

**P-8B – 2011 Northern Goshawk and Three-Toed Woodpecker Surveys
Technical Report**

2011 Report



TETRA TECH

Boardman to Hemingway Transmission Line Project

2011 Northern Goshawk and Three-Toed Woodpecker Surveys



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1 1.0 INTRODUCTION

2 Idaho Power Company (IPC) is proposing to construct and operate a new, approximately 300-
3 mile-long, single-circuit 500-kilovolt (500kV) electric transmission line between northeast
4 Oregon and southwest Idaho, known as the Boardman to Hemingway Transmission Line
5 Project (Project). The overhead, 500-kV transmission line will carry energy bi-directionally
6 between a Portland General Electric planned substation (Grassland Substation) adjacent to the
7 Boardman Generating Plant, near Boardman in Morrow County, Oregon, and IPC's existing
8 Hemingway Substation, located in Owyhee County, Idaho. The Project will traverse federal,
9 state, and private lands in six counties in Oregon and Idaho Figure 1-1 documents the Project
10 location, proposed route and route alternatives. All figures are located at the end of this report.

11 The Project would result in disturbances related to the construction of permanent facilities such
12 as transmission tower pads, substations, regeneration stations, and permanent access roads,
13 as well as temporary disturbances related to fly yards, laydown areas, tensioning sites, and
14 temporary access roads. In addition, the Project would include the initial construction clearing
15 and continued maintenance of tree heights located near the transmission line, resulting in
16 permanent impacts to some forested areas. To help determine the degree of impact that could
17 occur due to the construction and operation of these Project components, the location of
18 occupied territories and nests for three-toed woodpeckers (*Picoides tridactylus*) and northern
19 goshawks (*Accipiter gentilis*) that occur along the Project needs to be determined.

20 The Project, as proposed, would cross both public and private lands. Public lands that would be
21 crossed are managed, in part, with the intent of conserving and improving wildlife populations,
22 and public land managers have gathered data on lands they manage over the years. Data for
23 private lands, with the exception of some statewide data gathered by state fish and game
24 agencies, are largely unavailable. This means that existing databases could not always be used
25 to determine the locations of three-toed woodpeckers and northern goshawks and their habitats,
26 territories, and nests that could be impacted by the Project. Therefore, surveys for these two
27 species were implemented to supplement existing data. However, landowner permission is
28 required prior to surveying private lands, and many private landowners have declined access to
29 their lands for surveys. The result is that field surveys could not be conducted in all suitable
30 habitat crossed by the Project.

31 This report describes the survey area and the process implemented to delineate the survey area
32 for 2011, as well as the protocols used to conduct the surveys. The goal of this survey effort
33 was to identify previously unknown territories or nesting pair locations for northern goshawks
34 and three-toed woodpeckers.

35 1.1 Target Species

36 American three-toed woodpeckers are largely restricted to high-elevation conifer forests and are
37 therefore distributed in a mosaic pattern (mirroring the pattern of high-elevation mountains).
38 They occur in dense coniferous forests, and are associated with subalpine fir and Engelmann
39 spruce at higher elevations; they occur mainly in lodgepole pine forests or in mixed-conifer
40 forests with a lodgepole component at lower elevations (Leonard 2001), and seem to prefer
41 disturbed coniferous forests with trees that exhibit thin, flaky bark such as spruce and lodgepole
42 pine. However, areas of disturbed forests (e.g., recent burns, beetle infestations) have also
43 been widely cited as important habitat. It is a relatively specialized species, feeding primarily on
44 beetles within decaying and dead trees and occurring in low densities throughout its range.

1 Seventy-five percent of its diet consists of wood-boring beetles and caterpillars that attack dead
2 or dying conifers (Wiggins 2004).

3 The northern goshawk is found throughout the northern hemisphere near the northern
4 timberlines to the southern sub-tropical regions. Birds in the northern regions migrate during the
5 winter. The northern goshawk occupies dense coniferous and deciduous forests. During its
6 nesting period, it prefers mature forests consisting of a combination of old, tall trees with
7 intermediate canopy coverage and open areas within the forest for foraging (Woodbridge and
8 Hargis 2006). High canopy closure also appears to be an important habitat characteristic for the
9 species. Nests are typically constructed into a large bowl of thin sticks lined with bark and
10 greenery, placed in large trees. Within its home range, the northern goshawk uses a diverse
11 array of habitats for foraging, both in terms of vegetation type and the degree of openness
12 (Woodbridge and Hargis 2006). It typically perches silently, waiting and watching for prey,
13 switching perches after brief periods. It descends on prey rapidly, maneuvering through forest
14 vegetation or willingly crashing through it, taking prey as small as squirrels and as large as
15 grouse, crows, and snowshoe hare.

16 **2.0 SURVEY AREA**

17 The survey area for three-toed woodpeckers and northern goshawks is all areas within 0.5 mile
18 of the proposed route and alternatives, access roads, and associated facilities that meet habitat
19 requirements for these species. The survey area generally occurs in the Blue Mountains,
20 outside of La Grande, Oregon, from mileposts (MPs) 85 to 125 of the proposed transmission
21 line (Figure 2-1).

22 Under the Oregon Department of Energy's Energy Facility Siting Council process, the applicant
23 describes a "site boundary" within which the facility will be permitted by the Department of
24 Energy. In 2011, that boundary varied in width from 500 to 1,000 feet through the range of the
25 three-toed woodpeckers and northern goshawks on the proposed route. In 2011, the variable
26 site boundary along the proposed route was used to guide the establishment of the appropriate
27 survey area to meet the standards imposed by the Energy Facility Siting Council guidelines. The
28 site boundary along the proposed route passes through a variety of ownerships (U.S. Forest
29 Service [USFS], Bureau of Land Management [BLM], state, county, and private). However,
30 three-toed woodpecker and northern goshawk habitat is only located in lands under the
31 administration of the USFS, Oregon State Parks, and lands under private ownership.

32 In general, access to the lands under the administration of the USFS and Oregon State Parks
33 was only limited by logistical constraints, primarily road coverage and conditions, and weather-
34 related issues (e.g., storms and snow accumulations). However, private lands were only
35 accessible where landowners had provided access for the purposes of the survey. At the time of
36 the 2011 survey, access was available to approximately 64 percent of the private land within the
37 survey area for three-toed woodpeckers and northern goshawks. When added to the USFS-
38 managed lands, a total 68 percent of the survey area was accessible for the survey (Figure 2-2).

39 **3.0 METHODS**

40 There were two main components to the three-toed woodpecker and northern goshawk survey.
41 The first was prefield survey data collection, which was conducted to establish survey areas and
42 identified calling station locations. The second was field surveys that consisted of daytime
43 broadcast acoustical surveys, which were conducted at the established calling stations. Nest
44 searches were conducted immediately following the call-back survey if a three-toed woodpecker

1 or northern goshawk was detected (audio or visual) during the survey, to identify nesting
2 locations and territories. Field survey methods used for this study were based on Dudley and
3 Saab (2003) for three-toed woodpeckers, and Woodbridge and Hargis (2006) for northern
4 goshawks.

5 Final survey methods were reviewed and finalized once all suitable three-toed woodpecker and
6 northern goshawk habitat within the survey area was identified. Approximately 44,169 acres of
7 three-toed woodpecker and northern goshawk habitat was determined present within the survey
8 area. Information about historical and known three-toed woodpecker and northern goshawk
9 observations and locations was incorporated from available resources. All of this information
10 was coordinated into an overall survey plan to provide appropriate coverage of accessible lands
11 within the survey area that were deemed to meet the standard for suitable three-toed
12 woodpecker and northern goshawk habitat (Tetra Tech 2011). This resulted in the
13 establishment of 870 calling stations along roads, two-tracks, and other easily accessed routes.

14 Tetra Tech conducted a data review of known three-toed woodpecker and northern goshawk
15 locations in the vicinity of the Project. This review included multiple meetings with BLM, USFS,
16 U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, and Idaho Department
17 of Fish and Game biologists during which location information and habitat information was
18 requested along the proposed route. Oregon Natural Heritage Information Center (ORNHIC)
19 data were reviewed and existing occurrences for northern goshawk locations in the vicinity of
20 the established survey area were found (Figure 3-1).

21 Visual observation with callback surveys is the recommended practice for cavity-nesting birds,
22 especially those species that are rare or have large home ranges, as with the three-toed
23 woodpecker (Dudley and Saab 2003). Acoustical survey for northern goshawks is currently the
24 standard method used by the USFS and many others. The efficacy of this method has been
25 evaluated in terms of response rates at known successful nests and at territories occupied by
26 non-breeding goshawks (Woodbridge and Hargis 2006).

27 Northern goshawk response calls are typically heard within 650 feet; similarly, females and
28 juveniles will respond if they are located within 650 feet of the nest (Woodbridge and Hargis
29 2006). Within the established survey area for three-toed woodpeckers and northern goshawks,
30 calling stations were placed at approximately 0.1-mile (528-foot) intervals. This spacing varied
31 based on topography and habitat, while trying to establish stations at useful geographic features
32 to ensure complete coverage of habitat. Some stations may have been dropped if they were in
33 steep or unsafe terrain or if access was denied by landowners. Calling stations were identified
34 by a unique number, and Universal Transverse Mercator geographic coordinates for each point
35 were recorded.

36 Both species were surveyed twice in the 2011 field survey season during three unique survey
37 periods. The first survey period was for three-toed woodpeckers, designed to correspond with
38 their nesting stage (late April). The second survey period was for three-toed woodpeckers and
39 northern goshawks, designed to correspond with the fledging period for three-toed woodpeckers
40 and nesting period for northern goshawks (mid-June). The third survey period was for northern
41 goshawks, intended to correspond with their fledging period (late July). Survey period, survey
42 dates, and species detected during each survey period are presented in Table 3-1.

43 A total of 818 calling stations were established within the survey area prior to the initiation of the
44 first survey period. Between the first and second survey period, IPC requested modifications to
45 the survey area due to changes to the proposed transmission line route and to allow flexibility in
46 siting of the proposed route. These modifications resulted in the removal of 51 calling stations
47 that were no longer within the survey area, and the addition of 52 calling stations to ensure

1 complete coverage of the survey area. As a result, a total of 819 calling stations were
 2 established for the second and third survey periods. There were a total of 870 unique calling
 3 stations over the course of the three survey periods.

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

Survey Period	Survey Dates	Species Detected
1	April 19–27	Three-toed woodpecker
2	June 7–14	Three-toed woodpecker and northern goshawk
3	July 19–25	Northern goshawk

5 Northern goshawk surveys were conducted following the methods outlined by Woodbridge and
 6 Hargis (2006) and three-toed woodpecker surveys followed the methods outlined by Dudley and
 7 Saab (2003). During this time, surveyors alternated digital broadcasts of three-toed
 8 woodpeckers and northern goshawks calls with listening periods. Surveyors listened quietly for
 9 3 minutes after arriving at a calling station, and then proceeded with calling. The calls consisted
 10 of 10 seconds of calling followed by 30 seconds of listening for a reply and watching for
 11 individuals to fly into the area. Binoculars were used while watching for three-toed woodpeckers.
 12 This pattern was repeated three times, directing calls in three directions, 120 degrees apart. If a
 13 reply was heard or an individual was observed, surveyors tried to locate the bird and any nests
 14 in the immediate area. The male territorial call was used for the three-toed woodpecker during
 15 both survey periods for this species. The adult alarm call was used for the northern goshawk
 16 during the second survey period and the juvenile wail call was used during the third survey
 17 period. Calls were broadcast using Edge® digital game callers made by Expedite, Inc., or MP3
 18 players with amplifiers.

19 Field crews used global positioning system technology for data collection activities. Trimble
 20 GeoXT survey grade receivers loaded with Esri ArcPAD 10 software were used by crews
 21 conducting field surveys.

22 Survey data forms were completed for each calling station whether or not three-toed
 23 woodpeckers or northern goshawks were detected. Each survey data form recorded the date; a
 24 description of the survey route with an accompanying map; survey start and stop time, and time
 25 spent calling between stations; and weather conditions. Responses from three-toed
 26 woodpeckers and northern goshawks as well as other woodpecker and raptor species were
 27 recorded with the following information: compass bearing and approximate distance; sex and
 28 age, if known; time of first response; and type of detection (audio, visual, or both).

29 **4.0 RESULTS**

30 Surveys on the proposed route included 2,178 surveys, across three survey periods for both
 31 species, at 618 of the 870 unique established call stations (Table 4-1). A total of three three-
 32 toed woodpecker and one northern goshawk detections were logged during all survey efforts
 33 between April 19 and July 25, 2011. Nest searches for these four detections did not result in
 34 additional detections (audio or visual) of the birds, and no nests were found.

35 The 618 call stations surveyed in 2011 represented 71 percent of the total established call
 36 stations within the three-toed woodpecker and northern goshawk survey area (Figures 4-1
 37 through 4-6). Call stations were not surveyed because access was denied by the landowner,
 38 access was blocked, or reaching the call station would have proven unsafe to the surveyor.

39

1 **Table 4-1.** Summary of 2011 Three-Toed Woodpecker and Northern Goshawk Survey
 2 Calling Station Access

Survey period	Total calling stations established	Survey completed	Nest search completed	Access denied ¹	Access blocked ²
1	818	481 ³	3	222	116
2	819	578 ³	1	Not available ⁴	250
3	819	541	0	252	26
Total	870 unique	2,178 surveys at 618 stations	4	n/a	n/a

3 ¹ Survey not conducted. Property owner denied access and/or biological surveys.

4 ² Survey not conducted. Blocked access includes: 1) physical constraints limiting access to the site that
 5 may include: a) steep slopes, b) impassable roads or streams, c) terrain and weather conditions; 2)
 6 access blocked by surrounding properties that had access denied; 3) unable to access due to time
 7 constraints, or 4) background noise at the survey location was sufficiently high to potentially prevent
 8 surveyor from hearing bird responses. Noise sources included wind, inclement weather, streams,
 9 highway, and trains.

10 ³ Survey stations were inadvertently surveyed two times, at one calling station during survey period 1, and
 11 at nine calling stations during period 2.

12 ⁴ Field notes were not recorded determining access denied versus access blocked. All calling stations not
 13 surveyed are compiled under access blocked.
 14

15 4.1 Survey Period 1

16 Three three-toed woodpeckers were detected during surveys conducted at the established
 17 calling stations during survey period 1.

- 18 • At calling station 394 (MP 1A – State Park, Figure 4-3, Table 4-2), an adult male three-
 19 toed woodpecker was both heard and seen. After an extensive search, a nest was not
 20 found. Habitat in the area included high canopy cover, predominantly conifers, with only
 21 one thin snag as a possible nesting location.
- 22 • At calling station 526 (MP 98; Figure 4-3, Table 4-2), an adult female three-toed
 23 woodpecker was both heard and seen. A nest search was conducted, but no nest
 24 (appropriate cavity) was found.
- 25 • At calling station 516 (MP 98; Figure 4-3, Table 4-2), an adult female three-toed
 26 woodpecker was both heard and seen. Observers noted that this was potentially the
 27 same individual observed at calling station 526, observed approximately 1 hour earlier.
 28 Again, a nest search was conducted, but was not successful in finding a nest.

29 4.2 Survey Period 2

30 During survey period 2 only one northern goshawk was detected during surveys conducted at
 31 the established calling stations. No three-toed woodpeckers were detected.

- 32 • At calling station 115 (MP 119; Figure 4-6, Table 4-2), one goshawk responded with a
 33 single call. The individual was seen just briefly as the observers were looking for a nest.
 34 No nest was found in the surrounding area. This calling station was not revisited during
 35 the second survey period because the landowner revoked access between the first and
 36 second survey period.

1 4.3 Survey Period 3

2 No northern goshawks were positively detected during surveys conducted at the established
3 calling stations in survey period 3.

4 During the course of the three survey periods, several additional woodpecker and raptor species
5 were heard or seen, including American kestrel (*Falco sparverius*), black-backed woodpecker
6 (*Picoides arcticus*), Cooper's hawk (*Accipiter cooperii*), downy woodpecker (*Picoides*
7 *pubescens*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*),
8 red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*). Additionally, a great
9 gray owl (*Strix nebulosa*) was observed. A followup to this observation was conducted by the
10 great gray and flammulated owl (*Otus flammeolus*) survey crew but no nest was found (Tetra
11 Tech 2011). These observations are noted on Figures 4-1 through Figure 4-6 and summarized
12 in Table 4-2.

13 **Table 4-2.** Summary of 2011 Woodpecker and Goshawk Responses and Observations

Detection	Date	Calling station	Heard, seen, or both?	Age (A/J/U)	Sex (M/F/U)	Nest detected? Yes/No
American kestrel	4/22/2011	95	Seen	U	U	No
American kestrel (4)	7/24/2011	582	Seen	U	U	No
Black-backed woodpecker (2)	7/20/2011	404.1	Both	U	U	No
Cooper's hawk	6/11/2011	483	Not recorded	U	U	No
Cooper's hawk	7/22/2011	451.1	Seen	A	M	No
Cooper's hawk	7/22/2011	485	Seen	J	U	No
Downy woodpecker	4/21/2011	774	Seen	U	F	No
Great gray owl	6/9/2011	21	Seen	A	U	No
Hairy woodpecker	4/19/2011	24	Both	U	M/F	No
Hairy woodpecker	4/20/2011	11	Seen	U	F	No
Hairy woodpecker	4/20/2011	51	Seen	U	F	No
Hairy woodpecker	4/23/2011	80	Seen	U	U	No
Hairy woodpecker	4/23/2011	89	Seen	U	M	No
Hairy woodpecker	4/23/2011	96	Seen	U	M	No
Hairy woodpecker	6/7/2011	494	Not recorded	U	U	No
Hairy woodpecker (2)	6/10/2011	523	Not recorded	U	U	No
Hairy woodpecker	6/12/2011	539	Not recorded	U	U	No
Hairy woodpecker	6/12/2011	552	Not recorded	U	U	No
Nest (unidentified species)	4/19/2011	504	Seen	U	U	Yes
Nest (unidentified species)	4/19/2011	514	Seen	U	U	Yes
Northern goshawk						
Pileated woodpecker (2)	4/19/2011	385	Seen	U	U	No
Pileated woodpecker	4/20/2011	32	Seen (responded)	U	U	No
Pileated woodpecker (2)	4/21/2011	42	Heard (response and drumming)	U	U	No

14

1 **Table 4-2.** Summary of 2011 Woodpecker and Goshawk Responses and Observations
 2 (continued)

Detection	Date	Calling station	Heard, seen, or both?	Age (A/J/U)	Sex (M/F/U)	Nest detected? Yes/No
Pileated woodpecker	4/22/2011	59	both	U	U	No
Pileated woodpecker	4/22/2011	64	Heard (drumming)	U	U	No
Pileated woodpecker	4/22/2011	65	Heard (fly-by response)	U	U	No
Pileated woodpecker	4/23/2011	700	possibly seen	U	U	No
Pileated woodpecker	4/24/2011	41	Heard (drumming response)	U	U	No
Pileated woodpecker	4/26/2011	203	Heard	U	U	No
Pileated woodpecker	6/12/2011	531	Not recorded	U	U	No
Pileated woodpecker	6/12/2011	533	Not recorded	U	U	No
Red-tailed hawk	4/22/2011	55	Heard	U	U	No
Red-tailed hawk	4/22/2011	58	Seen	U	U	No
Red-tailed hawk	6/7/2011	58	Both	A	M/F	Yes
Red-tailed hawk	6/7/2011	387	Not recorded	U	U	No
Red-tailed hawk (2)	6/7/2011	391	Not recorded	U	U	No
Red-tailed hawk	6/7/2011	423	Not recorded	U	U	No
Red-tailed hawk	6/7/2011	430	Not recorded	U	U	No
Red-tailed hawk	6/7/2011	441	Not recorded	U	U	No
Red-tailed hawk	6/8/2011	439	Not recorded	U	U	No
Red-tailed hawk	6/8/2011	445.1	Not recorded	U	U	No
Red-tailed hawk	6/9/2011	347.1	Not recorded	U	U	No
Red-tailed hawk	6/11/2011	514	Not recorded	U	U	No
Red-tailed hawk (2)	6/12/2011	685	Seen	J	U	Yes
Red-tailed hawk	7/19/2011	347	Not recorded	U	U	No
Red-tailed hawk	7/20/2011	427	Not recorded	U	U	No
Red-tailed hawk	7/20/2011	770	Both	A	U	No
Red-tailed hawk (2)	7/21/2011	321	Both	U	U	No
Red-tailed hawk	7/21/2011	330	Seen	U	U	No
Red-tailed hawk (2)	7/21/2011	387	Both	J	U	No
Red-tailed hawk	7/22/2011	5	Heard	U	U	No
Red-tailed hawk	7/22/2011	697	Both	A/J	U	No
Red-tailed hawk	7/23/2011	502	Not recorded	U	U	No
Red-tailed hawk	7/23/2011	515	Not recorded	U	U	No
Red-tailed hawk	7/24/2011	562	Not recorded	U	U	No
Three-toed woodpecker	4/19/2011	394	Both	A	M	No
Three-toed woodpecker	4/22/2011	516	Both	A	F	No
Three-toed woodpecker	4/22/2011	526	Both	A	F	No

3

1 **Table 4-2.** Summary of 2011 Woodpecker and Goshawk Responses and Observations
 2 (continued)

Detection	Date	Calling station	Heard, seen, or both?	Age (A/J/U)	Sex (M/F/U)	Nest detected? Yes/No
Turkey vulture	4/22/2011	54	Seen	U	U	No
Unidentified owl	4/19/2011	34	U	U	U	No
Unidentified raptor (2)	7/20/2011	785	Seen	U	U	No
Unidentified woodpecker	4/20/2011	39	Heard (drumming)	U	U	No
Unidentified woodpecker	4/24/2011	37	Heard	U	U	No
Unidentified woodpecker	4/25/2011	314	Heard	U	U	No
Unidentified woodpecker; red-tailed hawk	4/24/2011	2	Heard; heard	U	U	No
Unidentified woodpeckers (2)	6/12/2011	551	Not recorded	U	U	No
Unidentified woodpeckers (medium sized)	4/23/2011	713	Seen	U	U	No

3 **5.0 CONCLUSION**

4 The objective of the three-toed woodpecker and northern goshawk surveys was to identify
 5 territories within or overlapping the proposed route and alternatives and to identify all nesting
 6 pairs of these two species. The 2011 survey effort used the best available data and the
 7 appropriate recommended procedures for identifying the locations of the two species that may
 8 be affected by the Project. However, no territories or nesting pairs of either species were
 9 positively identified during this survey effort.

10 A total of three three-toed woodpecker detections and one northern goshawk detection were
 11 obtained during the 2011 survey effort. Several additional woodpecker and raptor species were
 12 heard or seen, including American kestrel, black-backed woodpecker, Cooper's hawk, downy
 13 woodpecker, hairy woodpecker, pileated woodpecker, red-tailed hawk, and turkey vulture.

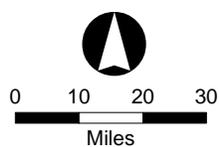
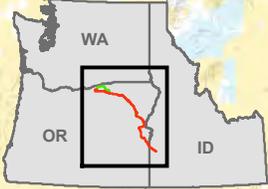
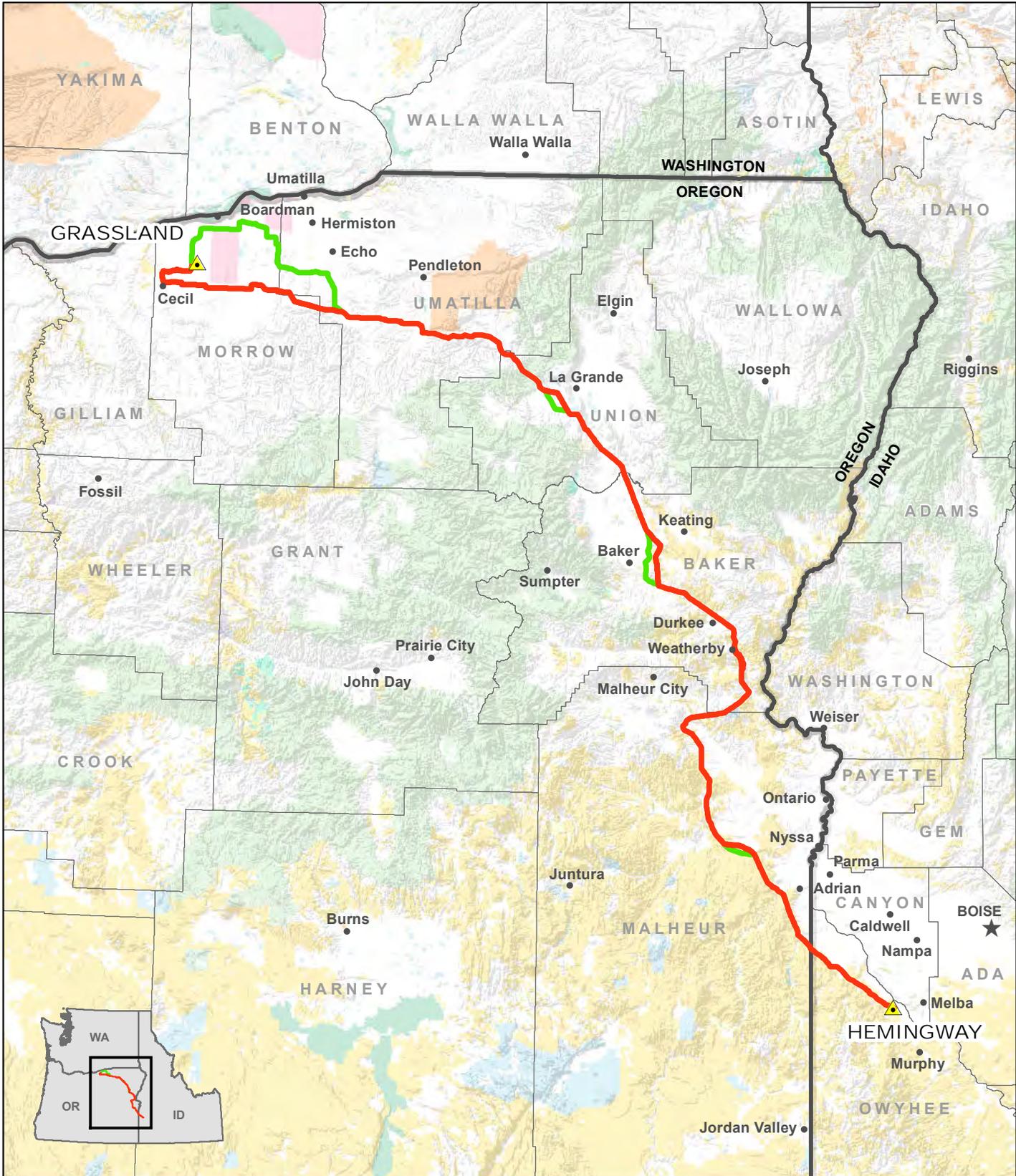
14 Three-toed woodpecker and northern goshawk detections were low during the 2011 survey
 15 season. Surveying for the presence of three-toed woodpeckers and northern goshawks can be
 16 challenging. This is due to a number of factors including the time year when the species is most
 17 vocal (and fledging season), the difficulty of access in early spring, and the fact that neither
 18 species "sings," so surveyors cannot depend on stereotyped behavioral responses to territorial
 19 calls. Broadcast calling methods for the two species depend on eliciting defensive responses
 20 from adults or food-begging responses from fledglings or the adult female. Compared with
 21 territorial song responses, these responses vary much more and depend highly on reproductive
 22 chronology and status.

23 Appropriate field surveys to close data gaps where access was previously denied will be
 24 conducted once right of access has been obtained to private property.

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15 Forest Service.

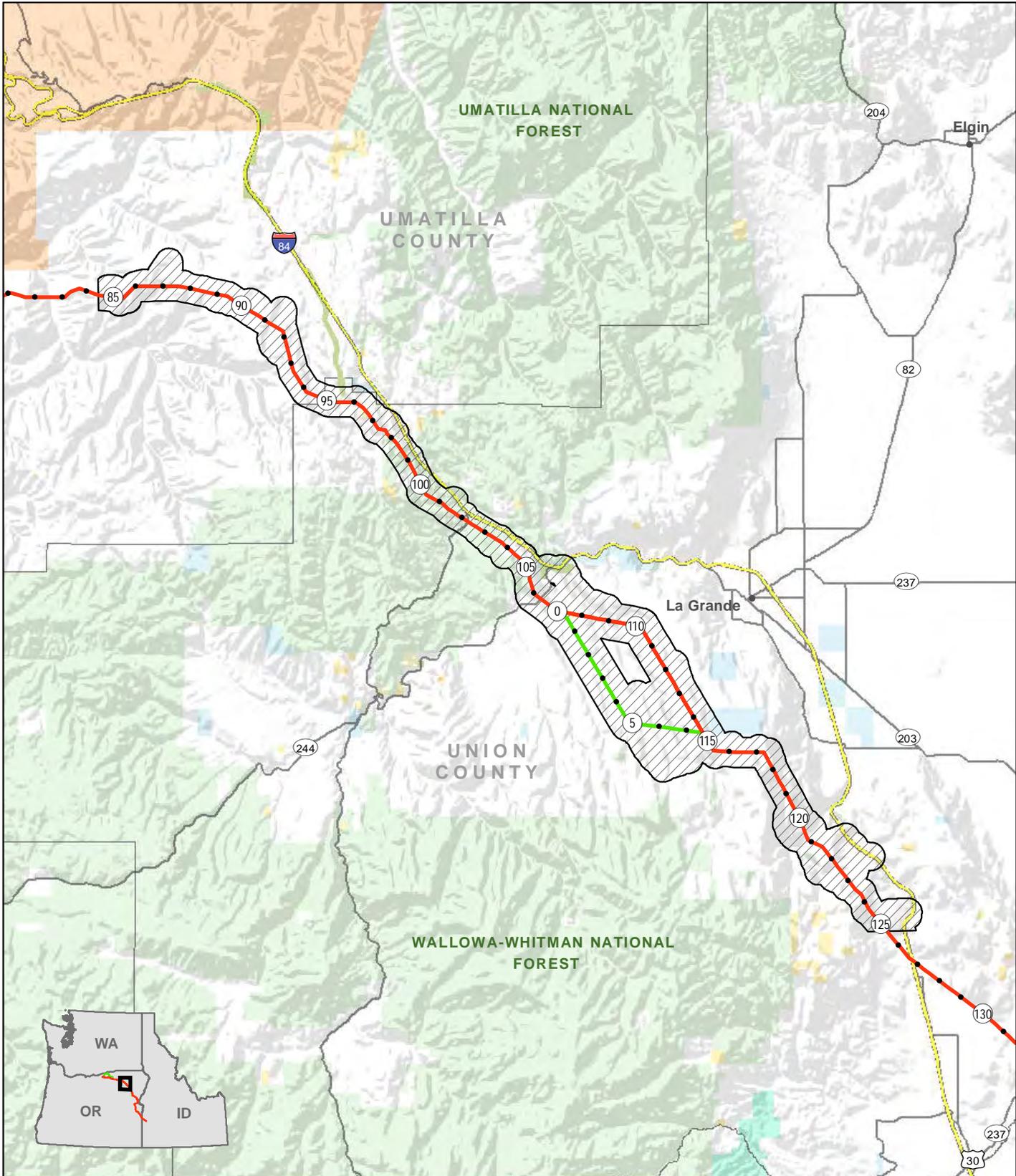
FIGURES



- 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 1-1
IDAHO POWER
PROPOSED ROUTE AND
ALTERNATIVE ROUTES
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



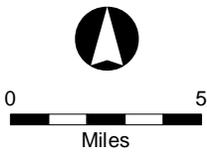
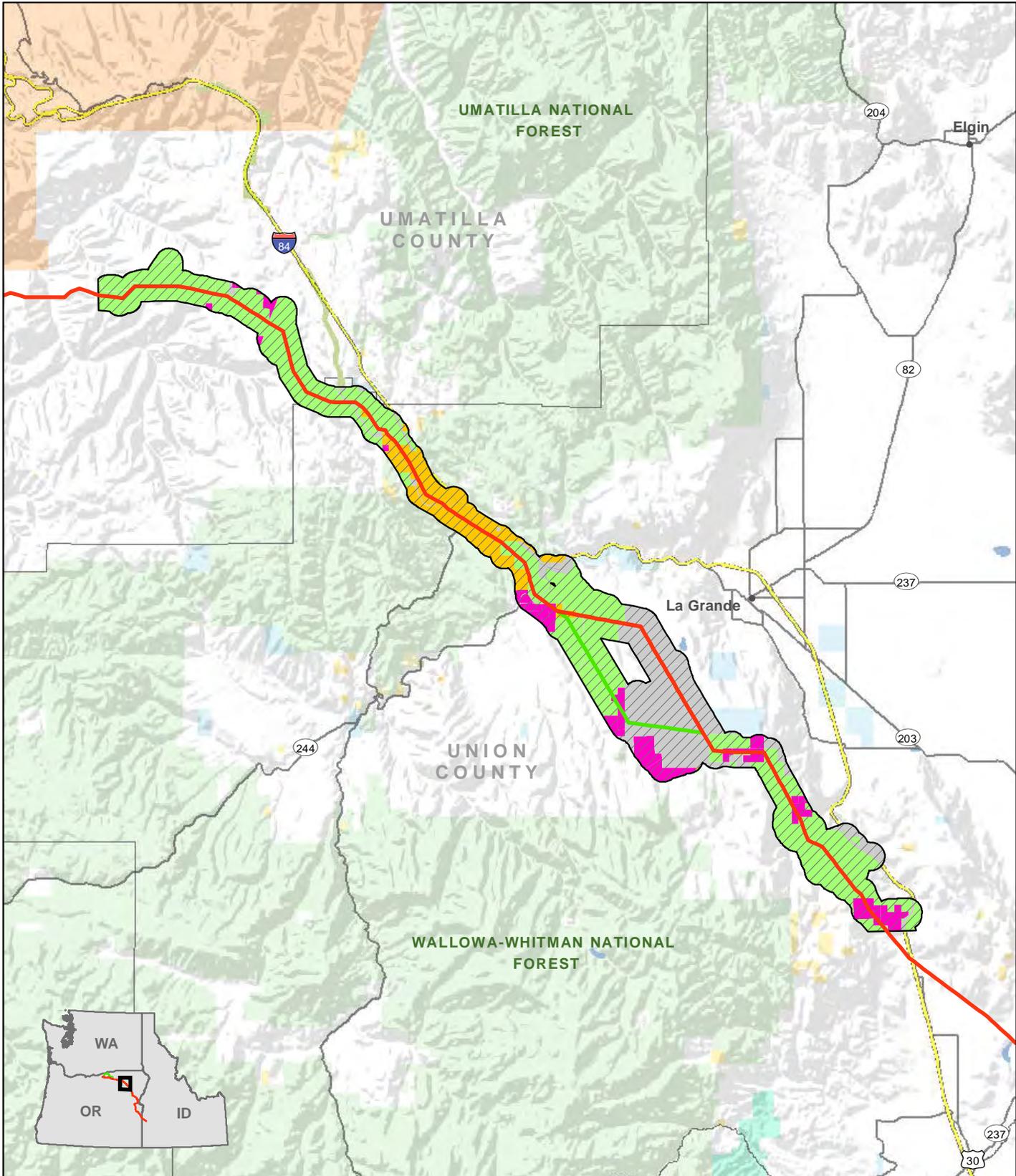
Project Features

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

Land Status

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

FIGURE 2-1
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER
 SURVEY AREA**
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

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

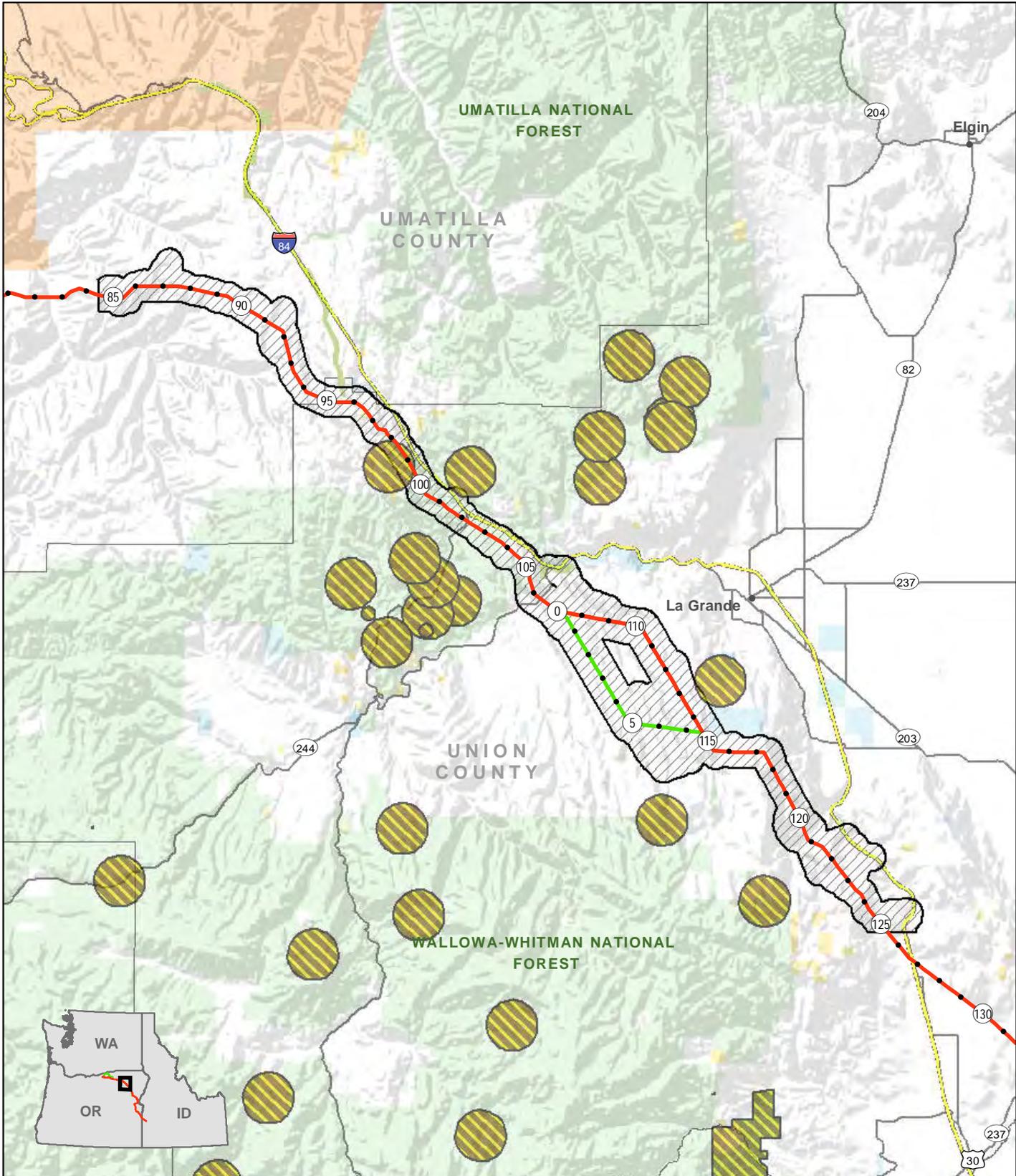
Land Status

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

**FIGURE 2-2
RIGHT OF ENTRY STATUS**

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

DECEMBER 2011



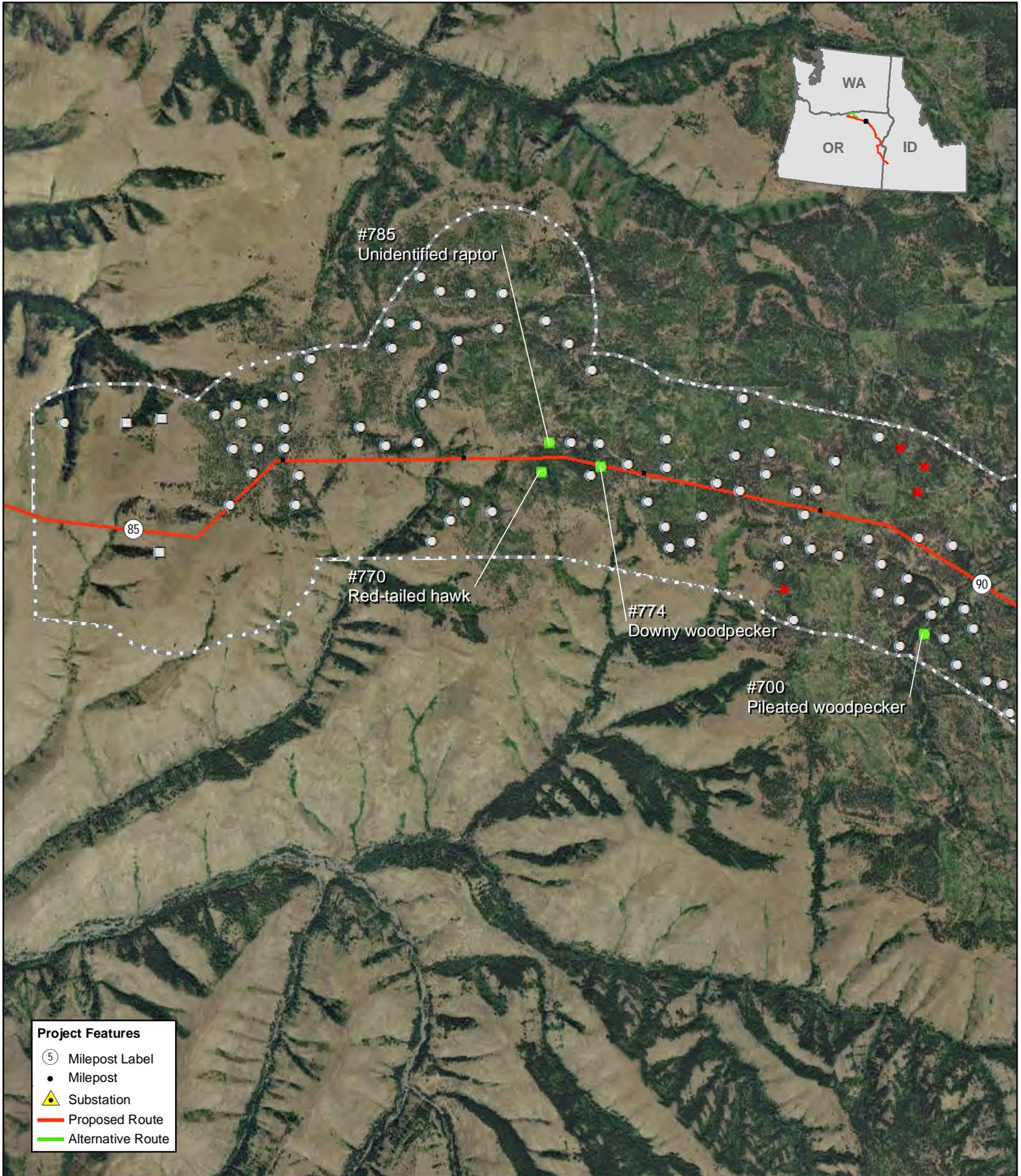
Survey Features

-  Oregon Biodiversity Information Center Goshawk Occurrence
-  2011 Survey Area
-  Route Milepost
-  Proposed Route
-  Alternative Route

Land Status

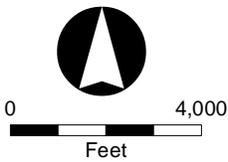
-  Bureau of Land Management
-  Indian Reservation
-  Bureau of Reclamation
-  State Land
-  U.S. Fish and Wildlife Service
-  U.S. Forest Service
-  Private Land

FIGURE 3-1
OREGON BIODIVERSITY CENTER DATA
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



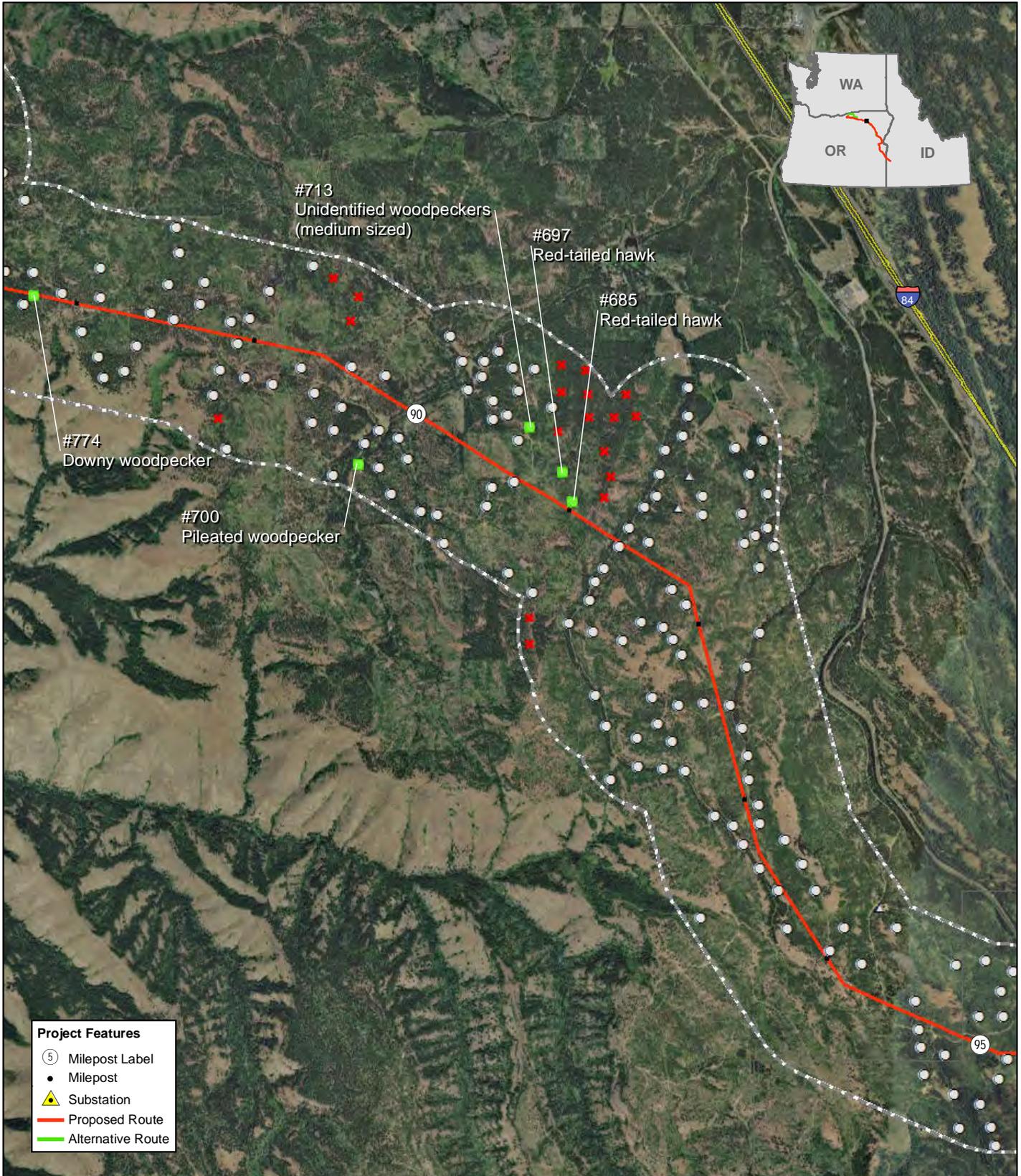
Survey Features

- ▭ 2011 Survey Area
- ✖ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

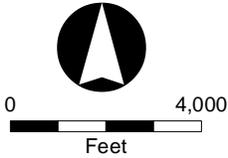
- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-1
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER**
MILEPOSTS 85 TO 89
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



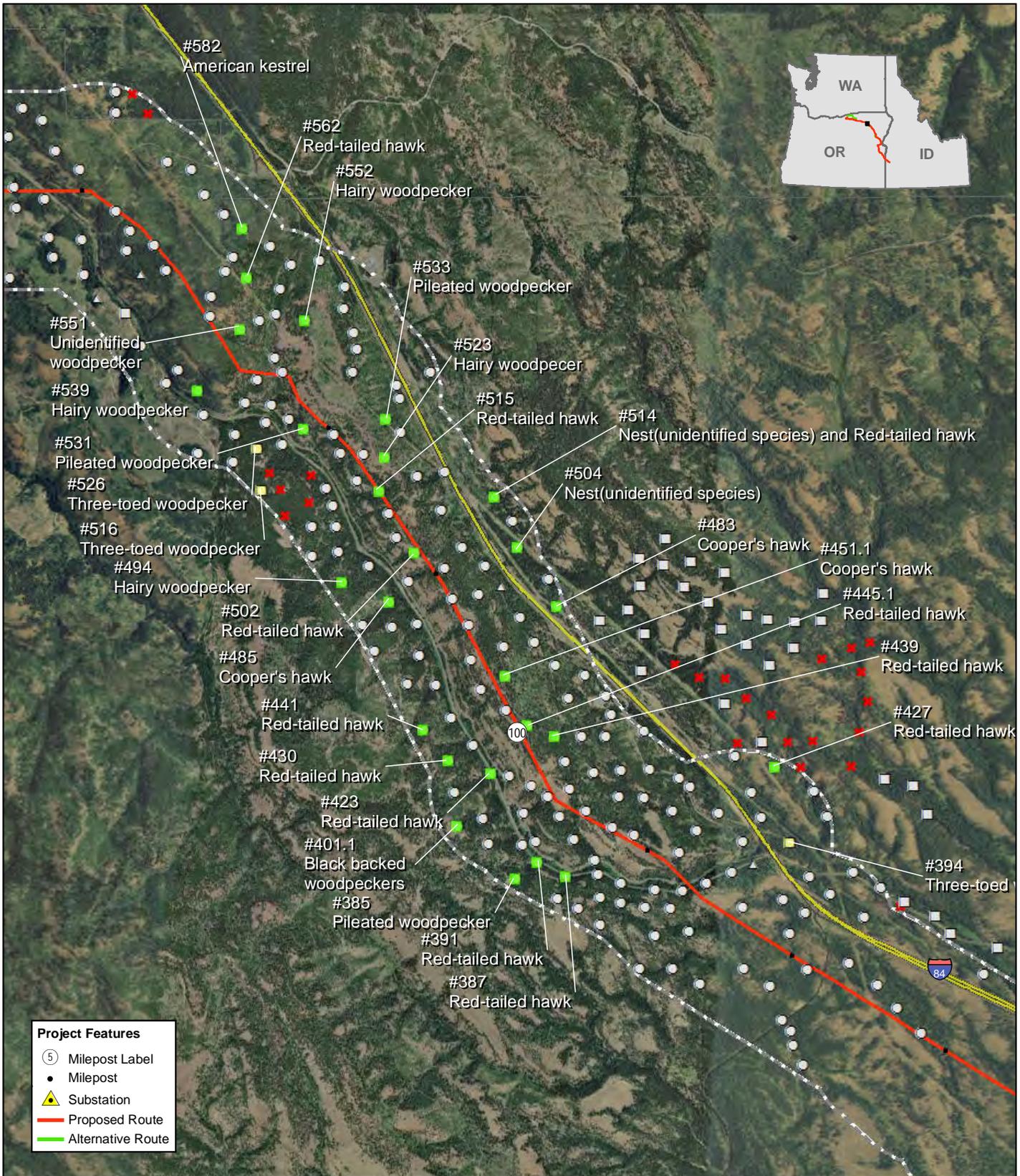
Survey Features

- ▭ 2011 Survey Area
- ✗ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

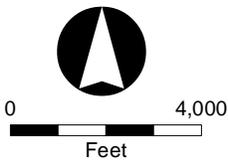
- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-2
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER**
MILEPOSTS 88 TO 95
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



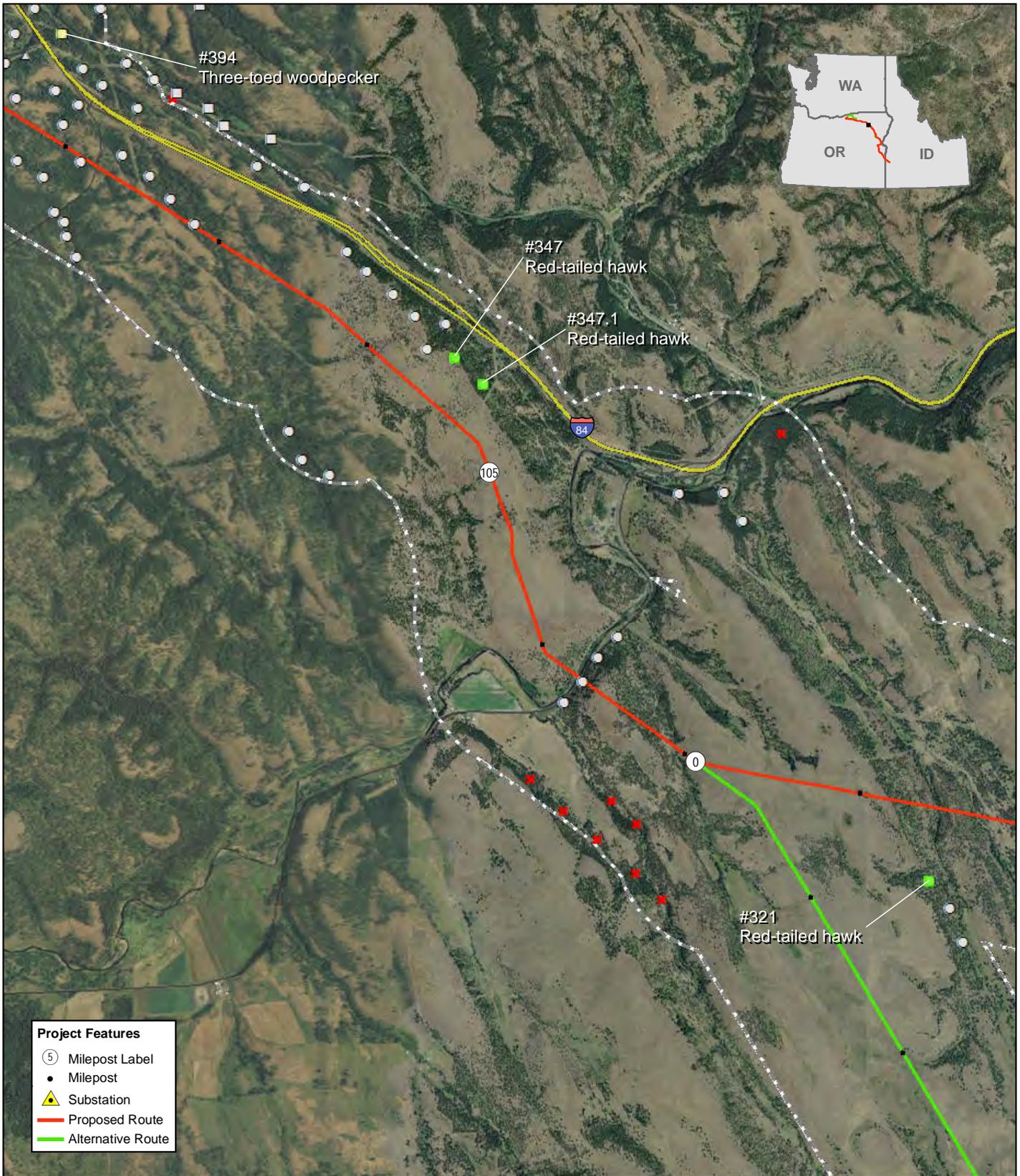
Survey Features

- ☐ 2011 Survey Area
- ✖ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

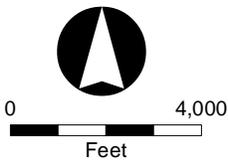
- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-3
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER
 MILEPOSTS 96 TO 103**
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



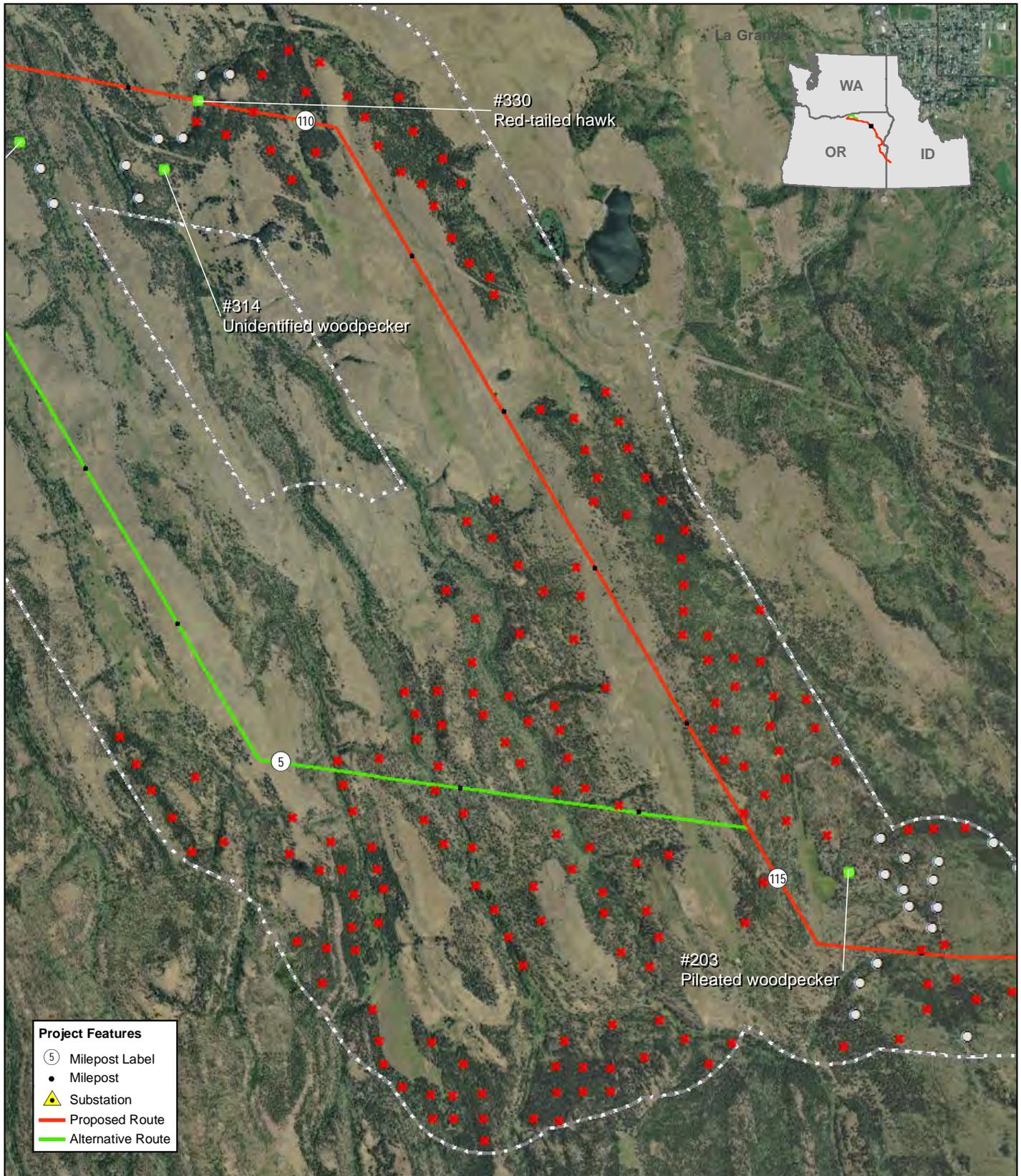
Survey Features

- ☐ 2011 Survey Area
- ✖ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

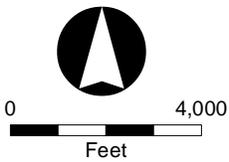
- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-4
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER
 MILEPOSTS 101 TO 108**
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



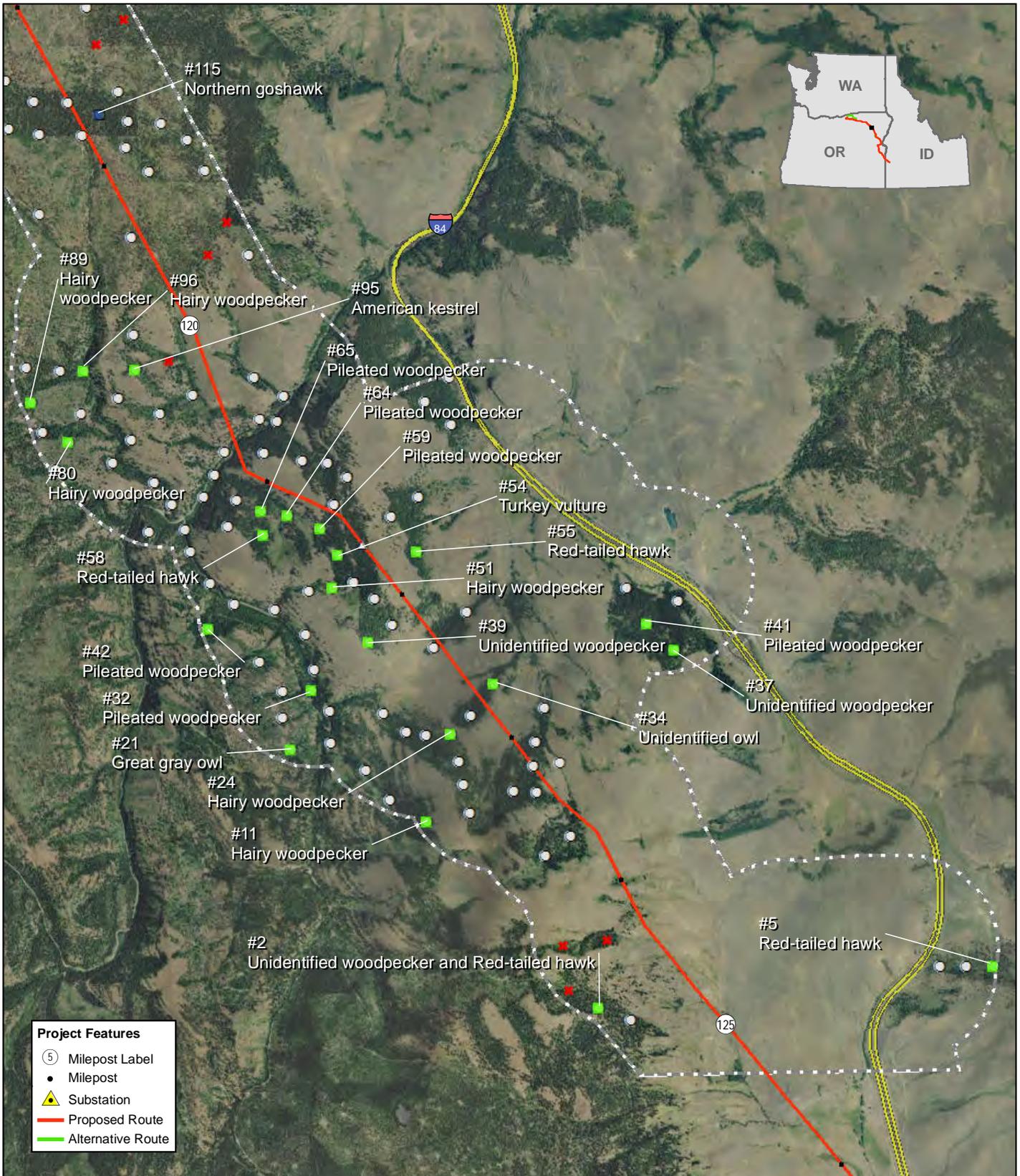
Survey Features

- ⊞ 2011 Survey Area
- ✗ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

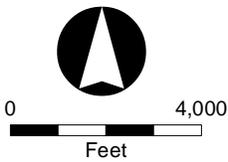
- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-5
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER**
MILEPOSTS 109 TO 116
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Project Features

- ⑤ Milepost Label
- Milepost
- ▲ Substation
- Proposed Route
- Alternative Route



Survey Features

- ☐ 2011 Survey Area
- ✖ Never surveyed
- Surveyed for both Northern Goshawk and Three-toed Woodpecker
- △ Surveyed for Northern Goshawk only
- Surveyed for Three-toed Woodpecker only

Observation Type

- Other Avian Species
- Northern Goshawk
- Three-toed Woodpecker
- # 774 Call Stations

FIGURE 4-6
**2011 NORTHERN GOSHAWK/
 THREE-TOED WOODPECKER
 MILEPOSTS 118 TO 125**
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011

2012 Report



TETRA TECH

Boardman to Hemingway Transmission Line Project

2012 Northern Goshawk and Three-Toed Woodpecker Surveys



**4355RPT.DOC
January 2013**



Boardman to Hemingway Transmission Line Project

2012 Northern Goshawk and Three-Toed Woodpecker Surveys

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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, known as the Boardman to Hemingway Transmission Line Project (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 IPC's existing Hemingway Substation, located in Owyhee County, Idaho. The Project will traverse federal, state, and private lands in six counties in Oregon and Idaho. Figure 1 documents the Project location, proposed route and route alternatives. All figures are located at the end of this report.

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 construction clearing and continued maintenance of tree heights located near the transmission line, resulting in permanent impacts to some forested areas. To help determine the degree of impact that could occur due to the construction and operation of these Project components, the location of occupied territories and nests for northern goshawks (*Accipiter gentilis*) and American three-toed woodpeckers (three-toed woodpecker) (*Picoides dorsalis*) that occur along the Project needs to be determined.

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 over the years. 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 northern goshawks and three-toed woodpeckers and their habitats, territories, and nests that could be impacted by the Project. Therefore, surveys for these two species were implemented to supplement existing data. However, landowner permission is required prior to surveying private lands, and many private landowners have declined access to their lands for surveys. The result is that field surveys could not be conducted in all suitable habitat crossed by the Project.

The objective of these surveys was to identify the presence and/or absence of northern goshawks and three-toed woodpeckers 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 Northern Goshawk and Three-toed Woodpecker Surveys* (Tetra Tech 2011a).

1.2 Target Species

American three-toed woodpeckers are largely restricted to high-elevation conifer forests and are therefore distributed in a mosaic pattern (mirroring the pattern of high-elevation mountains). They occur in dense coniferous forests, and are associated with subalpine fir and Engelmann spruce at higher elevations; they occur mainly in lodgepole pine forests or in mixed-conifer forests with a lodgepole component at lower elevations (Leonard 2001), and seem to prefer disturbed coniferous forests with trees that exhibit thin, flaky bark such as spruce and lodgepole pine. However, areas of disturbed forests (e.g., recent burns, beetle infestations) have also

1 been widely cited as important habitat. It is a relatively specialized species, feeding primarily on
2 beetles within decaying and dead trees and occurring in low densities throughout its range.
3 Seventy-five percent of its diet consists of wood-boring beetles and caterpillars that attack dead
4 or dying conifers (Wiggins 2004).

5 The northern goshawk is found throughout the northern hemisphere near the northern
6 timberlines to the southern sub-tropical regions. Birds in the northern regions migrate during the
7 winter. The northern goshawk occupies dense coniferous and deciduous forests. During its
8 nesting period, it prefers mature forests consisting of a combination of old, tall trees with
9 intermediate to high canopy coverage and open understories within the forest for foraging
10 (Woodbridge and Hargis 2006). High canopy closure appears to be an important habitat
11 characteristic for the species. Nests are typically constructed into a large bowl of thin sticks lined
12 with bark and greenery, placed in large trees. Within its home range, the northern goshawk uses
13 a diverse array of habitats for foraging, both in terms of vegetation type and the degree of
14 openness (Woodbridge and Hargis 2006). It typically perches silently, waiting and watching for
15 prey, switching perches after brief periods. It descends on prey rapidly, maneuvering through
16 forest vegetation or willingly crashing through it, taking prey as small as squirrels and as large
17 as grouse, crows, and snowshoe hare.

18 **2.0 SURVEY AREA**

19 Under the Oregon Department of Energy's Energy Facility Siting Council process, the applicant
20 describes a site boundary within which the facility will be permitted by the Department of
21 Energy. The site boundary was used to guide the establishment of the appropriate survey area
22 for northern goshawks and three-toed woodpeckers. The site boundary along the proposed
23 route passes through a variety of ownerships including U.S. Forest Service (USFS), Bureau of
24 Land Management (BLM), state, and private lands. Northern goshawk and three-toed
25 woodpecker habitat is located in lands under the administration of all the aforementioned
26 entities.

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

33 The survey area generally occurs in the Blue Mountains, outside of La Grande, Oregon, from
34 mileposts (MPs) 85 to 127 of the proposed transmission line (Figure 2). The survey area for
35 northern goshawks and three-toed woodpeckers is all areas within 0.5 mile of the site boundary
36 between MPs 85 and 127 and encompasses 44,285 acres. While not all of the survey area is
37 suitable nesting habitat for either species, this entire area was considered during placement of
38 calling stations (Section 3.0).

39 **3.0 METHODS**

40 There were two main components to the northern goshawk and three-toed woodpecker survey.
41 The first was a pre-field survey data collection, which was conducted in 2010 and early 2011 to
42 establish survey areas and identify calling station locations prior to the 2011 northern goshawk
43 and three-toed woodpecker surveys (Tetra Tech 2011a). Both the 2011 northern goshawk and
44 three-toed woodpecker report (Tetra Tech 2011a) and the survey work plan (Tetra Tech 2011b)
45 for the Project describe in more detail the data review process and agency coordination that
46 occurred prior to the start of the 2011 field survey. Oregon Biodiversity Information Center

1 (ORBIC 2012) data were reviewed and existing occurrences for both species were identified in
 2 the Blue Mountains (Figure 4). The second component was field surveys that consisted of
 3 daytime acoustical callback surveys for both species at the established calling stations. Field
 4 survey methods used for this study were adapted from Woodbridge and Hargis (2006) for
 5 northern goshawks and Dudley and Saab (2003) for three-toed woodpeckers.

6 Visual observation with acoustical callback surveys is the recommended method of survey for
 7 cavity-nesting birds that are rare or have large home ranges, as with the three-toed woodpecker
 8 (Dudley and Saab 2003). Acoustical callback surveys for northern goshawks is currently the
 9 standard method used by the USFS and many others. The efficacy of this method has been
 10 evaluated in terms of response rates at known successful nests and at territories occupied by
 11 non-breeding goshawks (Woodbridge and Hargis 2006).

12 Calling stations were placed approximately 650 feet apart (200m) (Woodbridge and Hargis
 13 2006) in areas that had moderate to high conifer canopy cover within fairly contiguous stands of
 14 forest. This spacing varied based on topography and habitat, while trying to establish stations at
 15 useful geographic features to ensure complete coverage of habitat. Some stations may have
 16 been dropped if they were in steep or unsafe terrain or if access was denied by landowners.
 17 Calling stations were identified by a unique number, and Universal Transverse Mercator
 18 geographic coordinates for each point were recorded. This resulted in the establishment of 808
 19 calling stations within the survey area for 2012.

20 2012 survey efforts focused on finishing protocol survey methods for calling stations that were
 21 deemed incomplete during the 2011 surveys, where right of entry to calling stations was granted
 22 between the 2011 and 2012 surveys, and where modifications of the site boundary between
 23 2011 and 2012 shifted the survey area.

24 Two calling station visits for both species, within the same year during unique survey periods, is
 25 required for a station to be considered complete for this report. The first survey period was for
 26 three-toed woodpeckers, designed to correspond with their nesting stage (late April). The
 27 second survey period was for both northern goshawks and three-toed woodpeckers, designed
 28 to correspond with the fledging period for three-toed woodpeckers and nesting period for
 29 northern goshawks (mid-June). The third survey period was for northern goshawks, intended to
 30 correspond with their fledging period (July). Survey period, survey dates, and species surveyed
 31 during each period are presented in Table 1.

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

Survey Period	Survey Dates	Species Surveyed
1	April 24 – 29	Three-toed woodpecker
2	June 5 – 10	Northern goshawk and three-toed woodpecker.
3	July 10 – 14	Northern goshawk

33 While in the field, surveyors listened quietly for 3 minutes after arriving at a calling station, and
 34 then proceeded with calling. The calls consisted of 10 seconds of calling followed by 30
 35 seconds of listening for a reply and watching for individuals to fly into the area. Binoculars were
 36 used while watching for three-toed woodpeckers. This pattern was repeated three times,
 37 directing calls in three directions, 120 degrees apart. If a reply was heard or an individual was
 38 observed, surveyors tried to locate the bird and any nests in the immediate area. The male
 39 territorial call was used for the three-toed woodpecker during both survey periods for this
 40 species. The adult alarm call was used for the northern goshawk during the second survey
 41 period and the juvenile wail call was used during the third survey period. Calls were broadcast
 42 using Edge® digital game callers made by Expedite, Inc., or MP3 players with amplifiers.

1 Field crews used global positioning system technology for data collection activities. Trimble
2 GeoXT survey grade receivers loaded with Esri ArcPAD 10 software were used by crews
3 conducting field surveys.

4 Survey data forms were completed for each calling station whether or not three-toed
5 woodpeckers or northern goshawks were detected. Each survey data form recorded the date; a
6 description of the survey route with an accompanying map; survey start and stop time, and time
7 spent calling between stations; and weather conditions. Responses from northern goshawks
8 and three-toed woodpeckers as well as other woodpecker and raptor species were recorded.

9 **4.0 RESULTS**

10 Of the 808 calling stations within the 2012 survey area, 420 were completed in 2011. Of the
11 remaining 388 calling stations, 274 needed to be surveyed for both species; 15 needed to be
12 surveyed for northern goshawk only (2011 surveys met protocol for three-toed woodpeckers);
13 and 99 needed to be surveyed for three-toed woodpecker only (2011 surveys met protocol for
14 northern goshawk). A single three-toed woodpecker detection was logged during all survey
15 efforts for 2012, no northern goshawks were identified during surveys. Nest searches for this
16 detection did not result in additional detections (audio or visual) of the woodpecker, and no
17 nests were found.

18 Of the 388 calling stations that required survey in 2012, a total of 189 were completed.
19 Combined with the 2011 effort, 609 out of the 808 calling stations have been completed (Table
20 2). The 609 calling stations surveyed in 2011 and 2012 represent 75 percent of the total
21 established calling stations within the northern goshawk and three-toed woodpecker survey
22 area (Figures 5 through 12). The remaining call stations were not surveyed because access
23 was denied by the landowner, access was blocked, or reaching the call station would have been
24 unsafe to the surveyor.

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

Survey year	Total calling stations established	Survey completed	Target Species Observed	Access denied or blocked¹
2011	NA ²	420	4	NA ²
2012	808	189	1	199
Total	808	609	5	199

26 ¹ Survey not conducted. Property owner denied access and/or access was blocked. Blocked access
27 includes: 1) physical constraints limiting access to the site that may include: a) steep slopes, b)
28 impassable roads or streams, c) terrain and weather conditions; 2) access blocked by surrounding
29 properties that had access denied; 3) unable to access due to time constraints, or 4) background noise at
30 the survey location was sufficiently high to potentially prevent surveyor from hearing bird responses.
31 Noise sources included wind, inclement weather, streams, highway, and trains.

32 ² Because of the shift in the site boundary, the survey area changed and the number and locations of
33 calling stations changed between 2011 and 2012. Therefore, the total number of stations established in
34 2011 and the total number that were not accessed in 2011 are not applicable to the 2012 survey effort.
35 These numbers are available in the 2011 report (Tetra Tech 2011a).

36 **4.1 Survey Period 1**

37 The single observation of a three-toed woodpecker occurred on April 27th, 2012 at calling station
38 405.1 (Figure 7 and Figure 8). The observation was an adult female and was both seen and
39 heard calling in response to the playback.

1 4.2 Survey Period 2

2 No target species were observed during Survey Period 2.

3 4.3 Survey Period 3

4 No target species were observed during Survey Period 2.

5 During the course of the three survey periods, several additional woodpecker and raptor species
 6 were heard or seen, including American kestrel (*Falco sparverius*), black-backed woodpecker
 7 (*Picoides arcticus*), Cooper's hawk (*Accipiter cooperii*), downy woodpecker (*Picoides*
 8 *pubescens*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*),
 9 red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsonii*). All observations
 10 are displayed on Figure 5 through Figure 12 and summarized in Table 3.

Table 3. Summary of 2012 Survey Observations

Detection	Date	Calling station	Nest detected? Yes/No
Pileated Woodpecker	4/24/2012	757	No
Hairy Woodpecker	4/25/2012	108	No
Black-backed Woodpecker	4/25/2012	121.1	No
Pileated Woodpecker	4/25/2012	148	No
Hairy Woodpecker	4/25/2012	152	No
Northern Flicker	4/25/2012	678	No
Hairy Woodpecker	4/25/2012	685	No
Northern Flicker	4/25/2012	697	No
Red-naped Sapsucker	4/25/2012	748	No
Three-toed Woodpecker	4/27/2012	405.1	No
Northern Flicker	4/27/2012	470	No
Pileated Woodpecker	4/28/2012	602	No
Pileated Woodpecker	6/5/2012	108	No
Northern Flicker	6/5/2012	875	No
Red-tailed Hawk	6/6/2012	347.1	No
Williamson's Sapsucker	6/6/2012	685	No
Northern Flicker	6/6/2012	697	No
Red-tailed Hawk	6/6/2012	742	No
Northern Flicker	6/6/2012	757	No
Pileated Woodpecker	6/6/2012	777	No
Red-tailed Hawk	6/7/2012	107	Yes
Williamson's Sapsucker	6/7/2012	153	No
Swainson's Hawk	6/7/2012	153	Yes
Pileated woodpecker	6/7/2012	686	No
Northern Flicker	6/7/2012	720	No
Unknown Woodpecker	6/7/2012	838	No
Hairy Woodpecker	6/8/2012	363	No
Pileated woodpecker	6/8/2012	363.1	No
Hairy Woodpecker	6/8/2012	873	No
Hairy Woodpecker	6/10/2012	371	No
Hairy Woodpecker	6/10/2012	568.1	No
Northern Flicker	6/10/2012	595	No
Hairy Woodpecker	6/10/2012	612	No

Table 3. Summary of 2012 Survey Observations

Detection	Date	Calling station	Nest detected? Yes/No
Northern Flicker	6/10/2012	613	No
Northern Flicker	6/10/2012	865	No
Red-tailed Hawk	7/10/2012	103	No
Red-tailed hawk	7/10/2012	874	No
Cooper's Hawk	7/12/2012	615	No
Red-tailed Hawk	7/14/2012	612	No

1 5.0 CONCLUSION

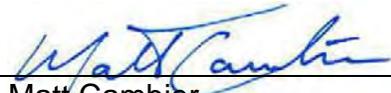
2 The objective of the northern goshawk and three-toed woodpecker surveys was to identify
3 territories within or overlapping the proposed route and alternatives and to identify any nesting
4 pairs of these two species. The 2012 survey effort used the best available data and the
5 appropriate recommended procedures for identifying the locations of the two species that may
6 be affected by the Project. However, no territories or nesting pairs of either species were
7 positively identified during this survey effort.

8 A single three-toed woodpecker detection was obtained during the 2012 survey effort. In 2011,
9 3 three-toed woodpecker and 1 northern goshawk detections were obtained. Several additional
10 woodpecker and raptor species have been heard or seen over the two survey seasons,
11 including American kestrel, black-backed woodpecker, Cooper's hawk, downy woodpecker,
12 hairy woodpecker, northern flicker, pileated woodpecker, red-naped sapsucker, red-tailed hawk,
13 Williamson's sapsucker, and turkey vulture.

14 Northern goshawk and three-toed woodpecker detections were uncommon during the 2011 and
15 2012 survey seasons. This is due to a number of factors including the species' habitat
16 requirements, habitat quality within the survey area, difficult access, and the relatively low
17 densities of both species on the landscape. In addition, broadcast calling methods for the two
18 species depend on eliciting defensive responses from adults or food-begging responses from
19 fledglings or the adult female. Compared with territorial song responses, these responses vary
20 much more and depend highly on reproductive chronology and status.

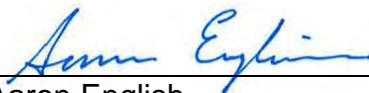
21 Appropriate field surveys to close data gaps where access was previously denied will be
22 conducted once right of access has been obtained to private property.

Prepared by:



Matt Cambler
Wildlife Biologist

Reviewed by:



Aaron English
Supervising Scientist

1 **6.0 REFERENCES**

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4 Research Station. Fort Collins, CO.
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6 America, No. 588, A. Poole and F. Gill (editors). The Birds of North America, Inc.,
7 Philadelphia, PA.
- 8 ORBIC 2012. GIS data file containing locational information on rare, threatened or endangered
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10 Natural Resources, Portland State University. Portland, OR.
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FIGURES

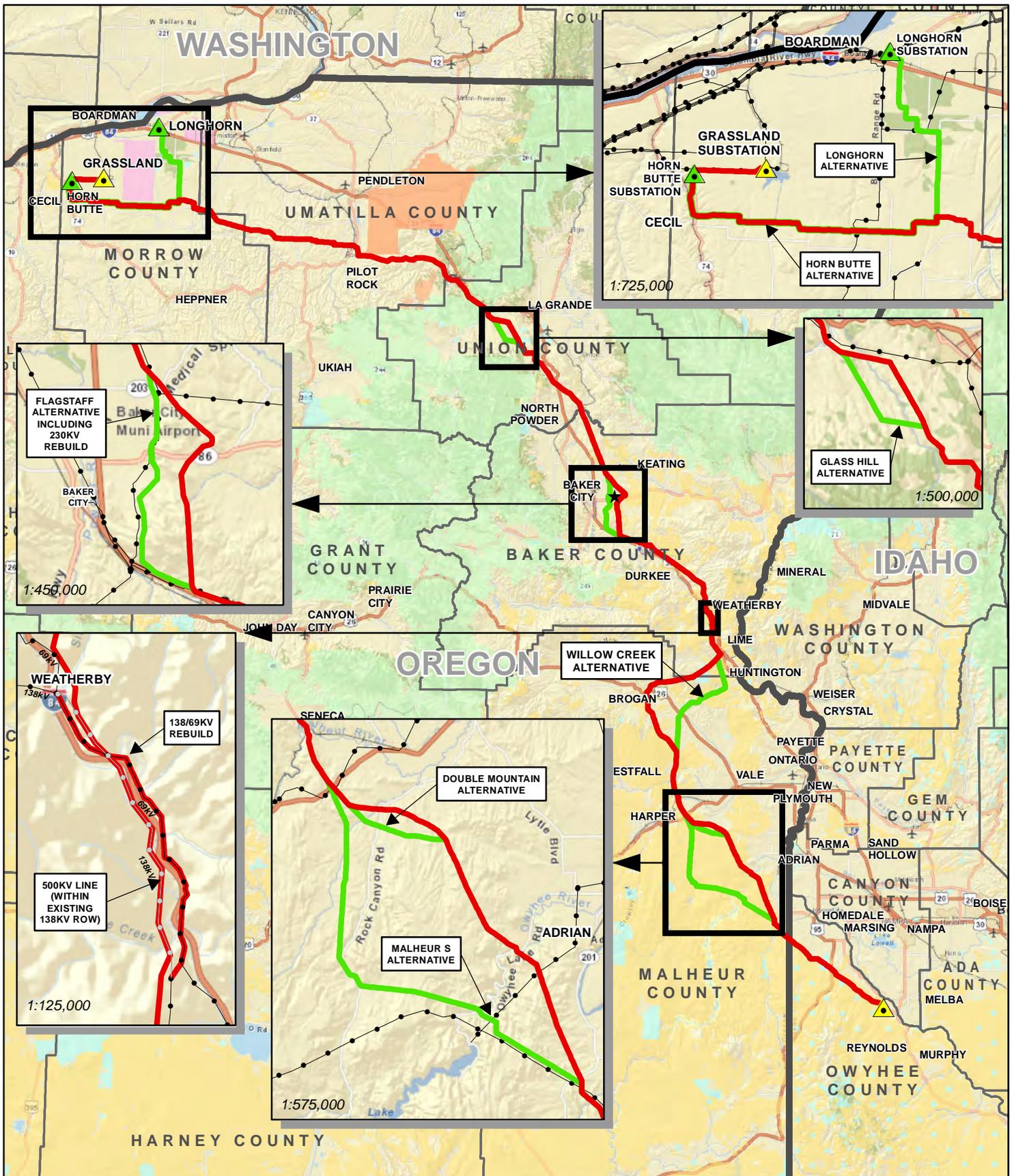


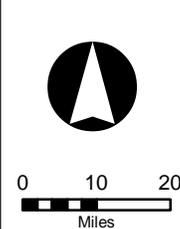
FIGURE 1
PROJECT OVERVIEW
2012 NORTHERN GOSHAWK AND
AMERICAN THREE-TOED WOODPECKER
TECHNICAL REPORT

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



LOCATION MAP



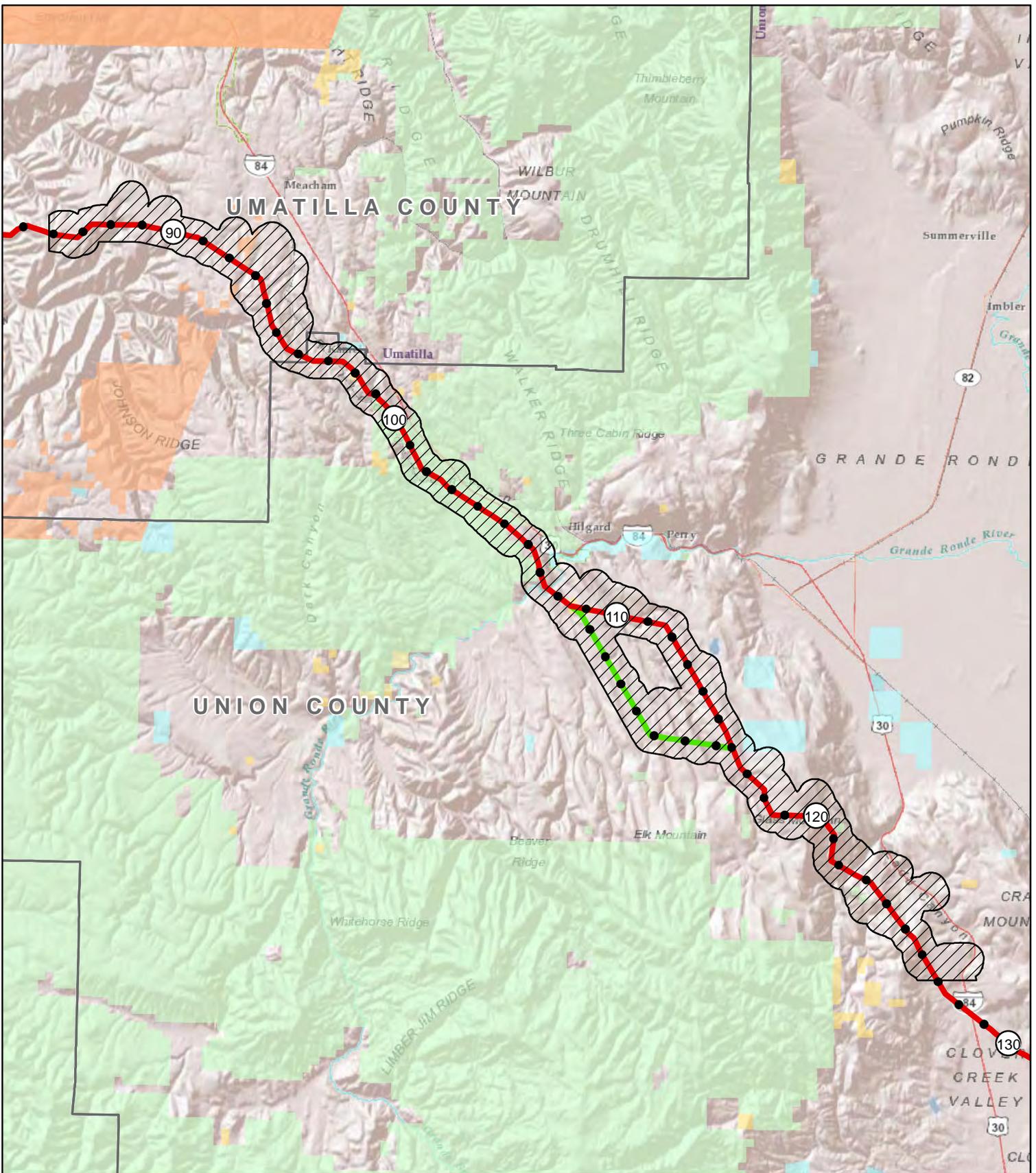
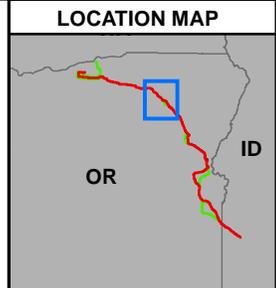


FIGURE 2
SURVEY AREA
2012 NORTHERN GOSHAWK AND
AMERICAN THREE-TOED WOODPECKER
TECHNICAL REPORT

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



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



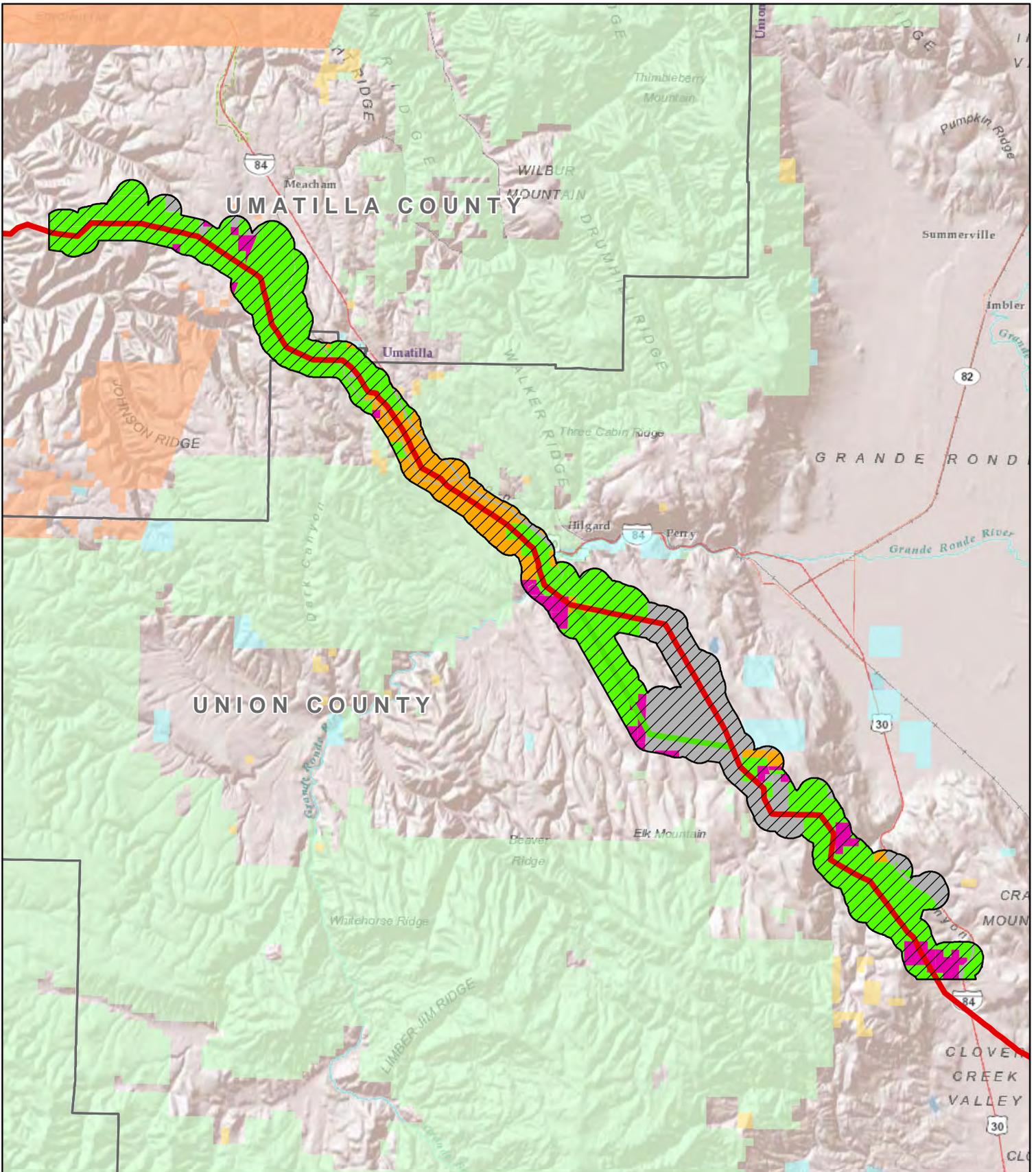
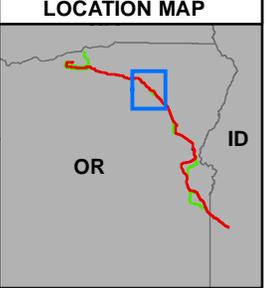


FIGURE 3
RIGHT OF ENTRY STATUS
2012 NORTHERN GOSHAWK AND AMERICAN THREE-TOED WOODPECKER TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



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



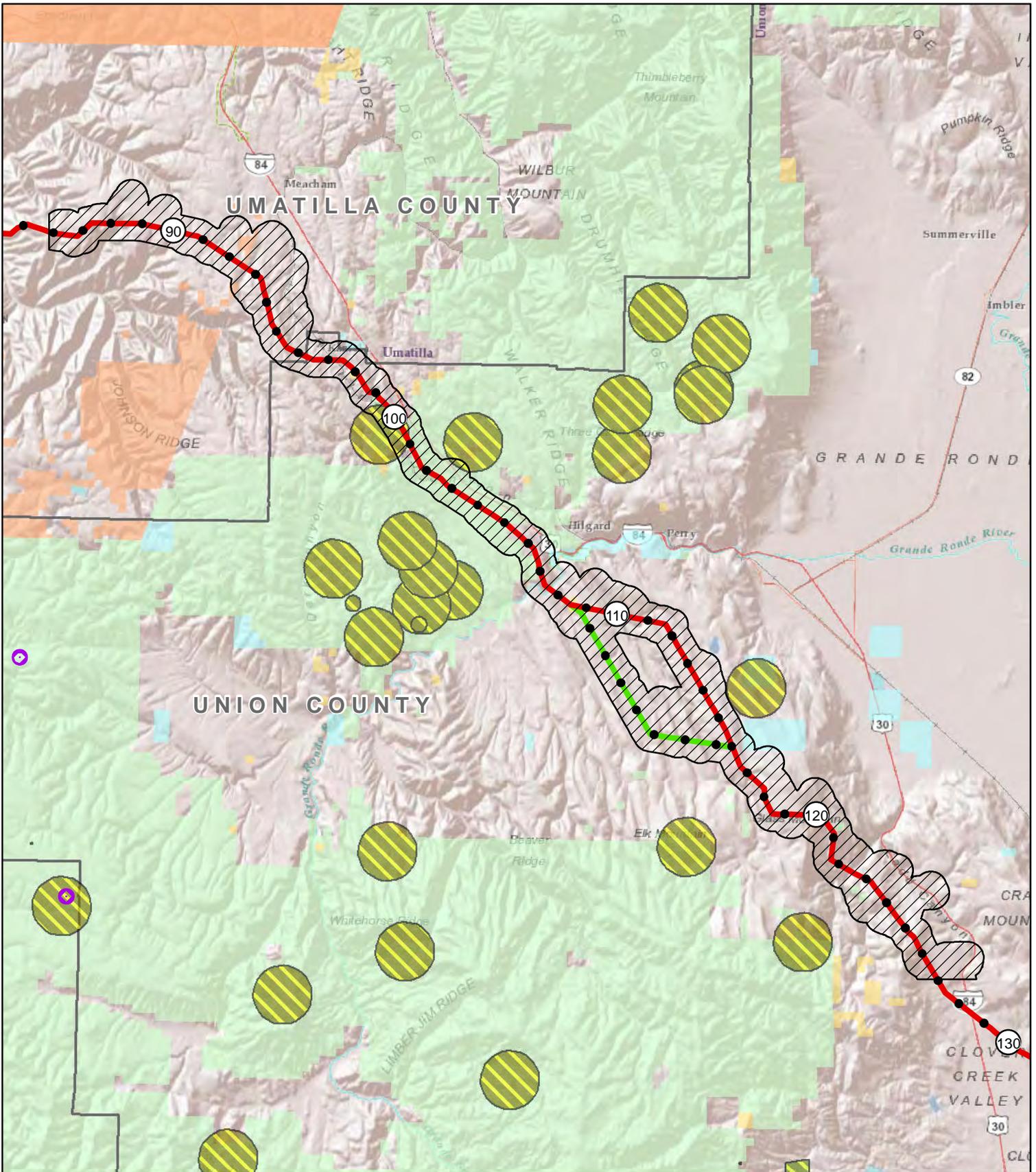
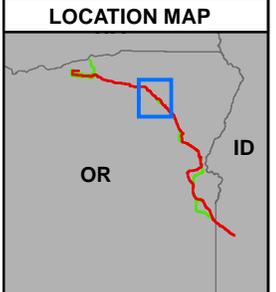
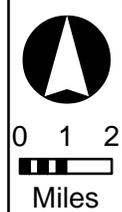


FIGURE 4
OREGON BIODIVERSITY INFORMATION
CENTER (ORBIC) - EXISTING DATA
2012 NORTHERN GOSHAWK AND
AMERICAN THREE-TOED WOODPECKER
TECHNICAL REPORT

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



- Milepost
- Milepost (10-mile)
- Proposed Route 20120301
- IPC Alternative 20120301
- ▨ 0.5-mi Buffer of EFSC Boundary
- Three-toed Woodpecker Occurrence
- Northern Goshawk Occurrence
- ▭ County Boundary
- ▭ Bureau of Land Management
- ▭ Forest Service
- ▭ CTUIR Lands
- ▭ Private
- ▭ State



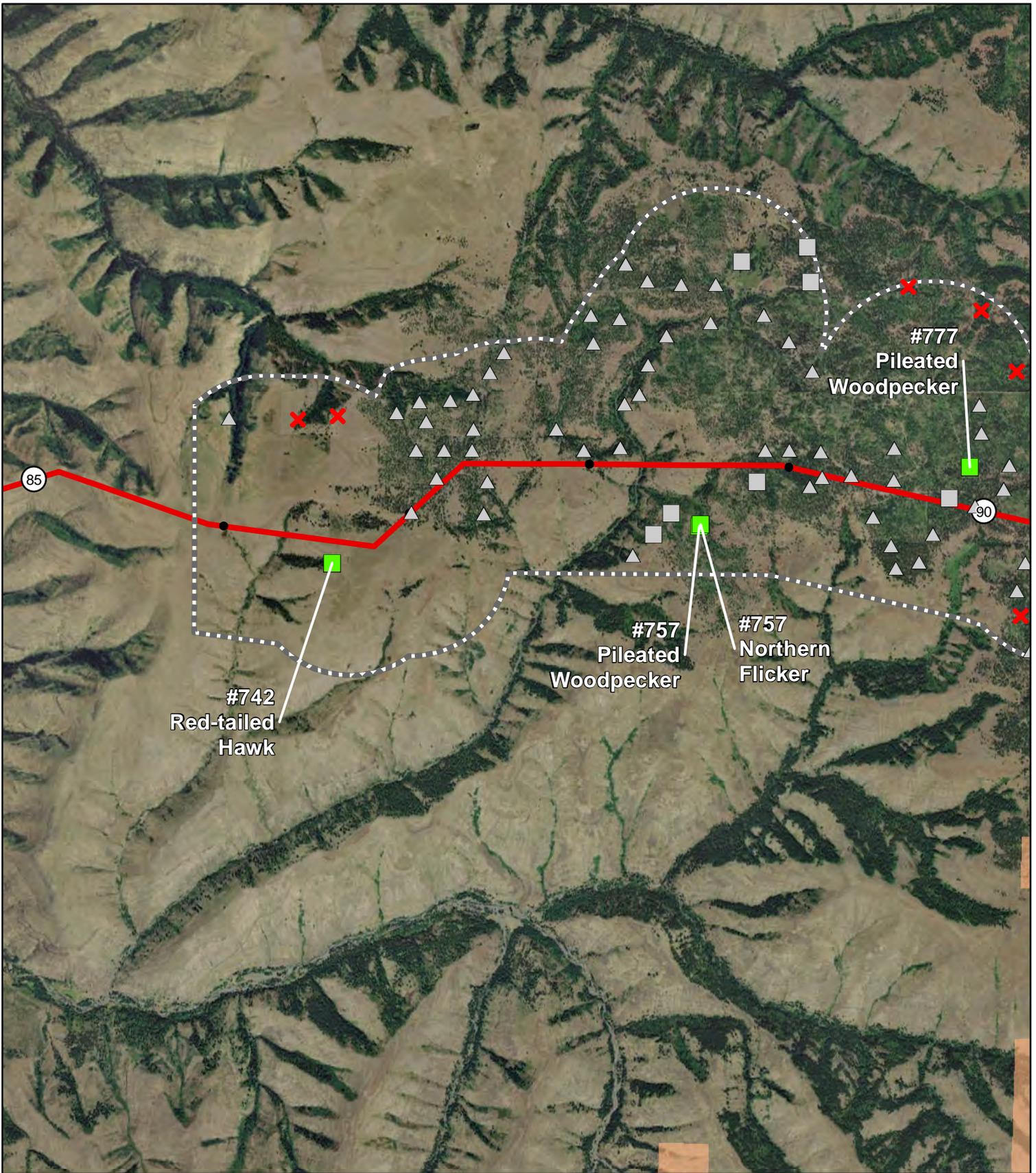
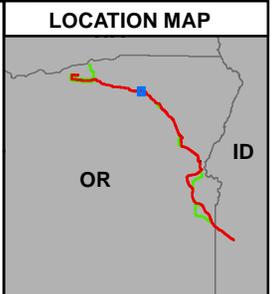
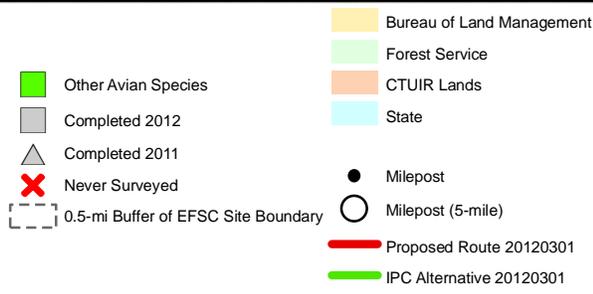


FIGURE 5
SURVEY RESULTS - MILEPOSTS 86 TO 90
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT

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



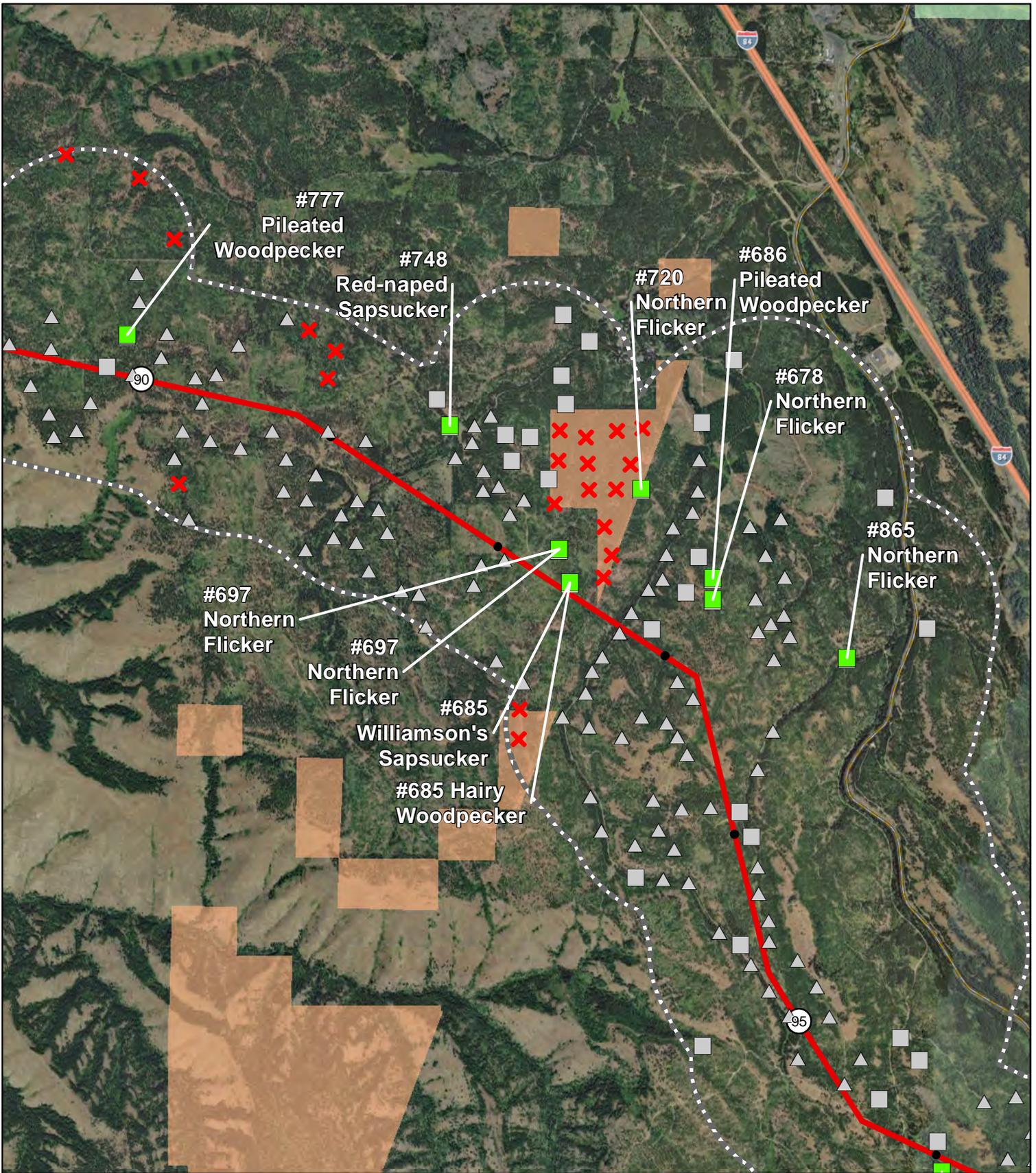


FIGURE 6
SURVEY RESULTS - MILEPOSTS 90 TO 95
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



Other Avian Species	Bureau of Land Management
Completed 2012	Forest Service
Completed 2011	CTUIR Lands
Never Surveyed	State
0.5-mi Buffer of EFSC Site Boundary	Milepost
	Milepost (5-mile)
	Proposed Route 20120301
	IPC Alternative 20120301

0 0.25
 Miles

LOCATION MAP

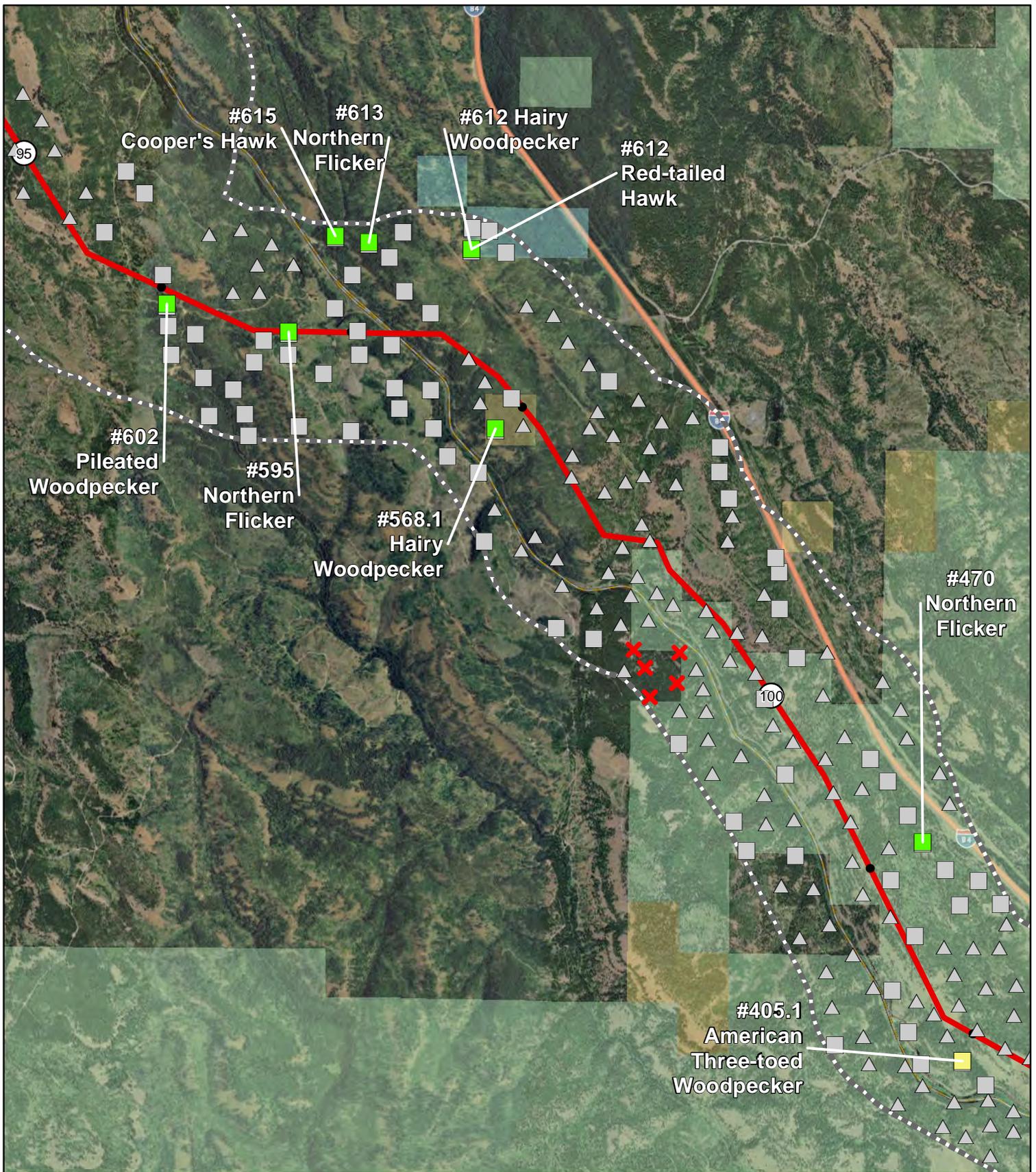
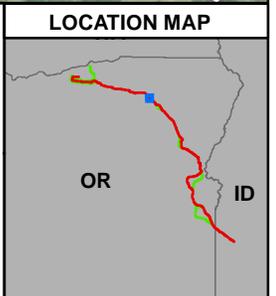
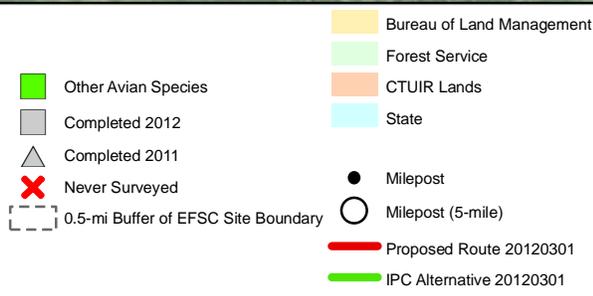


FIGURE 7
SURVEY RESULTS - MILEPOSTS 95 TO 102
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

JANUARY 2013



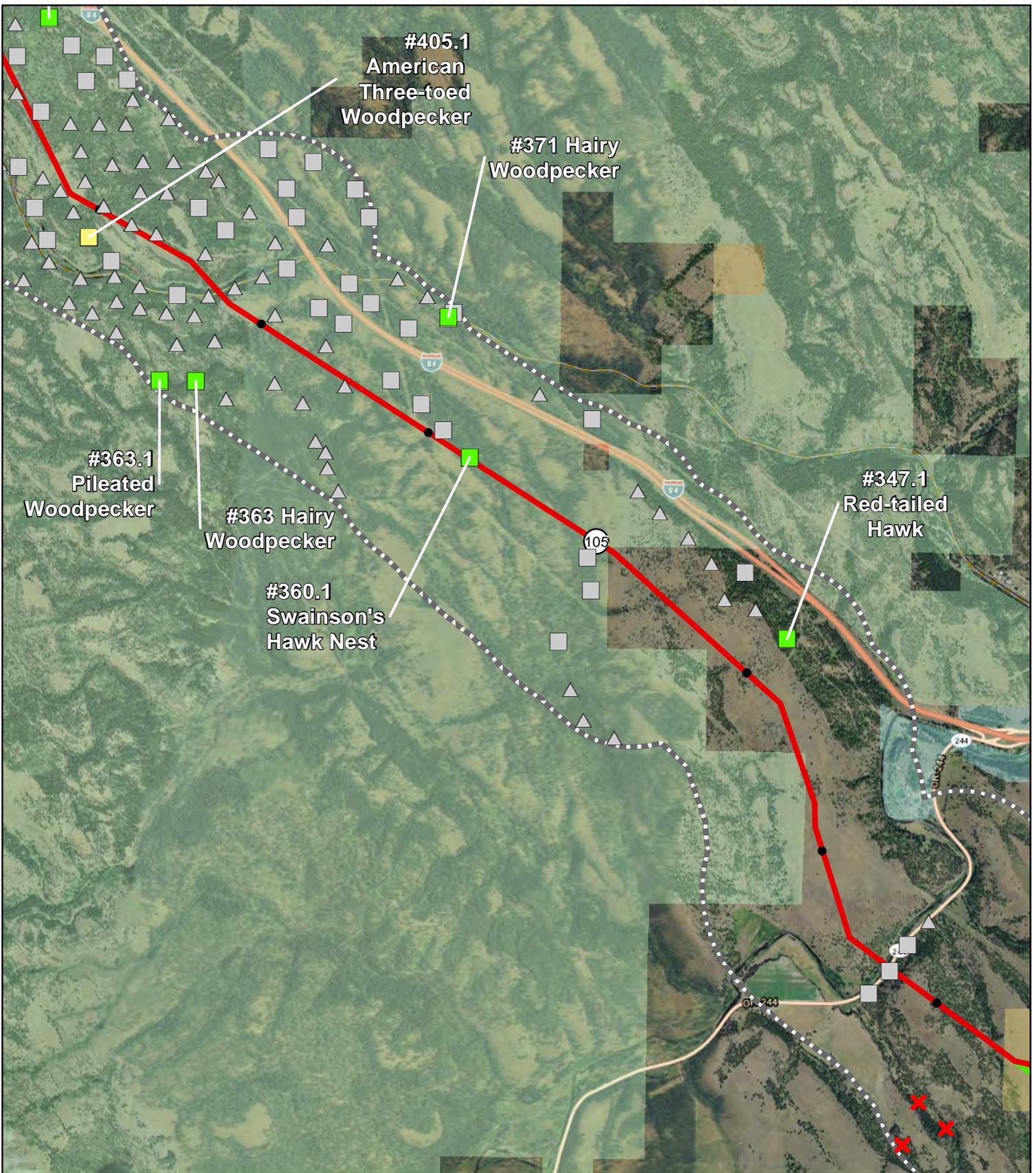
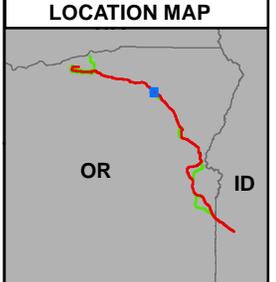
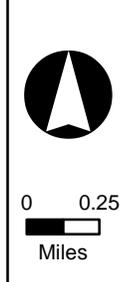
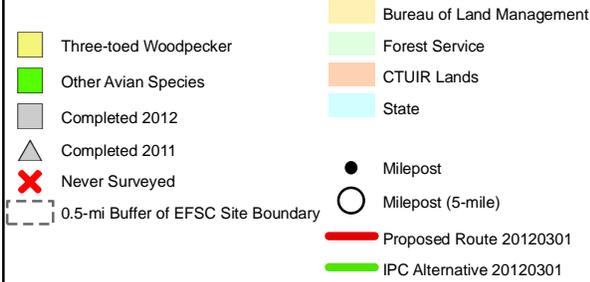


FIGURE 8
SURVEY RESULTS - MILEPOSTS 102 TO 108
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT

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



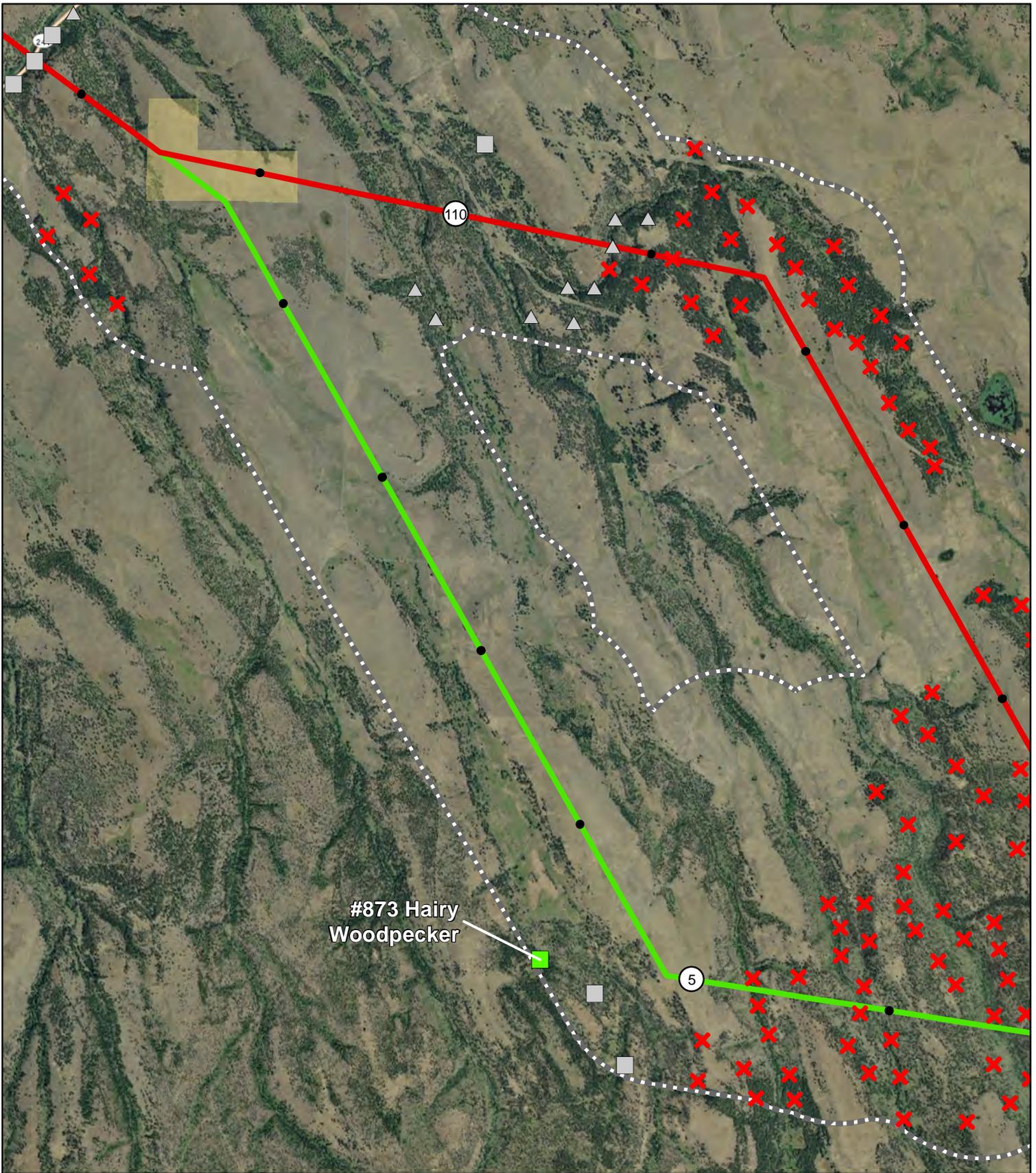


FIGURE 9
SURVEY RESULTS - MILEPOSTS 108 TO 114
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT

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



Other Avian Species	Bureau of Land Management
Completed 2012	Forest Service
Completed 2011	CTUIR Lands
Never Surveyed	State
0.5-mi Buffer of EFSC Site Boundary	Milepost
	Milepost (5-mile)
	Proposed Route 20120301
	IPC Alternative 20120301

0 0.25
 Miles

LOCATION MAP

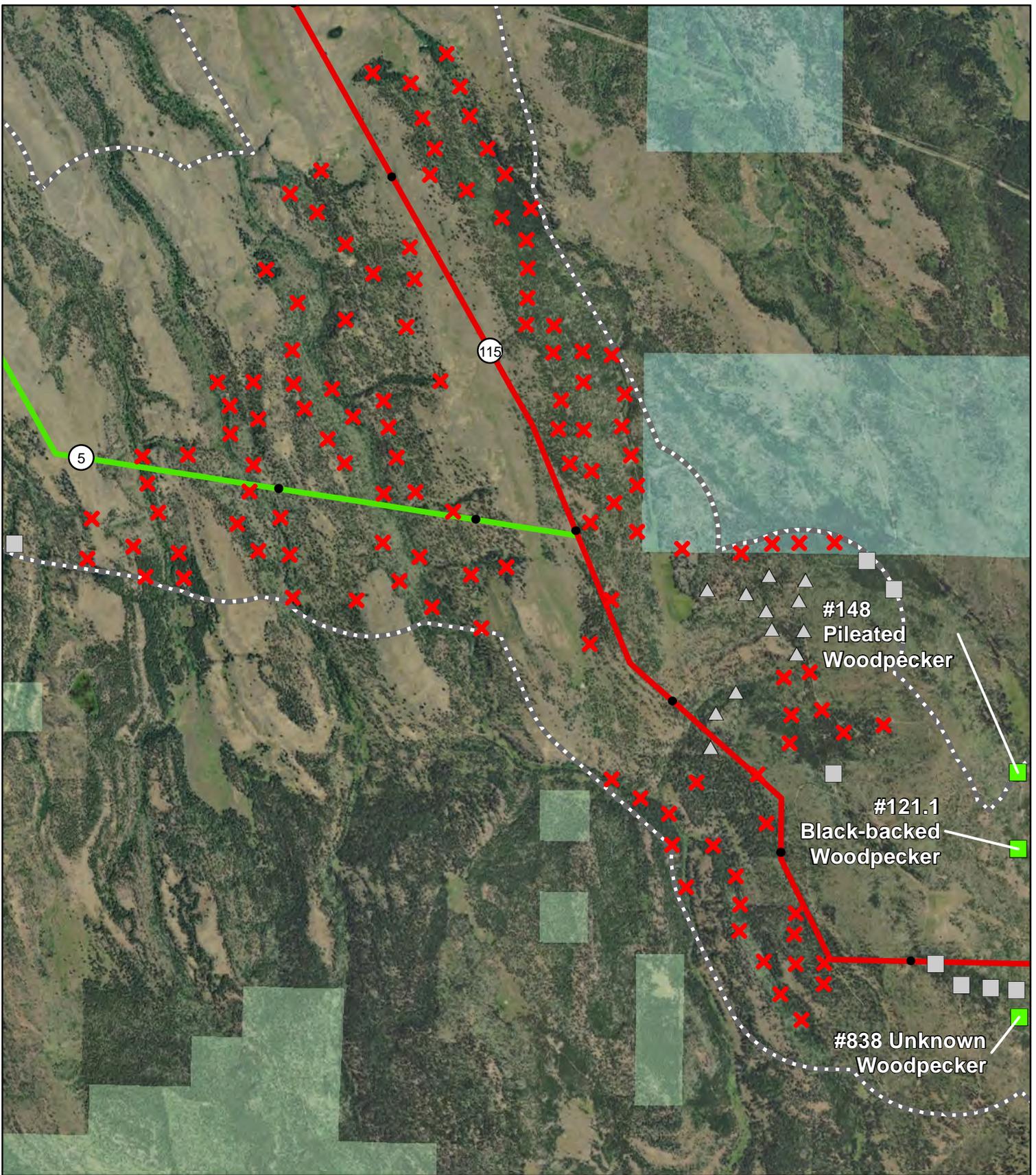


FIGURE 10
SURVEY RESULTS - MILEPOSTS 114 TO 119
 2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



Other Avian Species	Bureau of Land Management
Completed 2012	Forest Service
Completed 2011	CTUIR Lands
Never Surveyed	State
0.5-mi Buffer of EFSC Site Boundary	Milepost
	Milepost (5-mile)
	Proposed Route 20120301
	IPC Alternative 20120301

0 0.25
 Miles

LOCATION MAP

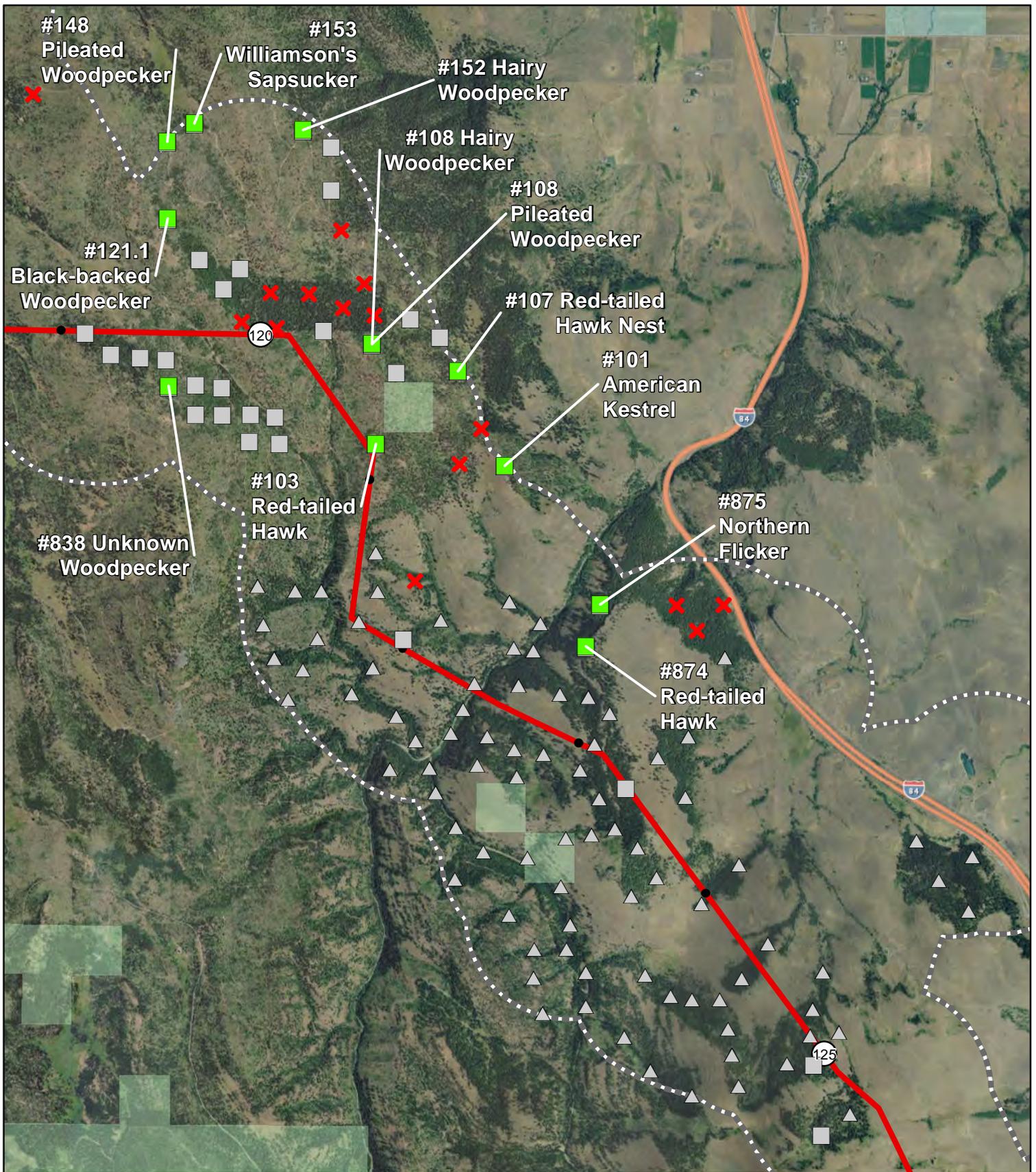
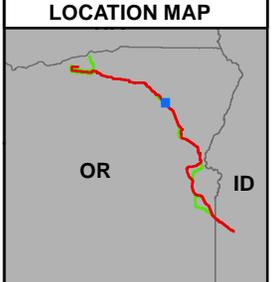
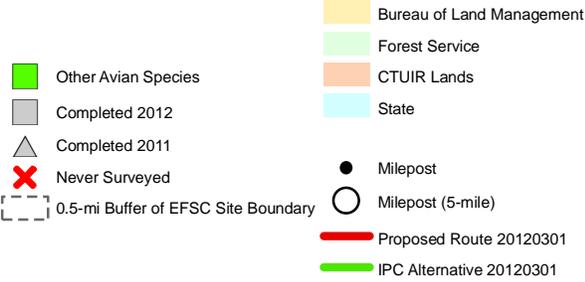


FIGURE 11
SURVEY RESULTS - MILEPOSTS 119 TO 125

**2012 NORTHERN GOSHAWK AND
 AMERICAN THREE-TOED WOODPECKER
 TECHNICAL REPORT**

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

JANUARY 2013



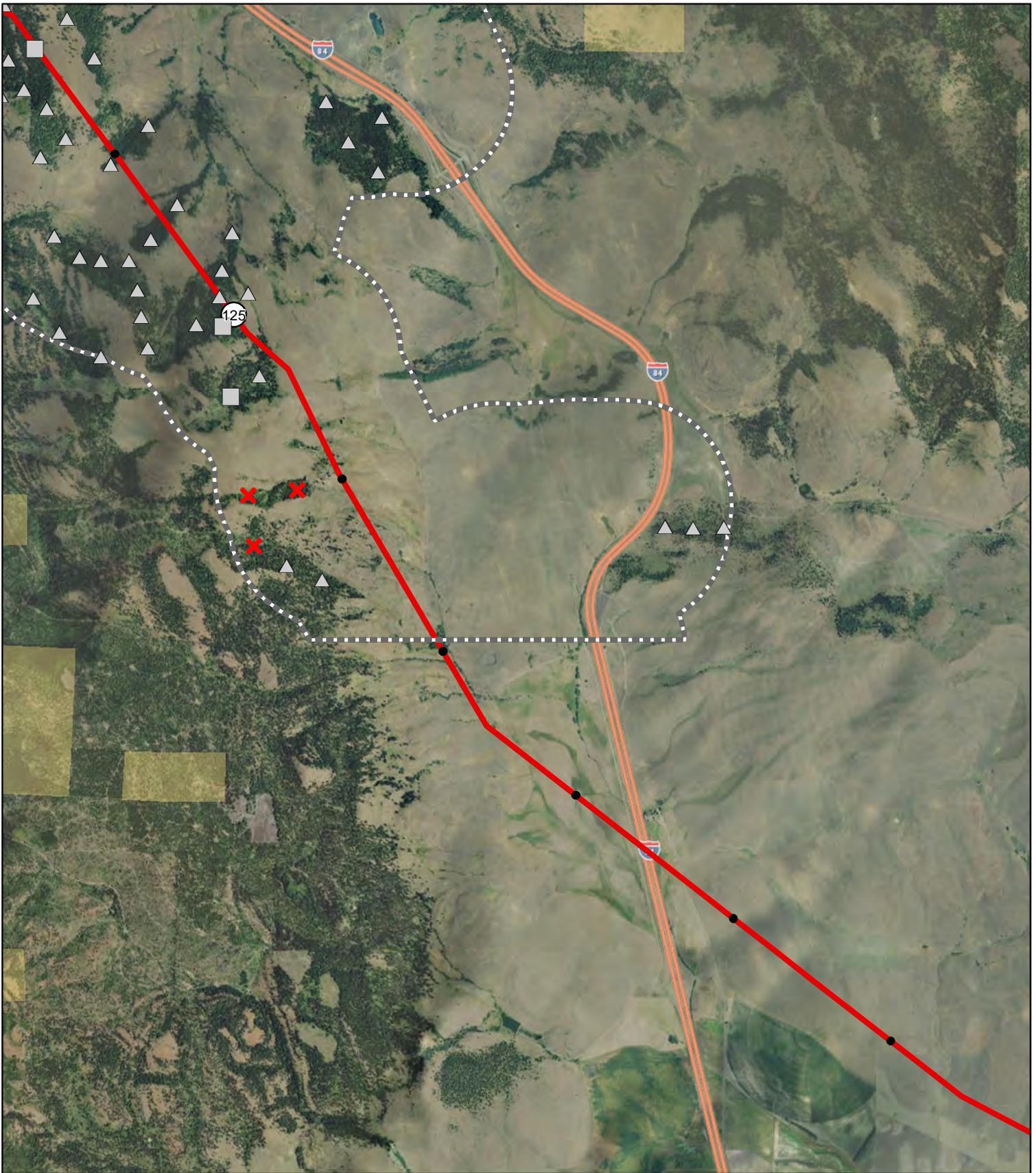


FIGURE 12
SURVEY RESULTS - MILEPOSTS 124 TO 127
2012 NORTHERN GOSHAWK AND
AMERICAN THREE-TOED WOODPECKER
TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 JANUARY 2013



	Completed 2012		Bureau of Land Management
	Completed 2011		Forest Service
	Never Surveyed		CTUIR Lands
	0.5-mi Buffer of EFSC Site Boundary		State
	Milepost		Milepost (5-mile)
	Proposed Route 20120301		IPC Alternative 20120301

0 0.25
 Miles

LOCATION MAP