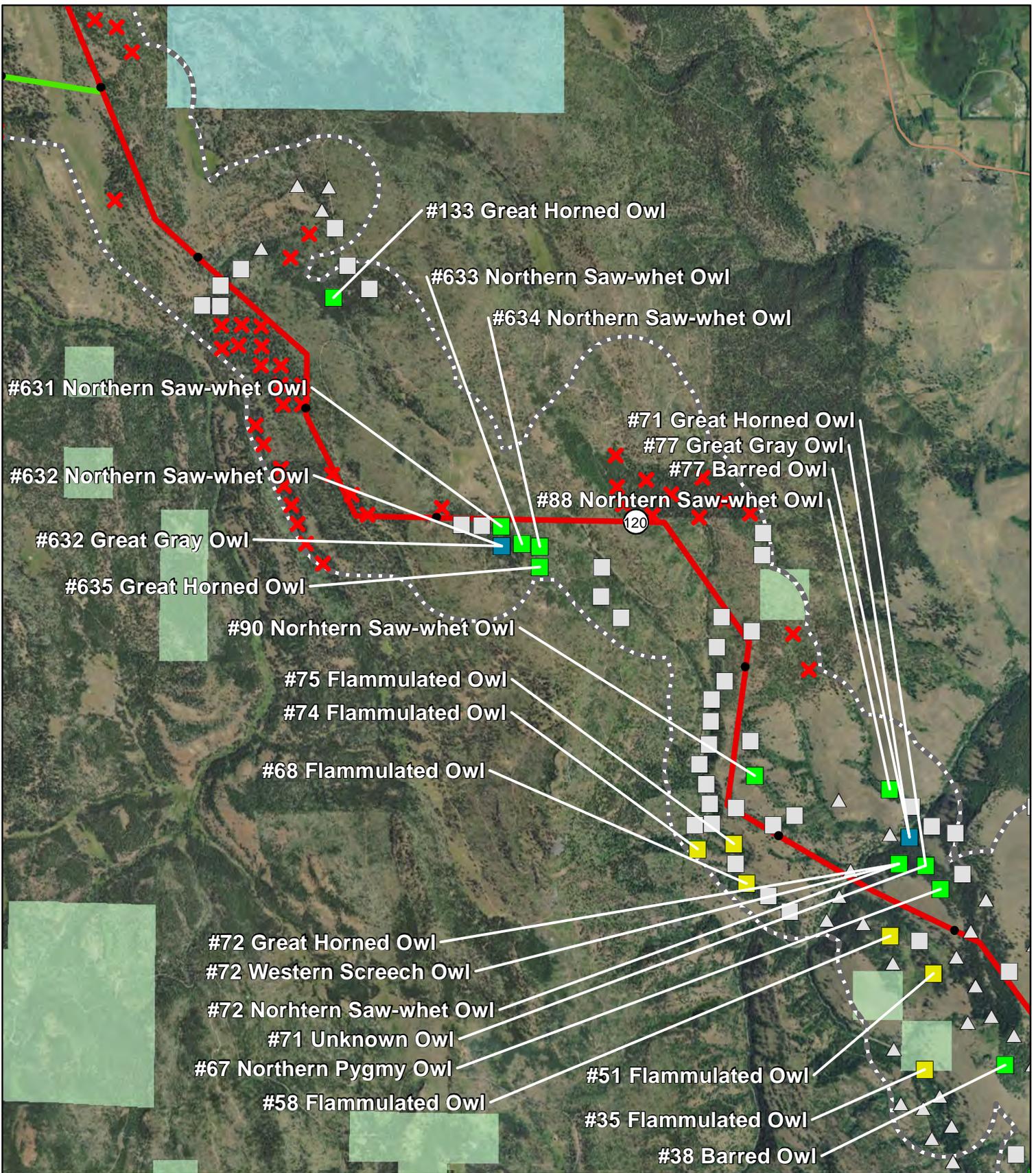
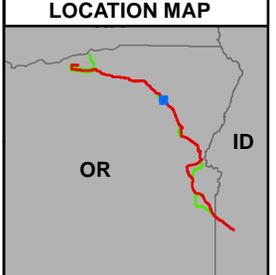


FIGURE 10
SURVEY RESULTS - MILEPOSTS 116 TO 123
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



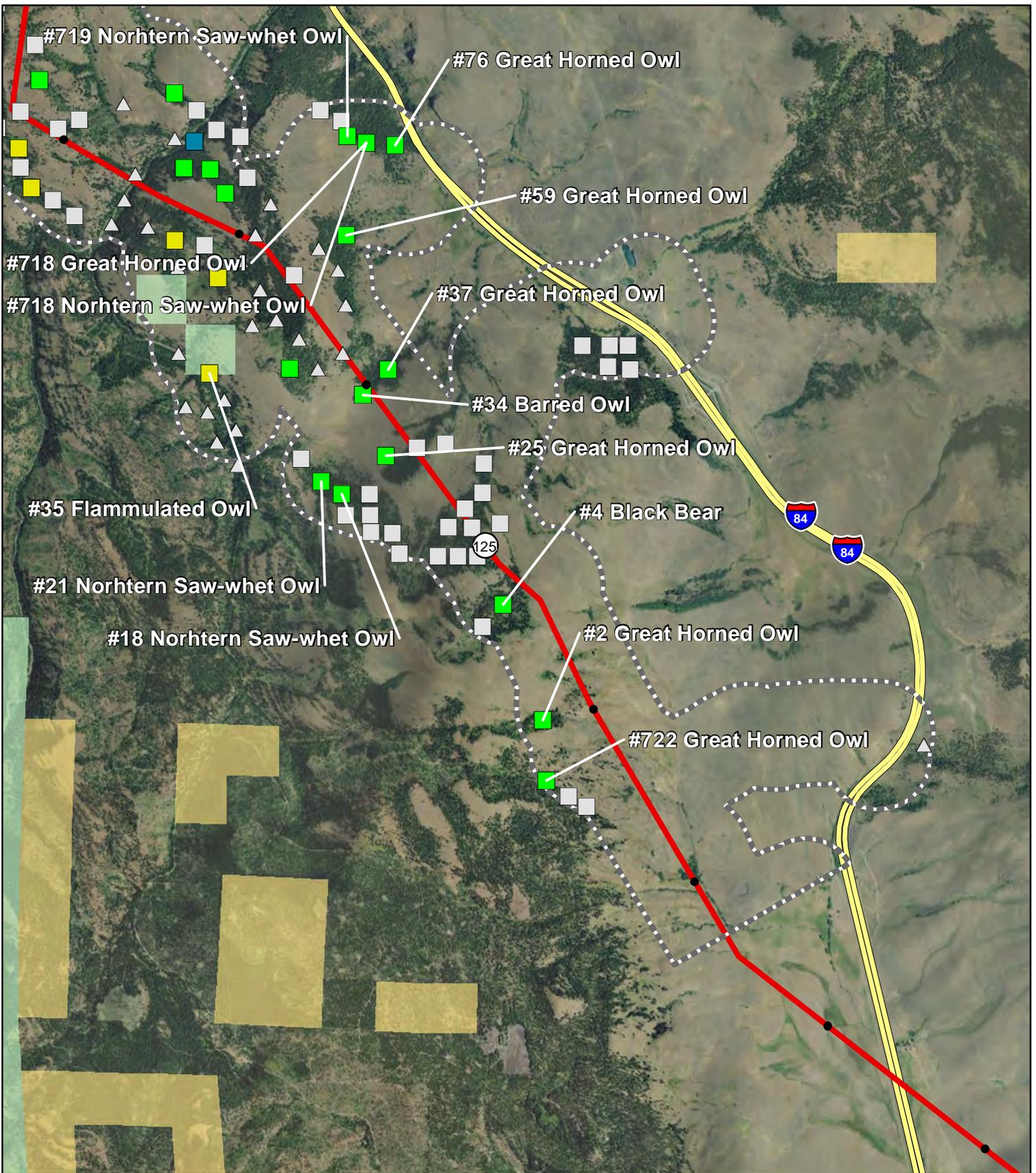
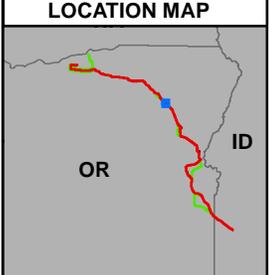
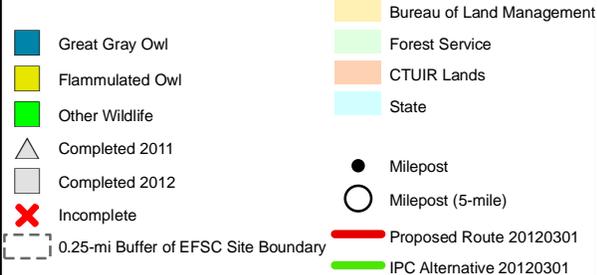


FIGURE 11
SURVEY RESULTS - MILEPOSTS 123 TO 128
 2012 GREAT GRAY OWL AND
 FLAMMULATED OWL SURVEYS
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



APPENDIX A
EXAMPLE SURVEY FORM

Boardman to Hemingway Great Gray Owl Calling Surveys 2011

SURVEY

FOLLOW-UP

Date _____ Point no. _____ Start time _____ End time _____

UTM E _____ UTM N _____ Observers _____

Veg at point: _____ Elevation (ft) _____ Slope (%) _____ Aspect _____

Wind: 1 smoke rises (<1 mph)

2 smoke drifts (1-3 mph)

3 leaves rustle, breeze felt on face (4-7 mph)

4 leaves and small twigs in constant motion (8-12 mph)

5 raises dust, small branches in motion (< 12 mph)

Observation type: sign, visual, visual & vocal, vocal

Age: Adult; Fledgling; Hatchling; Juvenile/immature; Unknown

Activity type: ex. feeding/drinking; fleeing; flying; hunting; courting; nesting; roosting

Observation type	Time	# GGOW observed	Sex	Age	Activity type	Repro status	GPS pt.
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	
S / Vi / Vi&Vo / Vo						Y / N / U	

Notes (other spp. observed, weather, nest type, height, and nest stand veg):