

P-8G – Special Status Plant Surveys Technical Report

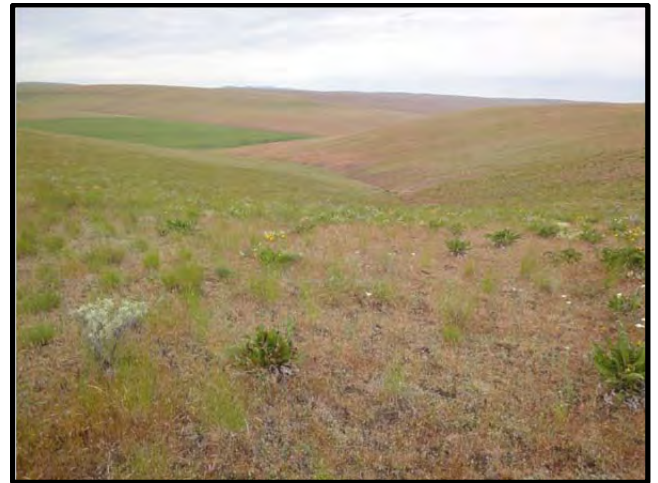
2011 Report



TETRA TECH

Boardman to Hemingway Transmission Line Project

2011 Special Status Plant Surveys



**4287 RPT.DOC
December 2011**

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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 (kV) electric transmission line between northeast Oregon and southwest Idaho referred to 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 (PGE) planned substation (Grassland Substation) adjacent to the Boardman generating plant near Boardman in Morrow County, Oregon, and IPC's existing Hemingway Substation in Owyhee County, Idaho. The Project will traverse federal, state, and private lands in 6 counties in Oregon and Idaho. Figure 1-1 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. To help determine the degree of impact that could occur from the construction of these Project components, the potential presence of Bureau of Land Management (BLM), U.S. Department of Agriculture (USDA), and U.S. Forest Service (USFS) listed sensitive plant species; federally listed threatened, endangered, proposed, and candidate plant species; and Oregon-state-listed threatened and endangered species, collectively referred to here as special-status plant (SSP) species, within the proposed Project right-of-way (ROW) are required to be evaluated. To accomplish this, Tetra Tech identified areas where SSP species have the potential to occur. Suitable habitat was determined and defined based on the following: 1) pre-survey vegetation mapping efforts and 2) consultation with knowledgeable local botanists.

As proposed, the Project would cross public and private lands. Public lands that would be crossed are managed, in part, with the intent of conserving populations of SSP species, 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 agencies, are largely unavailable. Existing databases could not always be used to determine the locations of SSP species or their habitat that could be impacted by the Project. Therefore, surveys of SSP species were implemented to supplement existing data. Field surveys could not be conducted in all suitable habitats crossed by the Project because IPC does not currently have access to all private land crossed by the proposed route.

2.0 PROJECT AND SURVEY AREA

The Project area can be divided into 4 broad ecoregions; the Blue Mountains, the Columbia Plateau, the Snake River Plain, and small portions of the Northern Basin and Range.

The northern portion of the Project crosses through the Columbia Plateau and Blue Mountains level III ecoregions (Thorson et al. 2003). The native vegetation within the Columbia Plateau ecoregion typically consists of arid sagebrush steppe and grassland types; however, much of this ecoregion has been converted to agricultural use in the form of wheat cultivation (EPA 2011). The Blue Mountains ecoregion consists of a complex of mountain ranges generally lower and more open than neighboring ranges (e.g., the Cascades and Northern Rockies). This ecoregion typically supports mixed coniferous vegetation types; however, portions of this ecoregion are currently disturbed by cattle grazing as well as other disturbance types (EPA 2011; Powell et al. 2007).

The southern portion of the Project crosses through the Snake River Plain and the Northern Basin and Range level III ecoregions (Thorson et al. 2003). The native vegetation within the Snake River Plain ecoregion typically consists of sagebrush-grassland vegetation types. This ecoregion is considerably lower in elevation and has more gently sloping areas than the surrounding ecoregions, resulting in a greater availability of water. As a result, much of the Snake River Plain ecoregion has been converted to agricultural use, the principal crops being sugar beets, potatoes, alfalfa, and vegetables (EPA 2011). The Northern Basin and Range ecoregion contains a diverse range of landforms, including tablelands, dissected lava plains, valleys, alluvial fans, and scattered mountains. Non-mountainous areas in this ecoregion typically contain sagebrush steppe vegetation types, while mountainous areas typically contain big sagebrush (*Artemisia tridentata*), Idaho fescue (*Festuca idahoensis*), Douglas-fir (*Pseudotsuga menziesii*), and aspen (*Populus* spp.). Portions of the Northern Basin and Range ecoregion have been converted into rangeland and agricultural uses (EPA 2011).

The survey area for SSP species (Figure 2-1) is all portions of the Project area that meet the habitat requirement for special-status species identified during Phase 1 and that are within 250 feet of the centerline proposed route and alternatives, within 100 feet of access roads, and/or within the footprint of staging and fly yards (Tetra Tech 2011). Approximately 11,466 acres of potential SSP habitat for 29 species were identified during Phase 1 pre-survey mapping.

Survey areas occurred on public and private lands. Access to these lands under the administration of the USFS, BLM, and Oregon state parks was unhindered; however, private lands were only accessible where landowners agreed to allow access for biological surveys. Approximately 4,927 acres (43%) of the SSP species habitat polygons occurred on public land. An additional 4,136 acres (36%) occurred on private land where the owners had granted right-of-entry to the survey crew. As a result access was available to approximately 9,063 acres or 79 percent of the areas identified as SSP habitat (Figure 2-2).

3.0 METHODS

The objective of the field survey was to identify SSP species on public (federal and state) and private lands. During Phase 1, areas of suitable habitat were identified through geographic information system (GIS) analysis of National Agriculture Imagery Program (NAIP), Northwest Regional Gap Analysis Landcover Data (NWGAP), and Oregon Biodiversity Information Center (ORBIC) known elemental occurrence data (Figures 3-1 through Figure 3-5). This methodology of habitat mapping, as well as the list of SSP species requiring consideration, was developed through discussions with land managers and biologists from the BLM, USFS, and other agencies in meetings held during summer 2008 and fall 2010 (Tetra Tech 2011). Table 3-1 lists the SSPs surveyed, the survey periods, and the portion of the ROW, by county, where the species were surveyed.

Species phenology and local climate vary along the ROW. To account for these variations, surveys were conducted in April, June, and July 2011. Botanists familiar with the SSPs performed surveys using systematic pedestrian transects. The suitable habitat polygons identified during the habitat mapping phase were located using a survey grade (1-meter [m] accuracy) global positioning system (GPS) unit; these polygons were traversed by botanists. Spacing between the individual botanists was adjusted based on habitat to achieve 100 percent visual coverage in areas with a high potential for SSP occurrences.

Daily habitat accounts were recorded to document the general habitat conditions. When an SSP was located, a GPS position was recorded (point locations for individual occurrences or communities occupying an area less than 10 m in diameter, and polygons for larger communities). Photographs were taken, and the data were recorded on the Oregon or Idaho Rare Plant Occurrence form. Field crews used GPS technology for data-collection activities.

Trimble GeoXT survey grade receivers loaded with Esri ArcPAD 10 software were used by crews conducting field surveys. Daily habitat accounts were recorded to document the general habitat conditions. When an SSP was located, a GPS position was recorded (point locations for individual occurrences or communities occupying an area less than 10 m in diameter, and polygons for larger communities). Photographs were taken, and the data were recorded on the Oregon or Idaho Rare Plant Occurrence form.

Table 3-1. Summary of 2011 SSP Survey

Common Name	Scientific Name	Survey Period(s)	Counties Surveyed	Oregon ¹	Idaho ²	Determination
Antelop Valley beardtongue	<i>Penstemon janishiae</i>	3	Owyhee	N/A	BLM3	No occurrence
Bigelow's four-o'clock	<i>Mirabilis laevis</i> var. <i>retorsa</i>	N/A	N/A	ORBIC2	NL	N/A
Calcareous buckwheat	<i>Eriogonum ochrocephalum</i> var. <i>calcareum</i>	2, 3	Umatilla, Union, Baker, Malheur, Owyhee	N/A	BLM3	Present
Cronquist's stickseed	<i>Hackelia cronquistii</i>	2, 3	Union, Baker, Malheur	T, BLM(Sen), ORBIC1	NL	No occurrence ⁴
Cusick's false yarrow	<i>Chaenactis cusickii</i>	3	Baker, Malheur, Owyhee	ORBIC4	BLM2	No occurrence ⁴
Cusick's lupine	<i>Lupinus lepidus</i> var. <i>cusickii</i>	N/A ³	N/A	E, BLM(Sen), ORBIC1	NL	N/A
Desert pincushion	<i>Chaenactis stevioides</i>	3	Owyhee	N/A	BLM4	No occurrence
Dimeresia	<i>Dimeresia howellii</i>	3	Owyhee	N/A	BLM3	No occurrence ⁴
Douglas' clover	<i>Trifolium douglasii</i>	2	Union, Baker	BLM(Sen)	NL	N/A
Greeley's wavewing	<i>Cymopterus acaulis</i> var. <i>greeleyorum</i>	1	Union, Baker, Malheur, Owyhee	BLM(Sen), ORBIC1	BLM3	Present
Howell's spectacular thelypody	<i>Thelypodium howellii</i> ssp. <i>spectabilis</i>	2, 3	Union, Baker	E, T(US)	T(US)	No occurrence

¹ ORBIC1 = ORBIC List 1 Species; taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

ORBIC2 = ORBIC List 2 Species; taxa that are threatened with extirpation or presumed to be extirpated from the state of Oregon.

ORBIC4 = ORBIC List 4 Species; taxa which are of conservation concern but are not currently threatened or endangered in Oregon or throughout their range.

E = Oregon state endangered species

T = Oregon state threatened species

T(US) = Federally threatened species

BLM(Sen) = Oregon BLM sensitive species

² BLM1 = Species federally identified as threatened, endangered, proposed, candidate, or designated by the BLM state director as sensitive (Idaho).

BLM2 = Species that have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors (Idaho).

BLM3 = Species globally rare or very rare in Idaho, with moderate endangerment factors. Their global or state rarity and the inherent risks associated with rarity make them imperiled species.

BLM4 = Species generally rare in Idaho with small populations or a localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.³ No habitat was identified during Phase 1 analysis

NL= Not listed as a SSP in Idaho.

⁴. Survey outside of the presumed flowering period.

Table 3-2. Summary of 2011 SSP Survey (cont'd)

Common Name	Scientific Name	Survey Period(s)	Counties Surveyed	Oregon ¹	Idaho ²	Determination
Laurent's milkvetch	<i>Astragalus collinus</i> var. <i>laurentii</i>	2	Morrow, Umatilla, Union, Baker	T, BLM(Sen), ORBIC1	NL	Present
Malheur yellow phacelia	<i>Phacelia lutea</i> var. <i>calva</i>	3	Owyhee	N/A	BLM3	No occurrence
Many-flowered phlox	<i>Phlox multiflora</i>	2	Union	BLM(Sen), ORBIC2	NL	N/A
Mulford's milkvetch	<i>Astragalus mulfordiae</i>	3	Union, Baker, Malheur, Owyhee	E, BLM(Sen), ORBIC1	BLM2	No occurrence ⁴
Oregon prince's plume	<i>Stanleya confertiflora</i>	3	Union, Baker, Malheur	BLM(Sen)	BLM2	Present
Oregon semaphore grass	<i>Pleuropogon oregonus</i>	2	Union, Baker	T, BLM(Sen), ORBIC1	NL	No occurrence
Owyhee Clover	<i>Trifolium owyheense</i>	N/A ³	N/A	BLM(Sen), ORBIC1	BLM2	N/A
Packard's mentzelia	<i>Mentzelia packardiae</i>	N/A ³	N/A	T, BLM(Sen), ORBIC1	NL	N/A
Packard's wormwood	<i>Artemisia packardiae</i>	N/A ³	N/A	ORHHIC4	NL	N/A
Red-fruited lomatium	<i>Lomatium erythrocarpum</i>	N/A ³	N/A	E, BLM(Sen), ORBIC1	NL	N/A
Retrorsed sedge	<i>Carex retrorsa</i>	N/A ³	N/A	BLM(Sen), ORBIC2	NL	N/A
Salt heliotrope	<i>Heliotropium curassavicum</i>	2, 3	Morrow, Union, Baker	BLM(Sen), ORBIC2	NL	No occurrence
Simpson's hedgehog cactus	<i>Pediocactus simpsonii</i>	3	Owyhee	N/A	BLM4	No occurrence ⁴

¹ ORBIC1 = ORBIC List 1 Species; taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

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BLM4 = Species generally rare in Idaho with small populations or a localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.³ No habitat was identified during Phase 1 analysis

NL= Not listed as a SSP in Idaho.

⁴. Survey outside of the presumed flowering period.

Table 3-3. Summary of 2011 SSP Survey (cont'd)

Common Name	Scientific Name	Survey Period(s)	Counties Surveyed	Oregon ¹	Idaho ²	Determination
Slickspot peppergrass	<i>Lepidium papilliferum</i>	N/A ³	N/A	T(US)	T(US), BLM1	N/A
Smooth blazingstar	<i>Mentzelia mollis</i>	3	Union, Baker, Malheur, Owyhee	E, BLM(Sen), ORBIC1	BLM2	No occurrence ⁴
Snake River goldenweed	<i>Pyrrocoma radiata</i>	3	Union, Baker, Malheur	E, BLM(Sen), ORBIC1	BLM3	No occurrence
Sterile milkvetch	<i>Astragalus cusickii</i> var. <i>sterilis</i>	3	Baker, Malheur	T, BLM(Sen), ORBIC1	BLM3	No occurrence
White-margined wax plant	<i>Glyptopleura marginata</i>	3	Owyhee	N/A	BLM4	No occurrence ⁴

¹ ORBIC1 = ORBIC List 1 Species; taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

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BLM4 = Species generally rare in Idaho with small populations or a localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.³ No habitat was identified during Phase 1 analysis

NL= Not listed as a SSP in Idaho.

⁴. Survey outside of the presumed flowering period.

4.0 FINDINGS

Four SSPs were observed throughout the Project area. Greeley's wavewing (*Cymopterus acaulis* var. *greeleyorum*) was found in the southern portion of the Project area near the Idaho–Oregon border during Survey Period 1. Laurent's milkvetch (*Astragalus collinus* var. *laurentii*) was found in the vicinity of Echo, Oregon, during Survey Period 2. Populations of calcareous buckwheat (*Eriogonum ochrocephalum* var. *calcareum*) and Oregon prince's plume (*Stanleya confertiflora*) were found growing south of Baker City, Oregon, during Survey Period 3. Additional populations of calcareous buckwheat and Oregon prince's plume species were located during a wetland survey and are included in this report under Survey Period 3.

4.1 Survey Period 1

Survey Period 1 occurred from April 24 to May 2, 2011, between mileposts (MP) 265 and 285. These mileposts fall within the Snake River Plain ecoregion. A total of 3 SPPs were included in this survey:

- Greeley's wavewing (*Cymopterus acaulis* var. *greeleyorum*)
- Cusick's false yarrow (*Chaenactis cusickii*)

- Smooth mentzelia (*Mentzelia mollis*)

Temperatures in early spring 2011 were much colder than average, leading to a delay in the onset of green-up (NCDC 2011). Due to the late spring, Greeley's wavewing was determined as the most likely to be in flower and was the focus species of this survey period. Greeley's wavewing is a perennial plant belonging to the carrot (*Apiaceae*) family. Its leaves are divided into lobed leaflets. The inflorescences consist of umbels made up of many small, yellow flowers with yellow stamens. The more common variety, *acualis*, has white stamens. The flowering period for this species is March through April, with fruits maturing in early June. Previous populations of Greeley's wavewing have been found in brown or white volcanic ash soils in Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), salt desert shrub plants, and bunchgrass communities (BLM 2006).

During Survey Period 1, Greeley's wavewing was found at several locations between MPs 270 and 271 (Figure 4-1) and MPs 273.5 and 274.5 (Figure 4-2). With the exception of 1 population, all were located on BLM-managed lands. The populations observed during the field survey contained between 5 and 30 individuals. The populations were spatially clustered in locations with a low vegetative cover, low slope angle, and fine-silt loam soils. The populations were often found in previously disturbed areas and/or areas with a high percentage of invasive vegetation.

4.2 Survey Period 2

Survey Period 2 occurred from May 31 to June 8, 2011, between MPs 21 and 150. These MPs fall within a stretch that encompasses portions of both the Columbia Plateau and Blue Mountain ecoregions. A total of 8 SSPs were included in this survey:

- Laurent's milkvetch
- Salt heliotrope (*Heliotropium curassavicum*)
- Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*)
- Calcareous buckwheat
- Oregon semaphore grass (*Pleuropogon oregonus*)
- Douglas' clover (*Trifolium douglasii*)
- Many-flowered phlox (*Phlox multiflora*)
- Cronquist's stickseed (*Hackelia cronquistii*)

Laurent's milkvetch was found during the survey near MPs 55, 57, and 58 and between MPs 63 and 64 (Figure 4-3 through Figure 4-5). Laurent's milkvetch, a perennial herb of the pea family (*Fabaceae*), has cream-to-light-yellow flowers that usually bloom between May and July. The fruit pods mature between June and early August. Habitat for this species is thought to be dry slopes in areas with loess deposits, occasionally with sandy or rocky substrates, and is a cohabitant with bluebunch wheatgrass (*Pseudoroegneria spicata*) and Idaho fescue in roadsides or adjacent to wheat lands or farmlands in the palouse grassland and canyon communities (Tetra Tech 2011).

During this survey, a population of approximately 200 individuals of Laurent's milkvetch was found located on 20 acres of moderately sloping hillside at MP 55. Other species present consisted of native and non-native bunchgrasses, grey rabbitbrush (*Ericameria nauseosa*), and perennial and annual native forbs. Most of the area surrounding this hillside had been converted to agriculture. At MP 57, 3 individuals of Laurent's milkvetch were found in a small section of grassland abutting a Conservation Reserve Program (CRP) field composed primarily of crested wheatgrass (*Agropyron cristatum*). At MP 58, a dense population of over 300 individuals was located. Five miles to the east, approximately 12 individuals were located scattered over a 0.5-acre area. The area in which all populations of Laurent's milkvetch were found can be described as low-to-moderate rolling hills of agricultural land remnant of grassland mosaic, where the species occurs on hillslopes in the remnant grassland. All populations of Laurent's milkvetch were located on private land.

4.3 Survey Period 3

Survey Period 3 occurred from July 5 to July 14, 2011, between MPs 298 and 150. These MPs fall within a section of the ROW that passes through the Snake River Plain and a small portion of the Northern Basin and Range before transitioning to the Blue Mountain ecoregion towards the northern reach of the proposed Project. A total of 12 SSPs were included in this survey:

- Packard's milkvetch (*Astragalus cusickii* var. *sterillis*)
- Mulford's milkvetch (*Astragalus mulfordiae*)
- Cusick's false yarrow
- Dimeresia (*Dimeresia howellii*)
- Calcareous buckwheat
- Carveseed (*Glyptopleura marginata*)
- Cronquist's stickseed
- Salt heliotrope
- Ray goldenweed (*Pyrrocoma radiata*)
- Oregon prince's plume
- Howell's spectacular thelypody
- Smooth mentzelia

Calcareous buckwheat and Oregon prince's plume were located between MPs 177 and 178 (Figure 4-6) and 181 and 181.5 (Figure 4-7). The species were found in pockets of white-clay loam or silty white-clay soils on steep, dry, south- to southwest-facing slopes where little vegetation exists. The 2 species occur either intermingled or in close proximity to each other, with calcareous buckwheat as the dominant species. The habitat surrounding these populations can generally be characterized as rangeland. Dominant species include invasive grasses, native bunchgrasses, sagebrush species, and perennial and annual native forbs on low-to-steep hills. Rocky Mountain juniper (*Juniperus scopulorum*) occurs in the area (MPs 177 to 178) surrounding the northern populations. At this location, approximately 100 individuals of calcareous buckwheat and 42 individuals of Oregon prince's plume were located. Further south, between MPs 181 and 181.5, approximately 50 individuals of calcareous buckwheat were found in 2 populations, with 8 individuals of Oregon prince's plume occurring intermixed with the southernmost population of calcareous buckwheat. Another population of approximately 40 individuals of calcareous buckwheat was found just outside the transmission line ROW. The northernmost population found occurred on public (BLM-managed) land. The remaining populations were on private land.

During Survey Period 3, some individuals of goldenweeds (*Pyrrocoma*) were also found. Ray goldenweed and narrowhead goldenweed (*Pyrrocoma carthamoides*) were thought to have evolved into distinct species over a phytogeographic gradient, where physiological traits of narrowhead goldenweed were strongest in the southern portion of the Snake River Canyon, with traits of ray goldenweed coming in more strongly with northward progression. After consulting with the curator of the herbarium at the College of Idaho and reviewing herbarium specimens, it was determined that although there was some genetic variation from pure narrowhead goldenweed, the specimens found during the field survey were most appropriately grouped with narrowhead goldenweed (Mansfield 2011).

5.0 CONCLUSIONS

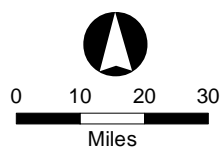
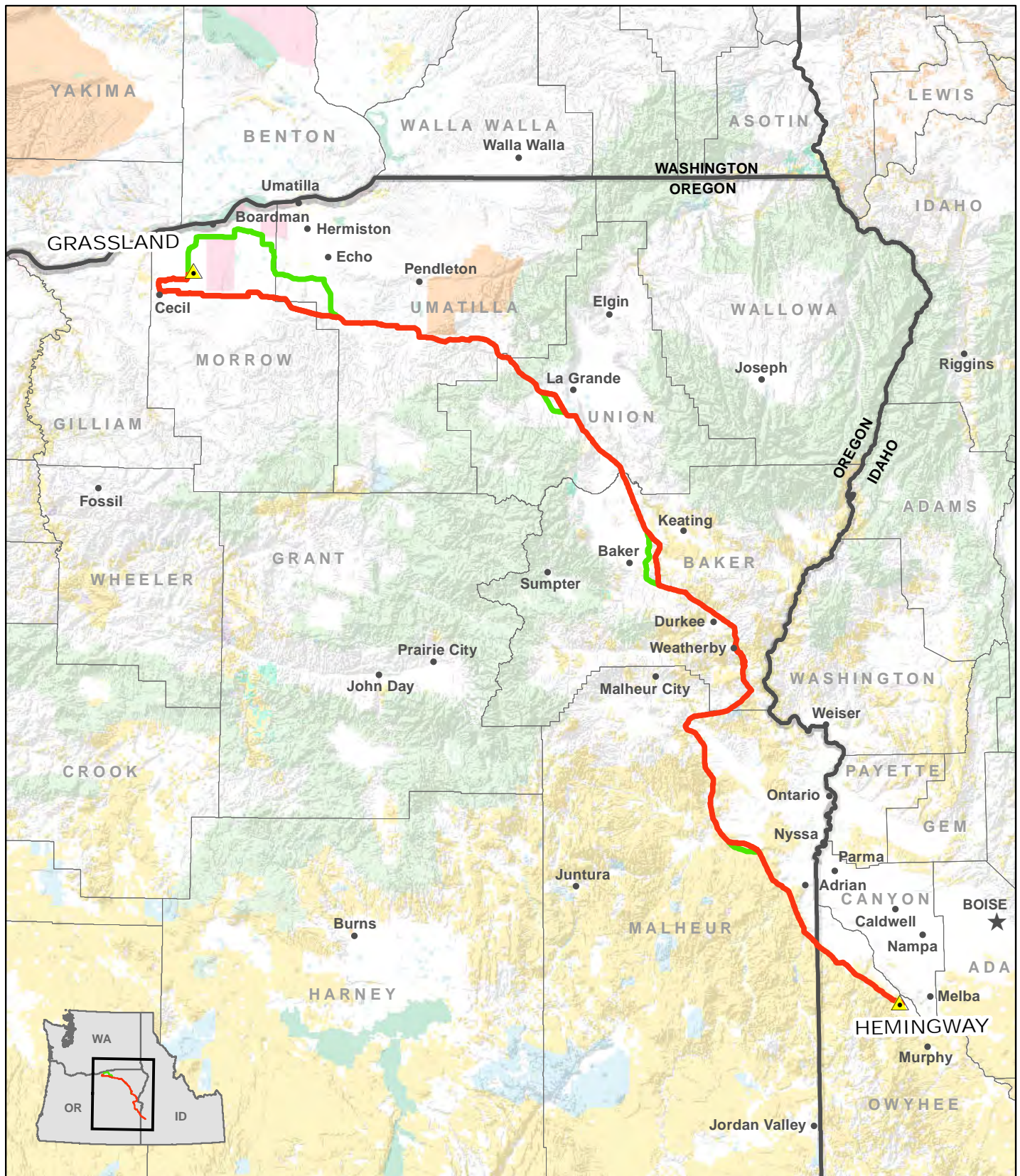
Tetra Tech surveyed approximately 9,000 acres of public and private lands occurring within the ROW of the Project for the presence of SSPs. Four SSPs occurring in 3 distinct habitat types were identified:

- Populations of Laurent's milkvetch were observed in Umatilla County, Oregon, between MPs 55 and 64.
- Populations of calcareous buckwheat and Oregon prince's plume were observed in Baker County, Oregon, between MPs 177 and 182.
- Populations of Greeley's wavewing were observed in Malheur County, Oregon, along the border of Owyhee County, Idaho, between MPs 270 and 275.

6.0 REFERENCES

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FIGURES



Project Features

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

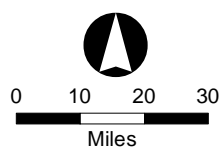
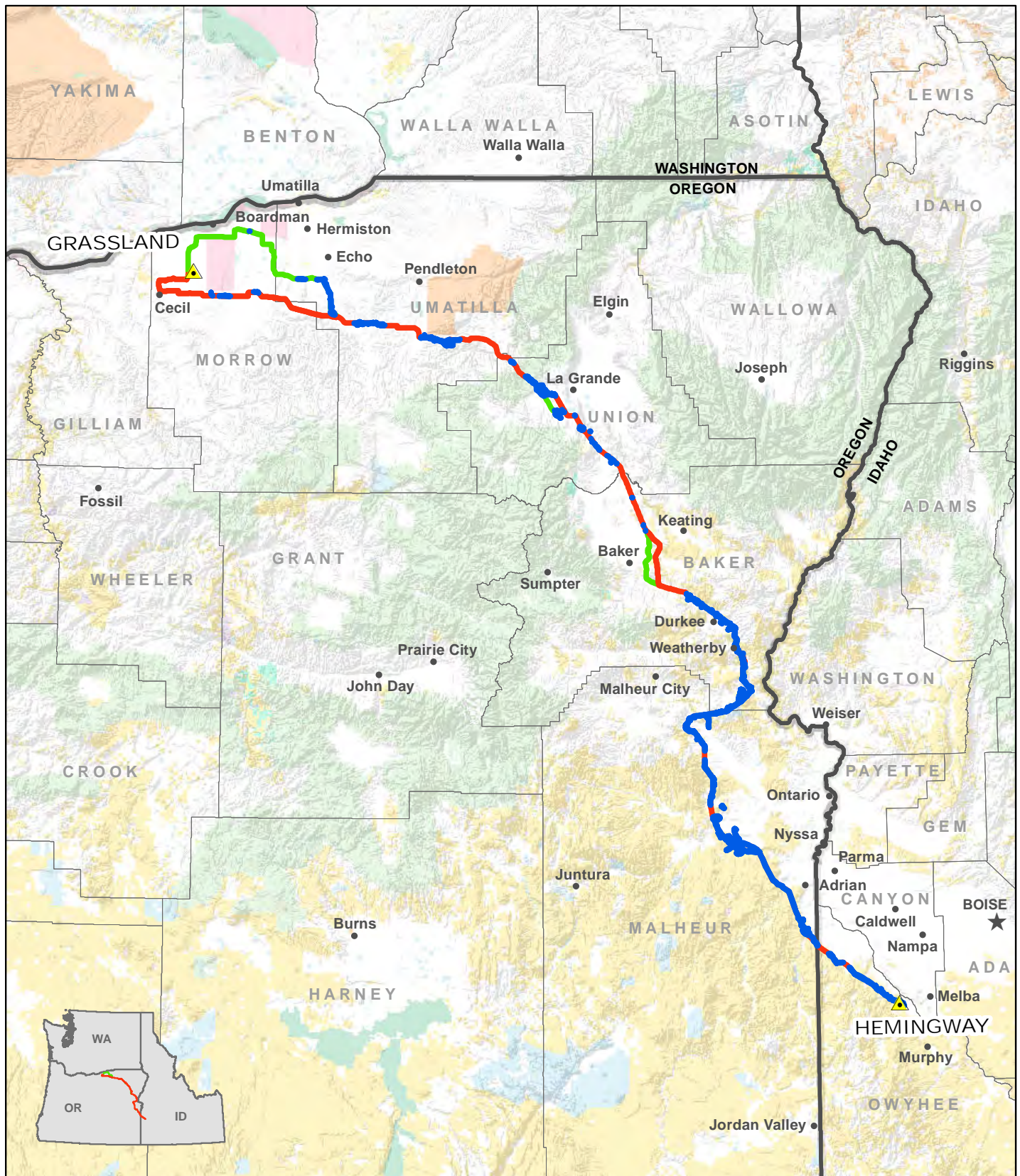
Land Status

- 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 1-1
PROJECT LOCATION**

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

DECEMBER 2011



Project Features

- Substation
- Special Status Plant Survey Area
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

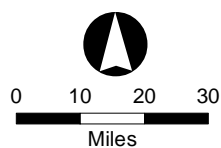
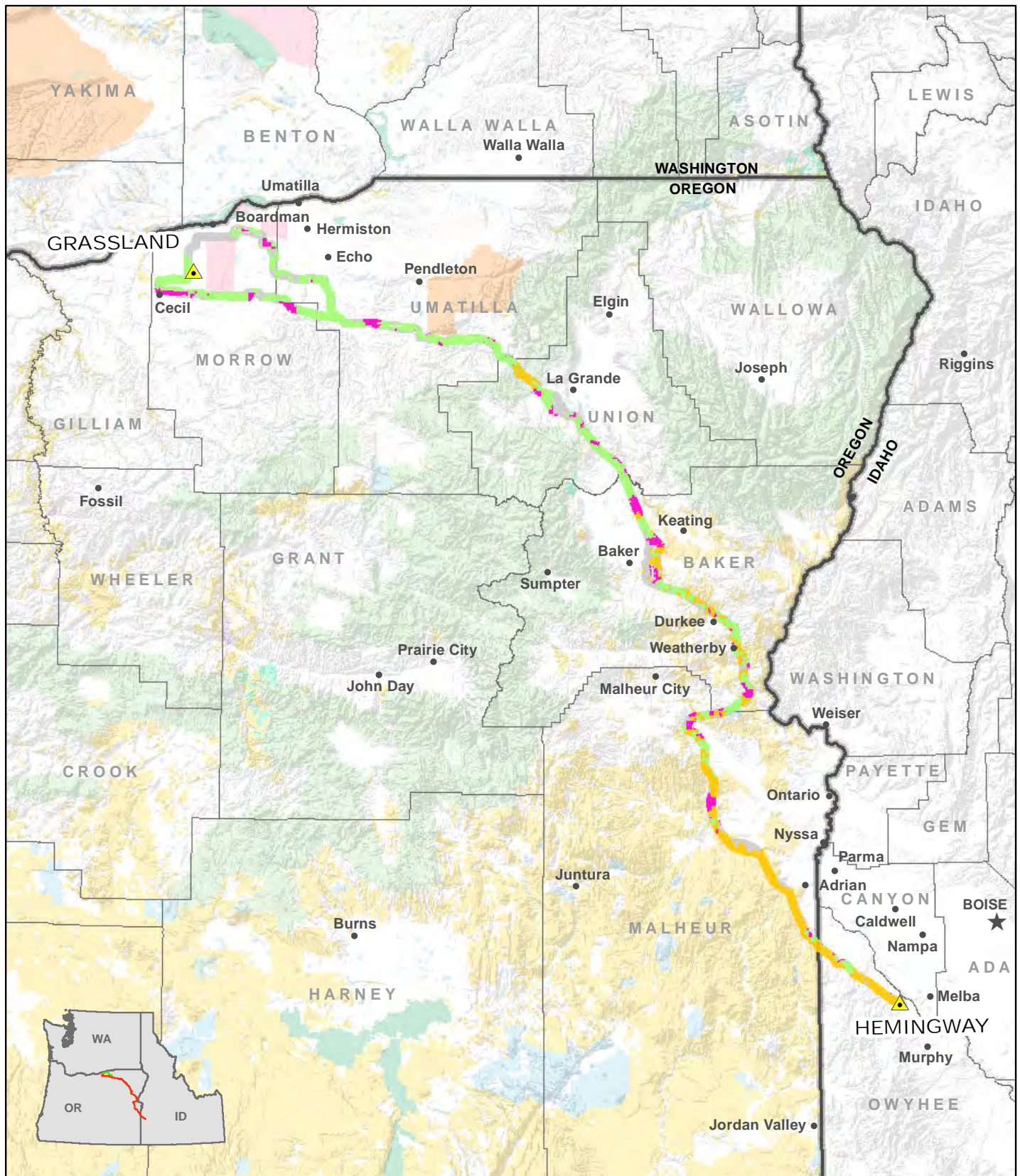
Land Status

- 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 2-1
2011 SPECIAL STATUS PLANT
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
- County Boundary
- State Boundary

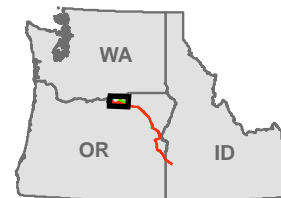
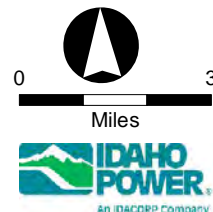
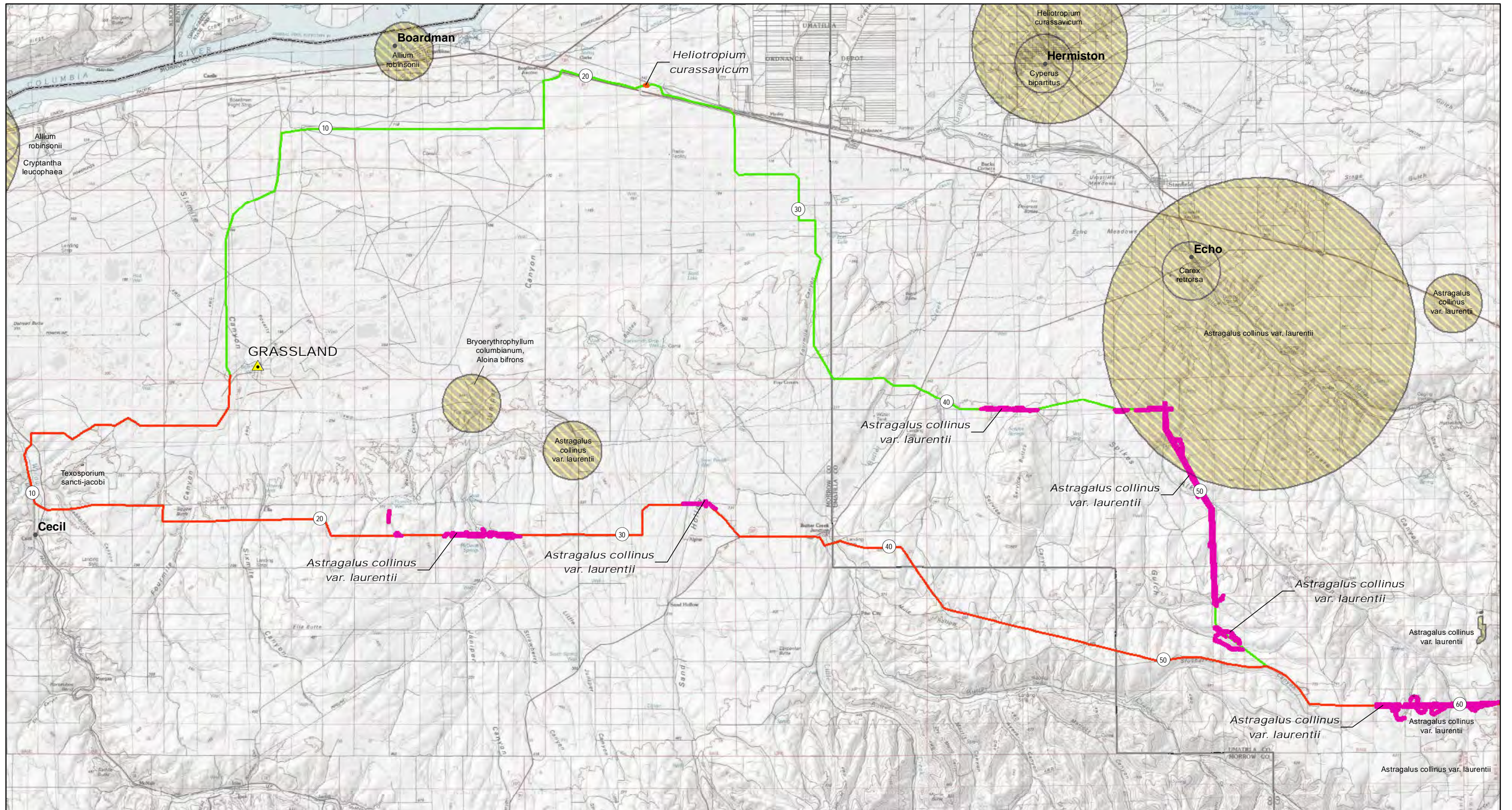
Land Status

- █ 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 2-2
RIGHT OF ENTRY STATUS
1 MILE PROJECT CORRIDOR

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

DECEMBER 2011



Special Status Plant Designated Habitat

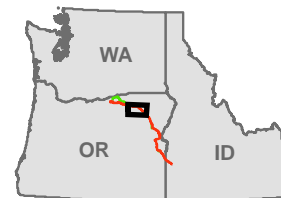
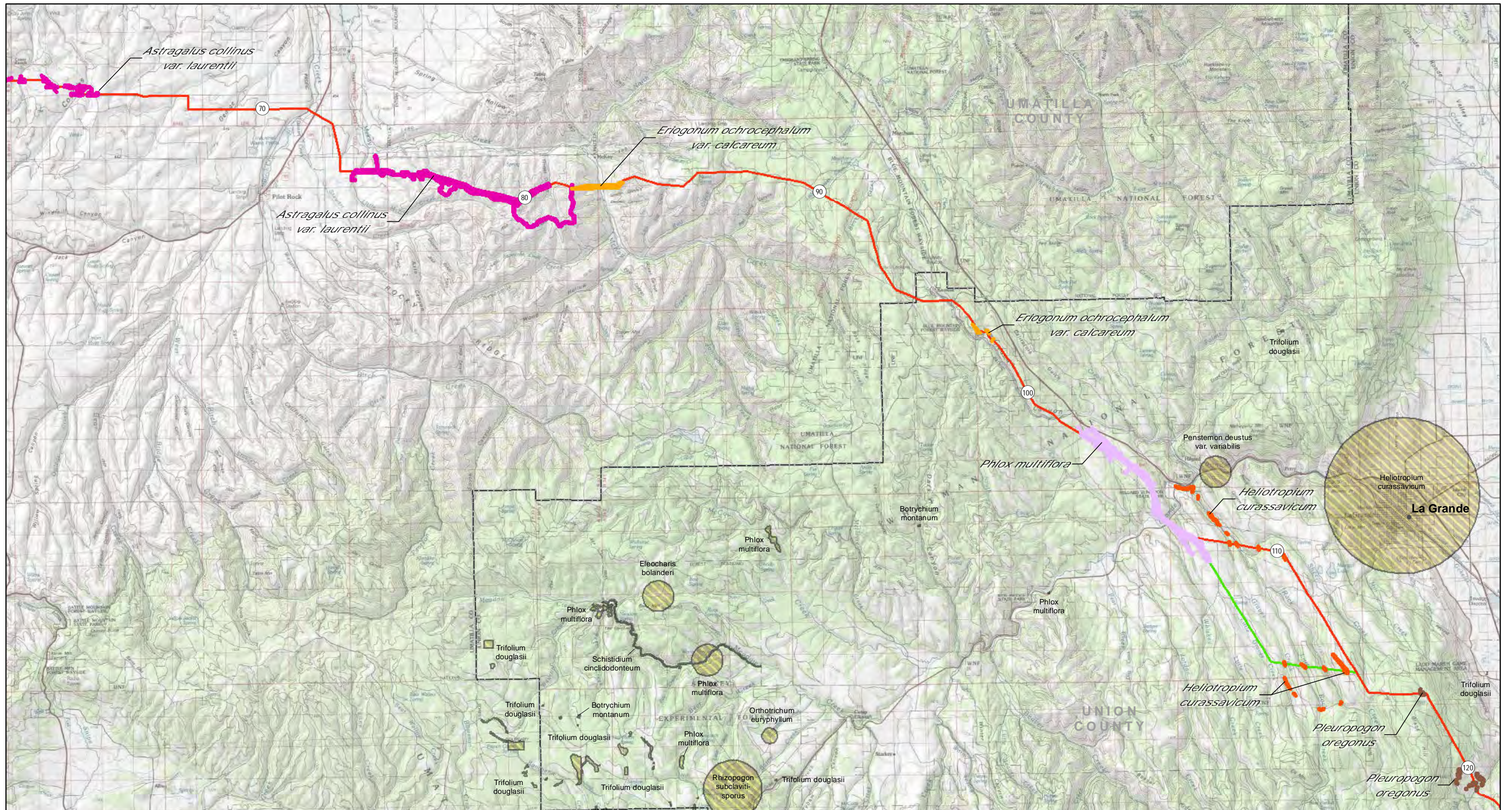
- Astragalus collinus* var. *laurentii*
- Astragalus mullfordiae*
- Chaenactis cusickii*
- Cymopterus acaulis* var. *greeleyorum*
- Eriogonum ochrocephalum* var. *calcareum*
- Hackelia cronquistii*
- Heliotropium curassavicum*
- Mentzelia mollis*
- Phlox multiflora*
- Pleuropogon oregonus*
- Pyrocoma radiata*
- Stanleya confertiflora*
- Thelypodium howellii* ssp. *specatabilis*

Project Features

- Oregon Biodiversity Information Center Goshawk Occurrence
- Substation
- Route Milepost
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

**FIGURE 3-1
DESIGNATED HABITAT WITH
ORBC ELEMENTAL OCCURRENCES
MILEPOSTS 0 TO 61**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011**



Special Status Plant Designated Habitat

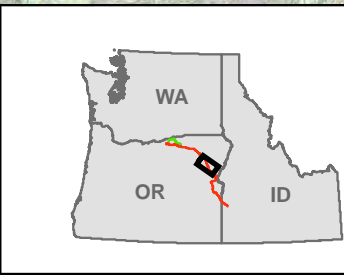
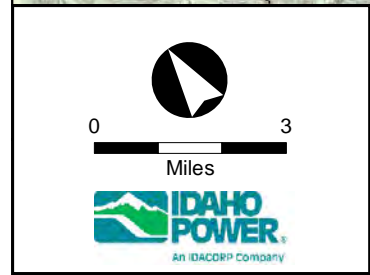
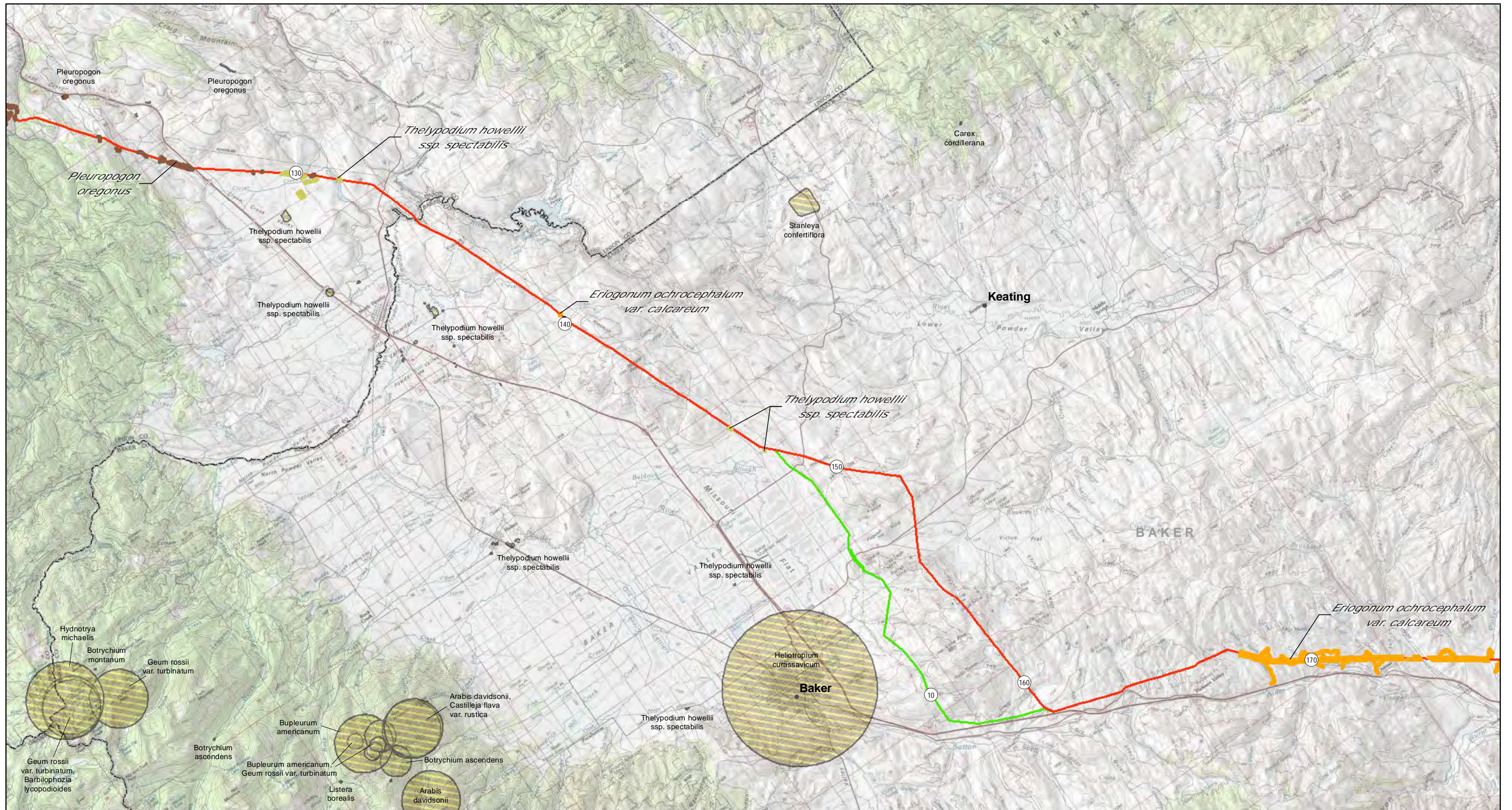
- | | |
|--|--|
| █ <i>Astragalus collinus</i> var. <i>laurentii</i> | █ <i>Mentzelia mollis</i> |
| █ <i>Astragalus mullordiae</i> | █ <i>Phlox multiflora</i> |
| █ <i>Chaenactis cusickii</i> | █ <i>Pleuropogon oregonus</i> |
| █ <i>Cymopterus acaulis</i> var. <i>greeleyorum</i> | █ <i>Pyrocoma radiata</i> |
| █ <i>Eriogonum ochrocephalum</i> var. <i>calcareum</i> | █ <i>Stanleya confertiflora</i> |
| █ <i>Hackelia cronquistii</i> | █ <i>Thelypodium howellii</i> ssp. <i>specatabilis</i> |
| █ <i>Heliotropium curassavicum</i> | |

Project Features

- Oregon Biodiversity Information Center Goshawk Occurrence
- ▲ Substation
- 5 Route Milepost
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

**FIGURE 3-2
DESIGNATED HABITAT WITH
ORBIC ELEMENTAL OCCURRENCES
MILEPOSTS 61 TO 122**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011**



Special Status Plant Designated Habitat

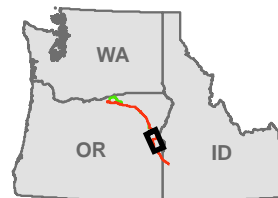
- | | |
|--|---|
| ■ Astragalus collinus var. laurentii | ■ Mentzelia mollis |
| ■ Astragalus mullordiae | ■ Phlox multiflora |
| ■ Chaenactis cusickii | ■ Pleuropogon oregonus |
| ■ Cymopterus acaulis var. greeleyorum | ■ Pyrocoma radiata |
| ■ Eriogonum ochrocephalum var. calcareum | ■ Stanleya confertiflora |
| ■ Hackelia cronquistii | ■ Thelypodium howellii ssp. spectabilis |
| ■ Heliotropium curassavicum | |

Project Features

- Oregon Biodiversity Information Center Goshawk Occurrence
- ▲ Substation
- 5 Route Milepost
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

**FIGURE 3-3
DESIGNATED HABITAT WITH
ORBIC ELEMENTAL OCCURRENCES
MILEPOSTS 122 TO 176**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011**



Special Status Plant Designated Habitat

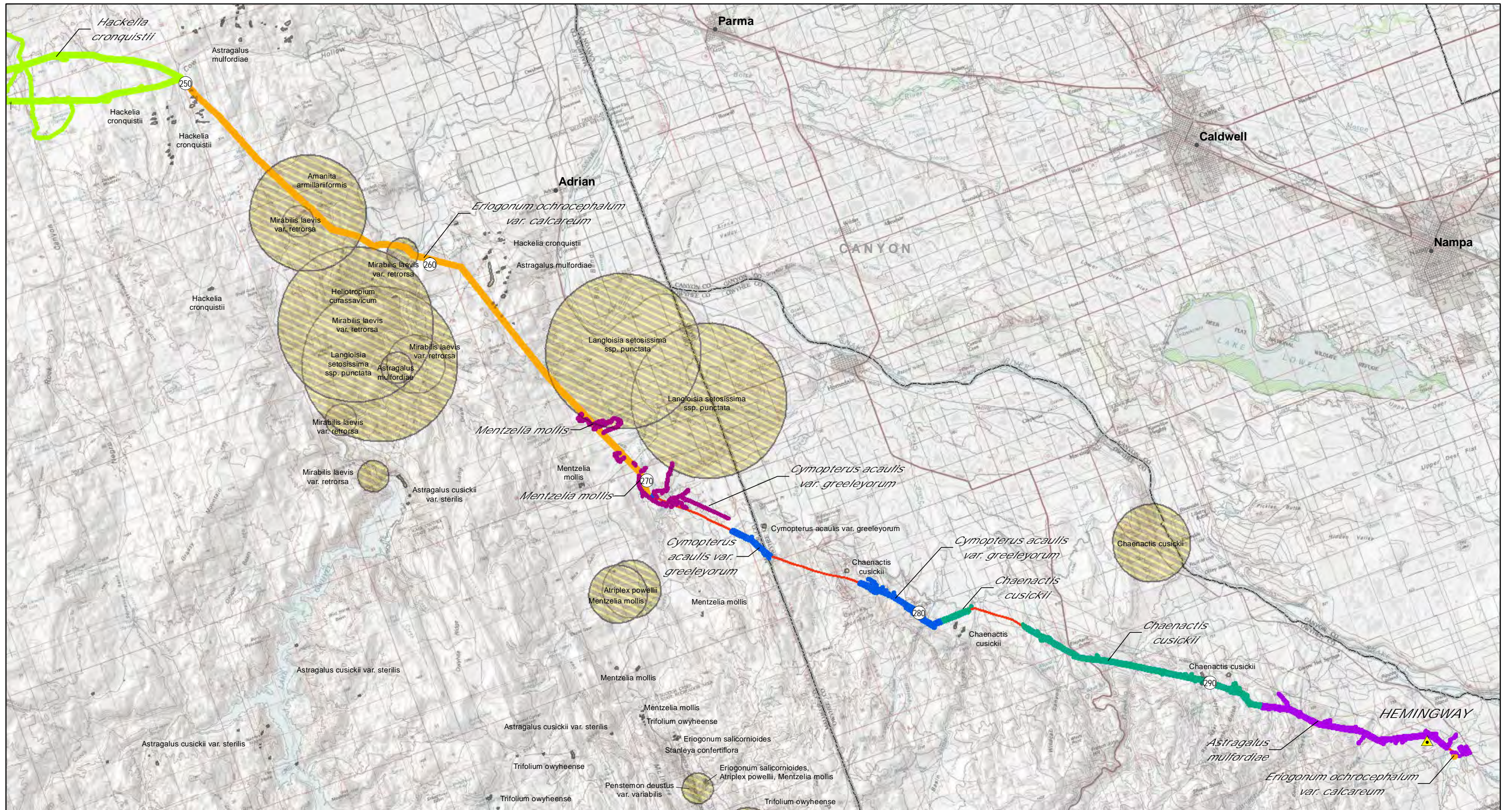
- | | |
|--|---------------------------------------|
| Astragalus collinus var. laurentii | Mentzelia mollis |
| Astragalus mulfordiae | Phlox multiflora |
| Chaenactis cusickii | Pleuropogon oregonus |
| Cymopterus acaulis var. greeleyorum | Pyrocoma radiata |
| Eriogonum ochrocephalum var. calcareum | Stanleya confertiflora |
| Hackelia cronquistii | Thelypodium howellii ssp. spectabilis |
| Heliotropium curassavicum | |

Project Features

- Oregon Biodiversity Information Center Goshawk Occurrence
- Substation
- Route Milepost
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

**FIGURE 3-4
DESIGNATED HABITAT WITH
ORBC ELEMENTAL OCCURRENCES
MILEPOSTS 176 TO 245**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011**



Special Status Plant Designated Habitat

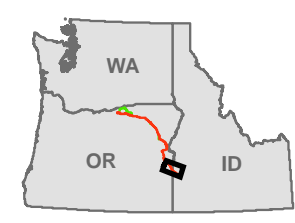
- Astragalus collinus* var. *laurentii*
- Astragalus mullfordiae*
- Chaenactis cusickii*
- Cymopterus acaulis* var. *greeleyorum*
- Eriogonum ochrocephalum* var. *calcareum*
- Hackelia cronquistii*
- Heliotropium curassavicum*
- Mentzelia mollis*
- Phlox multiflora*
- Pleuropogon oregonus*
- Pyrocoma radiata*
- Stanleya confertiflora*
- Thelypodium howellii* ssp. *specatabilis*

Project Features

- Oregon Biodiversity Information Center Goshawk Occurrence
- Substation
- Route Milepost
- Proposed Route
- Alternative Route
- County Boundary
- State Boundary

**FIGURE 3-5
DESIGNATED HABITAT WITH
ORBIC/IDCDC ELEMENTAL OCCURRENCES
MILEPOSTS 245 TO 298**

**IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011**







0 1,000
Feet



Survey Features

-  Special Status Plant Survey Area
-  Greeley's Wavewing Single Occurrence with Number of Individuals

Project Features






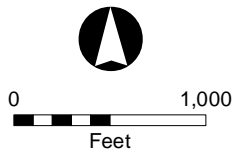


-  Milepost Label
-  Milepost
-  Substation
-  Proposed Route
-  Alternative Route

FIGURE 4-1
2011 SURVEY RESULTS
GREELEY'S WAVEWING
MILEPOSTS 270 TO 271
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Survey Features

-  Special Status Plant Survey Area
-  Greeley's Wavewing Single Occurrence with Number of Individuals

Project Features






-  Milepost Label
-  Milepost
-  Substation
-  Proposed Route
-  Alternative Route

FIGURE 4-2
2011 SURVEY RESULTS
GREELEY'S WAVEWING
MILEPOSTS 273 TO 275
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



0 1,000
Feet

Survey Features		Project Features	
Special Status Plant Survey Area	Laurent's Milkvetch Population	Milepost Label	Milepost
		Substation	Proposed Route
			Alternative Route

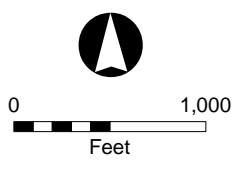
FIGURE 4-3
2011 SURVEY RESULTS
LAURENT'S MILKVETCH
MILEPOSTS 54 TO 56
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



0 1,000
Feet

Survey Features	Project Features
Special Status Plant Survey Area	Milepost Label
Laurent's Milkvetch Population	Milepost
	Substation
	Proposed Route
	Alternative Route

FIGURE 4-4
2011 SURVEY RESULTS
LAURENT'S MILKVETCH
MILEPOSTS 57 TO 59
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



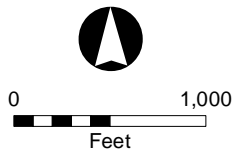
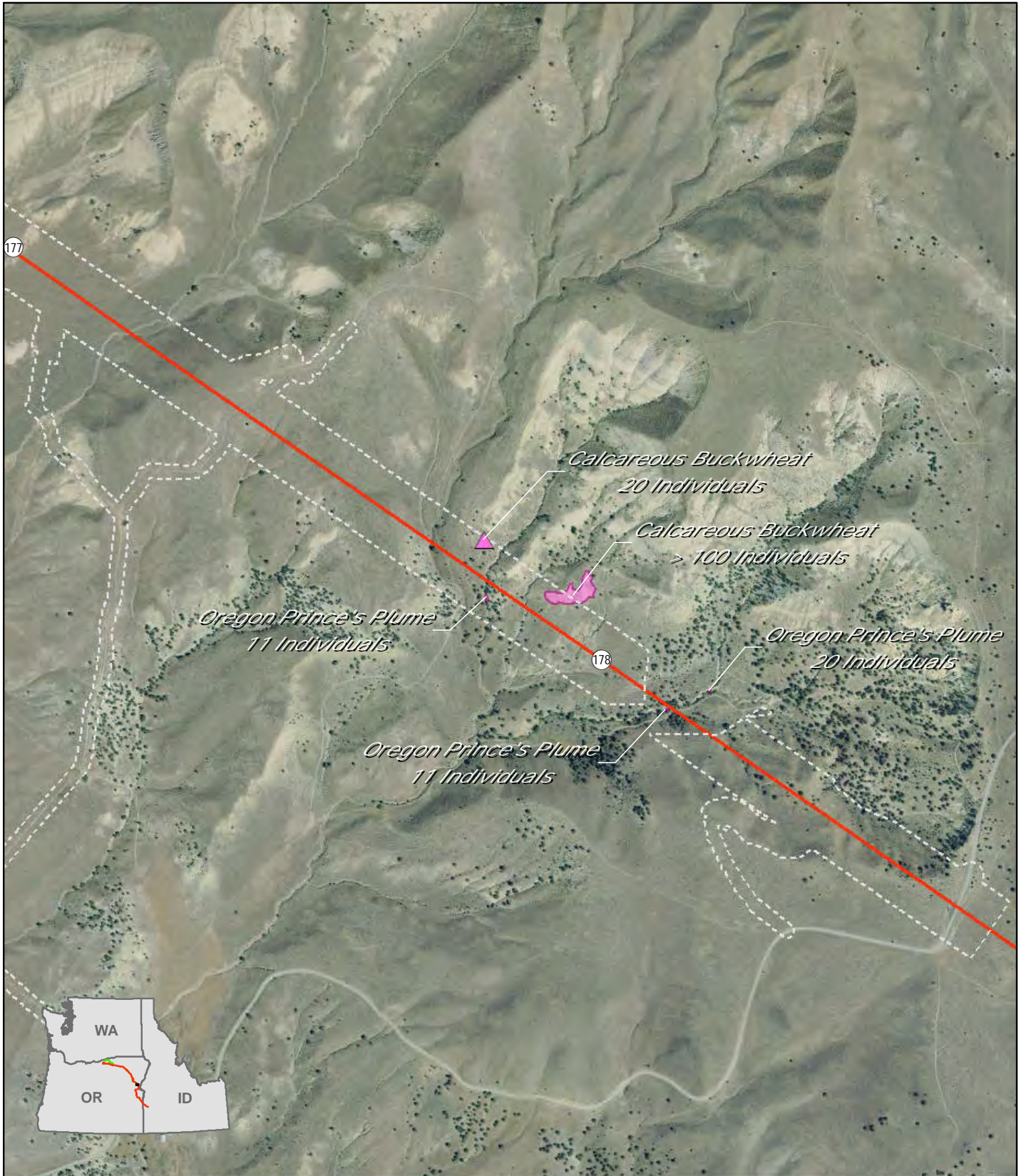
Survey Features

- Special Status Plant Survey Area
- Laurent's Milkvetch Single Occurrence with Number of Individuals
- Laurent's Milkvetch Population

Project Features

- Milepost Label
- Milepost
- Substation
- Proposed Route
- Alternative Route

FIGURE 4-5
2011 SURVEY RESULTS
LAURENT'S MILKVETCH
MILEPOSTS 63 TO 64
 IDAHO POWER COMPANY
 BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT
 DECEMBER 2011



Survey Features

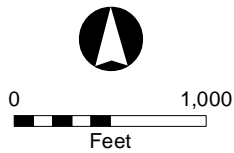
- Special Status Plant Survey Area
- Calcareous Buckwheat/Oregon Prince's Plume Single Occurrence with Number of Individuals
- Calcareous Buckwheat/Oregon Prince's Plume Population

Project Features

- Milepost Label
- Milepost
- Substation
- Proposed Route
- Alternative Route

FIGURE 4-6
2011 SURVEY RESULTS
CALCAREOUS BUCKWHEAT
and OREGON PRINCE'S PLUME
MILEPOSTS 177 TO 178
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

DECEMBER 2011



Survey Features

- Special Status Plant Survey Area
- Calcareous Buckwheat/Oregon Prince's Plume Population with Number of Individuals

Project Features

- Milepost Label
- Milepost
- Substation
- Proposed Route
- Alternative Route

FIGURE 4-7
2011 SURVEY RESULTS
CALCAREOUS BUCKWHEAT
and OREGON PRINCE'S PLUME
MILEPOSTS 181 TO 183
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
DECEMBER 2011

2012 Report



TETRA TECH

2012 Special Status Plant Surveys

Boardman to Hemingway Transmission Line Project



**4348RPT.DOC
December 2012**

2012 Special Status Plant Surveys

Boardman to Hemingway Transmission Line Project

Prepared for:

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Tetra Tech Project No. 114-540315AX.005.003.07

December 2012

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1 1.0 INTRODUCTION

2 Idaho Power Company (IPC) is proposing to construct and operate a new, approximately
3 300-mile-long, single-circuit 500-kilovolt (kV) electric transmission line between northeast
4 Oregon and southwest Idaho referred to 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 (PGE) planned substation (Grassland Substation) adjacent
7 to the Boardman generating plant near Boardman in Morrow County, Oregon, and IPC's
8 existing Hemingway Substation in Owyhee County, Idaho. The Project will traverse federal,
9 state, and private lands in 6 counties in Oregon and Idaho. Figure 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,
12 such as transmission tower pads, substations, communication sites, and permanent access
13 roads, as well as temporary disturbances related to multiuse areas, tensioning sites, and
14 temporary access roads. To help determine the degree of impact that could occur from the
15 construction of these Project components, the presence of Bureau of Land Management (BLM)
16 and U.S. Forest Service (USFS) listed sensitive plant species; U.S. Fish and Wildlife Service
17 (USFWS) listed threatened, endangered, proposed, and candidate plant species; and Oregon-
18 state-listed threatened and endangered species, collectively referred to here as special-status
19 plant (SSP) species, within the proposed Project right-of-way (ROW) are required to be
20 evaluated. Nomenclature for SSP species in this report first follows Oregon BLM special status
21 species list (BLM 2011a), then the Idaho BLM SSP list (BLM 2011b); NRCS PLANTS database
22 (USDA, NRCS 2012) is used for all other species.

23 As proposed, the Project would cross public and private lands. Public lands that would be
24 crossed are managed, in part, with the intent of conserving populations of SSP species, and
25 public-land managers have gathered data on some of the lands they manage. Data for private
26 lands, with the exception of some statewide data gathered by state agencies, are largely
27 unavailable. As a result, existing databases cannot be relied on to comprehensively evaluate
28 habitat that could be impacted by the Project. Therefore, surveys of SSP species were
29 implemented to supplement existing data. Field surveys could not be conducted in all suitable
30 habitats crossed by the Project because IPC does not currently have access to all private land
31 crossed by the proposed route.

32 2.0 SURVEY AREA

33 The Project area can be divided into 4 broad ecoregions; the Blue Mountains, the Columbia
34 Plateau, the Snake River Plain, and small portions of the Northern Basin and Range.

35 The northern portion of the Project crosses through the Columbia Plateau and Blue Mountains
36 level III ecoregions (Thorson et al. 2003). The native vegetation within the Columbia Plateau
37 ecoregion typically consists of arid sagebrush steppe and grassland types; however, much of
38 this ecoregion has been converted to agricultural use in the form of wheat cultivation
39 (EPA 2011). The Blue Mountain ecoregion consists of a complex of mountain ranges generally
40 lower and more open than neighboring ranges (e.g., the Cascades and Northern Rockies). This
41 ecoregion typically supports mixed coniferous vegetation types; however, portions of this
42 ecoregion are currently disturbed by cattle grazing as well as other disturbance types
43 (EPA 2011; Powell et al. 2007).

44 The southern portion of the Project crosses through the Snake River Plain and the Northern
45 Basin and Range level III ecoregions (Thorson et al. 2003). The native vegetation within the
46 Snake River Plain ecoregion typically consists of sagebrush-grassland vegetation types. This
47 ecoregion is considerably lower in elevation and has more gently sloping areas than the

1 surrounding ecoregions, resulting in a greater availability of water. As a result, much of the
2 Snake River Plain ecoregion has been converted to agricultural use, the principal crops being
3 sugar beets, potatoes, alfalfa, and vegetables (EPA 2011). The Northern Basin and Range
4 ecoregion contains a diverse range of landforms, including tablelands, dissected lava plains,
5 valleys, alluvial fans, and scattered mountains. Non-mountainous areas in this ecoregion
6 typically contain sagebrush steppe vegetation types, while mountainous areas typically contain
7 big sagebrush (*Artemisia tridentata*), Idaho fescue (*Festuca idahoensis*), Douglas-fir
8 (*Pseudotsuga menziesii*), and quaking aspen (*Populus tremuloides*). Portions of the Northern
9 Basin and Range ecoregion have been converted into rangeland and agricultural uses (EPA
10 2011).

11 Preliminary surveys began in 2011 and results are reported in the 2011 technical report (Tetra
12 Tech 2011a). This report documents results from 2012 surveys, with mention of some 2011
13 results where appropriate. The 2012 SSP survey area was updated from 2011 to include
14 additional survey areas resulting from changes in ROW alignment and survey methodology. The
15 2012 SSP survey area (Figures 2 through 28) included all portions of the Project area that are
16 within 250 feet of the proposed route centerline, the Double Mountain, Glass Hill, Malheur S,
17 and Willow Creek alternatives and the 138/69kV rebuild (the Longhorn and Flagstaff alternatives
18 were not included in the survey area because access to private land along those routes had not
19 yet been requested). Access roads were included out to 30, 50 or 100 feet on either side of the
20 centerline, depending on the level of disturbances expected. The footprints of staging and fly
21 yards were also included (Tetra Tech 2011b).

22 The survey area crossed public and private lands. Lands under the administration of the USFS,
23 BLM, and Oregon state parks were surveyed in their entirety, except where access restrictions
24 on adjacent private land prevented reasonable access or where terrain was prohibitive. Private
25 lands were accessed where landowners agreed to allow access for biological surveys.
26 Approximately 15,250 acres (48%) of the SSP species survey area occurred on public land. An
27 additional 11,625 acres (37%) occurred on private land where the owners had granted right-of-
28 entry for biological surveys. Accordingly, access was available to approximately 26,875 acres or
29 85% of the 2012 survey area (Figures 2 through 28).

30 **3.0 METHODS**

31 The 2012 survey included 4 survey periods. These survey periods took place between April and
32 July of 2012. Surveys were conducted within the proposed ROW and alternatives, buffers to
33 access roads, and associated disturbance areas (survey area). The timing and breadth of the
34 SSP surveys conducted in 2011 (Tetra Tech 2011a) were not ideal for the identification of some
35 SSP species. The objective of the 2012 survey was to gather data not captured during the 2011
36 SSP survey, and to address agency comments on those results. Forty-four SSP species were
37 included in the 2012 survey, which was an increase from the 2011 survey. The list was revised
38 to accommodate recent revisions to both the Oregon and Idaho BLM SSP lists (BLM 2011a and
39 BLM 2011b), as well as to include species deemed overlooked during initial SSP list
40 development with federal agencies, prior to 2011 surveys (Appendix A). The 2012 SSP list was
41 updated from the 2011 SSP list to include 5 species recently added to the Oregon and Idaho
42 BLM SSP lists (BLM 2011a and BLM 2011b), as well as 5 additional species that were
43 overlooked prior to 2011 surveys.

44 The 2011 survey took a 2 phase approach: Phase 1 identified areas of suitable habitat through
45 geographic information system (GIS) analysis of National Agriculture Imagery Program (NAIP),
46 Northwest Regional Gap Analysis Landcover Data (NWGAP), and Oregon Biodiversity
47 Information Center and Idaho Department of Fish and Game known elemental occurrence data.
48 In Phase 2, biologists surveyed the identified suitable habitat polygons. This methodology of
49 habitat mapping was developed through discussions with land managers and biologists from the

1 BLM, USFS, and other agencies in meetings held prior to the 2011 field surveys. During the
2 2011 survey, SSPs were found in areas where suitable habitat had not been identified.
3 Additionally, habitat classifications were often inaccurate when compared to field observed
4 habitat type, suggesting the accuracy of this method did not justify carrying it forth. Utilization of
5 this method was not continued in to the 2012 survey season.

6 During 2012 surveys, biologist familiar with the SSPs and their associated habitats traversed
7 representative cross sections of accessible portions of the study area to identify locations with
8 high potential for SSP occurrence. Habitat for SSPs was defined from Oregon Department of
9 Agriculture (ODA) Plant Conservation program guidelines, BLM field guides, descriptions
10 associated with herbarium species at the College of Idaho and entries in *Flora of the Pacific*
11 *Northwest* (Hitchcock and Cronquist 1973). When potential habitat was identified, a complete
12 visual survey was performed by systematically walking transects across the identified area at a
13 distance adjusted to accommodate for variations in terrain, vegetation and species likely to
14 occur.

15 Surveys were conducted in late April, early May, late May to early June, and mid-July; within the
16 agency recommended survey window for the species, and when species phenology was
17 conducive to identification. The survey area was located using either a Trimble GeoXT 6000,
18 global positioning system (GPS) unit, or a Juniper Systems Mesa notepad (Mesa). Both types of
19 GPS units were equipped with Esri ArcPAD 10 field mapping and data collection software.
20 Species identification was verified using *Flora of the Pacific Northwest* by Hitchcock and
21 Cronquist (1973) and *Intermountain Flora* (Cronquist et al. 1972). When necessary, species
22 were compared to herbarium specimens held in the College of Idaho herbarium. When a SSP
23 was located, a GPS position was recorded, along with associated data consistent with the
24 Oregon Rare Plant Field Survey Form and Idaho Rare Plant Report Form (survey
25 geodatabase). Point locations were recorded for SSP occurrences occupying an area less than
26 100 meters in diameter, the approximate area occupied by the occurrence was then noted in the
27 SSP survey geodatabase. Polygons were walked around larger occurrences, where possible, or
28 boundaries were delineated by taking several GPS points. In addition to GPS location and area
29 occupied by a SSP occurrence, the following information was recorded in the SSP survey
30 geodatabase:

- 31 ▪ Aspect of slope
- 32 ▪ Slope angle
- 33 ▪ Associated plant species
- 34 ▪ County
- 35 ▪ Elevation range
- 36 ▪ General plant community/habitat
- 37 ▪ Light available
- 38 ▪ Number of species found
- 39 ▪ Phenological phase
- 40 ▪ Soil type
- 41 ▪ Soil moisture
- 42 ▪ Topographic position
- 43 ▪ Vigor
- 44 ▪ Visible threats

1 A geotagged photo of the SSP was also taken at each location using the built in camera on the
2 GPS unit. Photos are included in Appendix B. A “tracklog” file of continuously collected GPS
3 points was collected and used to document the area covered by the survey teams. This data
4 was then used determine the total area covered during the 2012 SSP surveys (Figures 2
5 through 28).

6 Appendix A summarizes the species included in the 2012 SSP survey, the survey period for
7 each species, the spatial extent (by county) in which each species was surveyed, and the
8 survey results.

9 **4.0 RESULTS**

10 9 SSPs were observed within the survey area during 2012 surveys. They are as follows:

- 11 ▪ Biennial stanleya (*Stanleya confertiflora*)
- 12 ▪ Calcareous buckwheat (*Eriogonum ochrocephalum* var. *calcareum*)
- 13 ▪ Cronquist’s stickseed (*Hackelia cronquistii*)
- 14 ▪ Cusick’s false yarrow (*Chaenactis cusickii*)
- 15 ▪ Douglas’ clover (*Trifolium douglasii*)
- 16 ▪ Janish’s penstemon (*Penstemon janishiae*)
- 17 ▪ Malheur cryptantha (*Crypthantha propria*)
- 18 ▪ Smooth mentzelia (*Mentzelia mollis*)
- 19 ▪ Snake River goldenweed (*Pyrrocoma radiata*)

20 Cronquist’s stickseed, Cusick’s false yarrow, Malheur cryptantha, and Janish’s penstemon were
21 found in Malheur County during the early May field survey period. Smooth mentzelia and
22 Cusick’s false yarrow were also found in Owyhee County during this survey period. Calcareous
23 buckwheat, biennial stanleya and Snake River goldenweed were found in Baker County during
24 the June survey period. Douglas’s clover was found in Union County during a Terrestrial and
25 Visual Encounter Survey (TVES) and during a wetland survey. No SSPs were found in
26 Umatilla or Morrow counties.

27 **4.1 Survey Period 1- April**

28 Survey Period 1 took place on April 25th, 2012 in Malheur County between mileposts 271 and
29 277 of the proposed route, and mileposts 32 to 34 of the Malheur S alternative. This survey area
30 consisted of low density sagebrush shrubland with an understory dominated by cheatgrass
31 (*Bromus tectorum*). Temperature in March was slightly below average, temperatures for April
32 were near average. Precipitation for March was 100 mm above average, while April precipitation
33 was 25 mm above average (NOAA/CPC, 2012).

34 This survey period was specific to Greeley’s cymopterus (*Cymopterus acaulis* var.
35 *greeleyorum*). Greeley’s cymopterus is an early (March-April) flowering perennial of the carrot
36 family (Apiaceae), endemic to the Owyhee uplands and foothills. It is distinguished from the
37 more common variety plains springparsely (*Cymopterus acaulis* var. *acaulis*) by its yellow
38 (versus white) flowers and stamens. Greeley’s cymopterus was found within the survey area
39 during 2011 surveys; however it was not observed during the 2012 surveys. Populations of a
40 variety of plains springparsley (*Cymopterus acaulis*) were found in close proximity to the survey
41 area; however identification to variety could not be made due to the lack of flowers. No
42 Greeley’s cymopterus was observed within the survey area in 2012.

1 4.2 Survey Period 2- May

2 Survey Period 2 occurred between April 30th and May 9th of 2012. This survey took place in
3 Owyhee and Malheur counties between mileposts 205 and 300 of the proposed route. The
4 Malheur S, the Double Mountain Alternative, and portions of the Willow Creek Alternative were
5 also surveyed during this period, within Malheur County. This area is part of the Snake River
6 Plain ecoregion and consists of basalt canyons, hills and plains. The native upland vegetation
7 consists of a big sagebrush steppe and desert scrub with an understory of native grasses, such
8 as bluebunch wheatgrass (*Pseudoroegneria spicata*) and Sandberg bluegrass (*Poa secunda*),
9 which have largely given way to cheatgrass. Predominant land use is cattle grazing; recreational
10 use of off-road-vehicles (ORVs) is also common in this area. The following species were
11 included in this survey:

- 12 ▪ Biennial stanleya
- 13 ▪ Bigelow's four-o'clock (*Mirabilis laevis* var. *retorsa*)
- 14 ▪ Calcareous buckwheat
- 15 ▪ Cronquist's stickseed
- 16 ▪ Cusick's lupine (*Lupinus lepidus* var. *cusickii*)
- 17 ▪ Cusick's false yarrow
- 18 ▪ Davis' peppergrass (*Lepidium davisii*)
- 19 ▪ Desert pincushion (*Chaenactis stevoidies*)
- 20 ▪ Doublet (*Dimeresia howellii*)
- 21 ▪ Golden buckwheat (*Eriogonum chrysops*)
- 22 ▪ Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*)
- 23 ▪ Janish's penstemon
- 24 ▪ Least phacelia (*Phacelia minutissima*)
- 25 ▪ Least snapdragon (*Sairocarpus kingii*)
- 26 ▪ Malheur cryptantha
- 27 ▪ Malheur yellow phacelia (*Phacelia lutea* var. *calva*)
- 28 ▪ Mulford's milk-vetch (*Astragalus mulfordiae*)
- 29 ▪ Owyhee clover (*Trifolium owyheense*)
- 30 ▪ Packard's desert parsley (*Lomatium packardiae*)
- 31 ▪ Packard's mentzelia (*Mentzelia packardiae*)
- 32 ▪ Packard's wormwood (*Artemisia packardiae*)
- 33 ▪ Rigid threadbush (*Nemacladus rigidus*)
- 34 ▪ Rose's lomatium (*Lomatium roseanum*)
- 35 ▪ Salt heliotrope (*Heliotropium curassavicum*)
- 36 ▪ Simpon's hedgehog cactus (*Pediocactus simpsonii*)
- 37 ▪ Slickspot peppergrass (*Lepidium papilliferum*)
- 38 ▪ Smooth mentzelia
- 39 ▪ Snake River goldenweed

- 1 ▪ Snake River milkvetch (*Astragalus purshii* var. *ophinogenes*)
- 2 ▪ Sterile milk-vetch (*Astragalus cusickii* var. *sterilis*)
- 3 ▪ Stiff milkvetch (*Astragalus conjunctus*)
- 4 ▪ Turtleback (*Psathyrotes annua*)
- 5 ▪ White false tickhead (*Eatonella nivea*)
- 6 ▪ White-margined wax plant (*Glyptopleura marginata*)

7 Precipitation for early winter 2011 was below average, late winter and spring 2012 precipitation
8 levels were normal to slightly above normal (NOAA/CPC 2012). Temperatures for the same
9 period ranged from slightly below to slightly above normal. Species phenology was predicted to
10 be within normal range; surveys were timed to accommodate the recommended survey period
11 of all the above listed species. Cronquist's stickseed, Cusick's false yarrow, Janish's
12 penstemon, and smooth mentzelia were located during this survey period. All SSPs identified
13 during this survey period were in flower at the time of the survey.

14 Cronquist's stickseed is a perennial forb of the borage family (Boraginaceae). It can be readily
15 differentiated from similar, more common species of stickseed (*Hackelia*) by its sparsely
16 strigose to glabrous stem. The populations found during this survey period were located in
17 Malheur County, south of highway 20, along the proposed route by milepost 269.5 and along
18 the Malheur S alternative by mileposts 1.6 and 0 (at the north terminus of the alternative where
19 it meets the proposed route). All populations observed were on the north facing aspects of
20 moderate slopes, in moist, shaded understories of sagebrush between 3,000 and 3,500 feet.
21 Associated species included: Indian ricegrass (*Achnatherum hymenoides*), Wyoming big
22 sagebrush (*Artemisia tridentata* var. *wyomingensis*), bluebunch wheatgrass, yellow rabbitbrush
23 (*Chrysothamnus viscidiflorus*), Sandberg bluegrass and various forbs. Approximately 600
24 individuals were found in the northern population, the southern population was smaller,
25 consisting of roughly 200 individuals. All populations were located on BLM managed land
26 (Figures 22 and 26).

27 Cusick's false yarrow is an annual forb of the aster family (Asteraceae) endemic to Malheur and
28 Owyhee counties. It is easily identified by its small size and unique leaf structure. Cusick's false
29 yarrow was found in 4 separate locations within both Malheur and Owyhee County. One
30 population was encountered along the southern portion of the Malheur S alternative by milepost
31 31 in Malheur County (Figure 26). An estimated 2,000 individuals occurred over a third of a mile
32 stretch along a proposed access road. Additional populations occurred by milepost 7.5 of the
33 Malheur S alternative (Figure 23), where 15 individuals were located, and along an access road
34 near milepost 238.5, where a population of 20 individuals was located (Figure 22). A small
35 population of 15 individuals was found growing adjacent to smooth mentzelia in Owyhee County
36 near milepost 291 (Figure 27). In all instances, the habitat was open, sparsely vegetated to
37 barren flat to moderate slopes of gravelly or white clay soils at 2,500 to 3,000 feet in elevation.
38 Associated species included: shadscale (*Atriplex confertifolia*), cheatgrass, squirreltail (*Elymus*
39 *elymoides*), and Sandberg bluegrass. Uses of this area include livestock grazing and
40 recreational ORV use. Populations were located on BLM managed land.

41 Janish's penstemon is a perennial forb of the figwort family (Scrophulariaceae); it is
42 distinguishable by its exerted, coiled staminoide. Approximately 16 individuals were found
43 during the survey located along proposed access roads by milepost 277.5 of the proposed
44 route, in Owyhee County (Figure 26). Another population of 5 individuals was located by
45 milepost 11.5 of the Willow Creek alternative, in Malheur County (Figure 19). The species was
46 found in loose, dry, light colored sandy loam soils at the bottom of sparsely vegetated drainages
47 or low rolling hill slopes. Associated species included: yellow rabbitbrush, broom snakeweed

1 (*Gutierrezia sarothrae*), shadscale, and Wyoming big sagebrush. Populations were located on
2 BLM managed land in a popular ORV recreational use area.

3 Malheur cryptantha is a perennial plant of the borage family (Boraginaceae). It can be
4 distinguished from other similar species by its gray leaves and nutlets. Malheur cryptantha was
5 found in Malheur County along the proposed route near mileposts 270 (Figure 26). It was also
6 located along the Malheur S alternative near mileposts 20 and 21 (Figure 24). Approximately
7 100 individuals were found near milepost 270; approximately 200 individuals were located by
8 mileposts 20 and 21 of the Malheur S alternative. All populations were located on flat to
9 moderate terrain in open areas on fine loam or desert pavement between 2,500 and 3,000 feet,
10 in dry habitats with Sandberg bluegrass, squirreltail, yellow rabbitbrush, Indian ricegrass,
11 spineless horsesbrush (*Tetradymia canescens*), broom snakeweed, and Wyoming big
12 sagebrush. All populations were located on BLM managed land.

13 Smooth mentzelia is a small annual forb of the blazing star family (Loasaceae) which can be
14 distinguished from similar species by its absent basal rosette and stoutness of stem. It was
15 found in Owyhee County by milepost 292.5 of the proposed route (Figures 27 and 28).
16 Approximately 200 individuals were located growing in fine sandy clay soils on a moderate,
17 open, south facing slope in between 2,500 and 3,000 feet. Another smaller population was
18 found near milepost 291, also in Owyhee County (Figure 27). The smaller population had
19 approximately 50 individuals growing adjacent to Cusick's false yarrow on a relatively flat area
20 with barren gravelly brownish to off-white tuff soils. Populations were located on BLM managed
21 land in areas where the primary land uses are grazing and ORV recreation.

22 **4.3 Survey Period 3- June**

23 Survey Period 3 occurred from May 29th to June 7th of 2012. This survey took place in Baker
24 and Malheur Counties between mileposts 240 and 135. The remaining portion of the Willow
25 Creek alternative (milepost 0-16) was also visited during this survey period, in Baker County.
26 The primary ecoregion for this portion of the survey area is the Snake River Plain ecoregion,
27 transitioning to the foothills of the Blue Mountains in Baker County. The following species were
28 included in this survey period:

- 29 ▪ Biennial stanleya
- 30 ▪ Calcereous buckwheat
- 31 ▪ Cronquist's stickseed
- 32 ▪ Cusick's false yarrow
- 33 ▪ Cusick's lupine
- 34 ▪ Davis' peppergrass
- 35 ▪ Doublet
- 36 ▪ Douglas' clover
- 37 ▪ Golden buckwheat
- 38 ▪ Howell's spectacular thelopody
- 39 ▪ Least phacelia
- 40 ▪ Least snapdragon
- 41 ▪ Liverwort (*Lophozia gillmanii*)
- 42 ▪ Mountain grape-fern (*Botrychium montanum*)
- 43 ▪ Oregon semaphoregrass (*Pleuropogon oregonus*)

- 1 ▪ Red-fruit lomatium (*Lomatium erythrocarpum*)
- 2 ▪ Retorse sedge (*Carex retrorsa*)
- 3 ▪ Salt heliotrope
- 4 ▪ Simpson's hedgehog cactus
- 5 ▪ Snake River goldenweed
- 6 ▪ Stiff milkvetch
- 7 ▪ Western moonwort (*Botrychium hesperium*)

8 Precipitation levels for late spring of 2012 were within normal range, temperatures were 0-2.5
9 degrees Celsius below normal (NOAA/CPC 2012). Calcareous buckwheat, biennial stanleya
10 and Snake River goldenweed were found during this survey period. Surveys were timed to
11 accommodate the recommended survey period of all the above listed species and account for
12 varying species phenology. Calcareous buckwheat and Snake River goldenweed were in partial
13 to full flower at the time of the survey. Biennial stanleya was in bud to partial flower.

14 3 populations of calcareous buckwheat, roughly 200 individuals in total, were found near
15 milepost 184 of the proposed route (Figure 15). An additional population, previously identified in
16 2011, was located near milepost 180 of the proposed route (Figure 15). Roughly 120 individuals
17 were found at this location in 2012, an increase from what was observed in 2011. All
18 populations occurred on open, semi-barren hillsides in tan to white colored calcareous soils.
19 This species was distinguished from golden buckwheat, another SSP included in this survey, by
20 the number of involucre of the inflorescence and the number of involucre teeth. Associated
21 species included: biennial stanleya, Wyoming big sage, yellow rabbitbrush, Sandberg's
22 bluegrass, and Great Basin buckwheat (*Eriogonum microthecum*). Due to a change in the ROW
23 alignment between 2011 and 2012, populations found at mileposts 177-178 in 2011 (roughly
24 mileposts 181-182 in 2012), were no longer located within the 2012 survey area. All populations
25 observed were located on private land.

26 Biennial stanleya was located near milepost 184.5, adjacent to a population of calcareous
27 buckwheat, in similar habitat (Figure 15). This species was distinguished from similar species
28 based primarily on its biennial growth form. 10 individuals were found with flowering stalks, with
29 at least a dozen more individuals displaying only the basal rosette of the first year growth. This
30 population is on private land, located on hillsides above a pasture; it was previously located
31 during the 2011 survey.

32 Snake River goldenweed is a perennial species of the aster family (Asteraceae). It is similar to
33 the more common largeflower goldenweed (*Pyrrocoma carthamoides*), but is set apart by its
34 wider leaves and stems which are glabrous throughout. Several broadly scattered populations
35 of goldenweed (*Pyrrocoma* spp.) were found between mileposts 187 and 195.5 of the proposed
36 route, and by mileposts 2 and 4 of the proposed 138/69kV rebuild, both in Baker County
37 (Figures 16 and 17). Characteristics varied by individual, however most had leaf widths
38 averaging 5 cm and glabrous stems. Snake River goldenweed has leaf widths of 5 cm and over;
39 largeflower goldenweed has leaf widths between 0.5 to 4 cm and its stems are glabrate to
40 canescent-villous. Physiological differences between largeflower goldenweed and Snake River
41 goldenweed are thought to have evolved along a phytogeographic gradient; physiological traits
42 of largeflower goldenweed are strongest in the southern portion of the Snake River Canyon,
43 with traits of Snake River goldenweed coming in more strongly with northward progression
44 (Mansfield 2011). During the 2011 SSP surveys, some individuals of goldenweeds were also
45 found in this area; however, these congeners appeared to be most appropriately grouped with
46 largeflower goldenweed. The 2012 survey found a broader population distribution and a larger
47 number of specimens, most, though not all of which, appear to display traits more consistent
48 with Snake River goldenweed. Populations occurred on both public (BLM) and private lands.

1 **4.4 Survey Period 4 - July**

2 Survey period 4 took place between July 9th and July 18th of 2012 in Morrow, Umatilla, and
3 Union counties. The higher elevation portion of the survey area included the Blue Mountains
4 and its foothills. Spruce-fir forests and mountain mixed shrub ecosystems are common in this
5 region. The predominant land types at lower elevations were agricultural, Conservation Reserve
6 Program (CRP) and range lands, with small inclusions of remnant native sagebrush and
7 grassland ecosystems, often containing a high component of noxious or invasive weeds.
8 Previous month's temperature were approximately 1°C below average, precipitation was within
9 normal range. July temperatures were approximately 1.5°C above average, with precipitation
10 levels at average to slightly above (NOAA/CPC 2012). Species phenology was predicted to be
11 within normal range. The following species were included in this survey:

- 12 ▪ Calcareous buckwheat
- 13 ▪ Douglas' clover
- 14 ▪ Howell's spectacular thelopody
- 15 ▪ Least phacelia
- 16 ▪ Liverwort
- 17 ▪ Many-flowered phlox
- 18 ▪ Mountain grape-fern
- 19 ▪ Oregon semaphoregrass
- 20 ▪ Retorse sedge
- 21 ▪ Salt heliotrope
- 22 ▪ Simpson's hedgehog cactus
- 23 ▪ Snake River goldenweed
- 24 ▪ Stiff milkvetch
- 25 ▪ Western moonwort

26 No SSPs were located during this survey period.

27 **4.5 Non-targeted Survey**

28 4 SSPs were observed during biological surveys were SSPs were not the target of the survey,
29 mostly during TVES surveys or during wetland surveys. Species observed during these surveys
30 included Cronquist's stickseed, Snake River goldenweed, and Douglas' clover.

31 5 individuals of Douglas' clover were found in Union County during a TVES survey on July 15th
32 near milepost 130. Twelve individuals were also found near milepost 127 during a wetland
33 survey on July 30th (Figure 10). Douglas' clover is a perennial clover endemic to the Blue
34 Mountains and near-by areas. It was identified based on its 3 parted leaves and the downward
35 curve of its calyx teeth.

36 Several locations of Snake River goldenweed were observed during TVES surveys on June 9,
37 10, 11, and 13, 2012 in Baker County. These observations were summarized within Survey
38 Period 3 above.

39 An additional location of Cronquist's stickseed was observed in Malheur County on May 20,
40 2012 during a TVES survey; this observation was summarized within Survey Period 2 above.

5.0 CONCLUSIONS

Tetra Tech surveyed approximately 18,330 acres of public and private land within fly yards and staging areas, along with buffered areas of the proposed route, alternatives, and access roads, for the presence of SSPs. Of the total 31,638 acres of survey area, 57% were surveyed for the presence of SSPs; 3,252 acres were not accessible due to access restrictions on private land. An additional 3,686 acres of private land and approximately 6,370 acres of federal and state land were not accessible due inability to access parcels without crossing restricted private land and/or terrain restrictions. Nine SSPs were found within the survey area and an additional SSP, stiff milkvetch, was observed just outside of the survey area. Two species, biennial stanleya and calcareous buckwheat, were previously found during the 2011 surveys. Greeley's cymopterus was found in the survey area during the 2011 surveys but was not identified in 2012 surveys. Laurent's milkvetch (*Astragalus collinus* var. *laurentii*) was found in the survey area during the 2011 surveys, but is no longer considered a sensitive species, so it was not included in the 2012 survey. The following species were found within the survey area during the 2012 surveys:

Approximately 270 individuals of calcareous buckwheat were observed in Baker County near mileposts 180 and 184.5.

Cronquist's stickseed was found in Malheur County. Roughly 200 individuals were located along the proposed route by milepost 269.5, with an additional 600 located along the Malheur S alternative by mileposts 1.6 and 0.

Populations of Cusick's false yarrow were observed in Malheur County near milepost 31 of the Malheur S alternative and in Owyhee County near milepost 291 of the proposed route.

17 individuals of Douglas' clover were found in Union County near milepost 127 and 130.

A population of 16 Janish's penstemon individuals was found in Owyhee County by milepost 277.5 of the proposed route. An additional population of 5 was located near milepost 11.5 of the Willow Creek alternative in Malheur County.

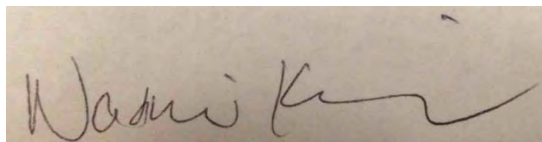
Approximately 250 Malheur cryptantha individuals were observed in Malheur County between near milepost 1 and 20 of the Malheur S alternative, and by milepost 270 of the proposed route.

Biennial stanleya was located near milepost 184.5, in Baker County. 10 individuals were found with a flowering stalk and an additional dozen were found with only the basal rosette present.

Scattered populations of over 600 individuals of goldenweed, where traits of Snake River goldenweed were the most dominant, were located between mileposts 187 and 195.5 of the proposed route in Baker County.

Approximately 200 individuals of smooth mentzelia were found in Owyhee County by milepost 292.5 of the proposed route. An additional 50 individuals were found near milepost 291 of the proposed route, also in Owyhee County.

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Reviewed by:



Lisa Harloe
Staff Botanist

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FIGURES

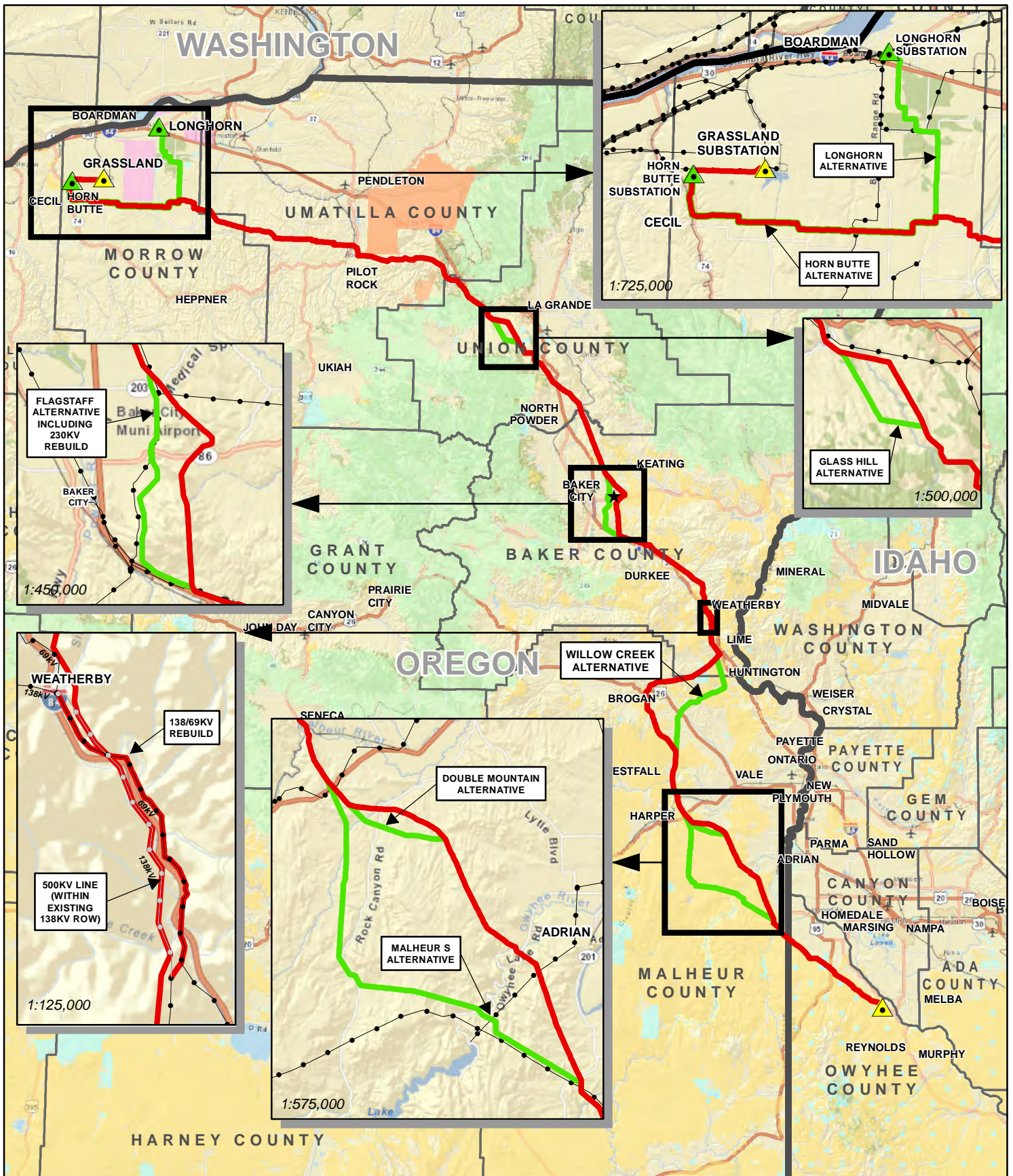


FIGURE 1
PROJECT OVERVIEW
DRAFT
2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT
 BOARDMAN TO HEMINGWAY
 500KV TRANSMISSION LINE PROJECT
 OREGON-IDAHO
 NOVEMBER 2012



- ★ 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

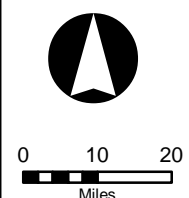




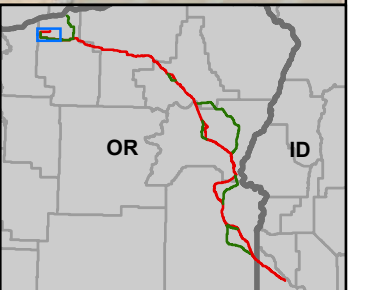
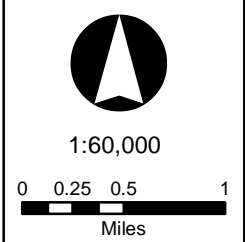
FIGURE 2 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



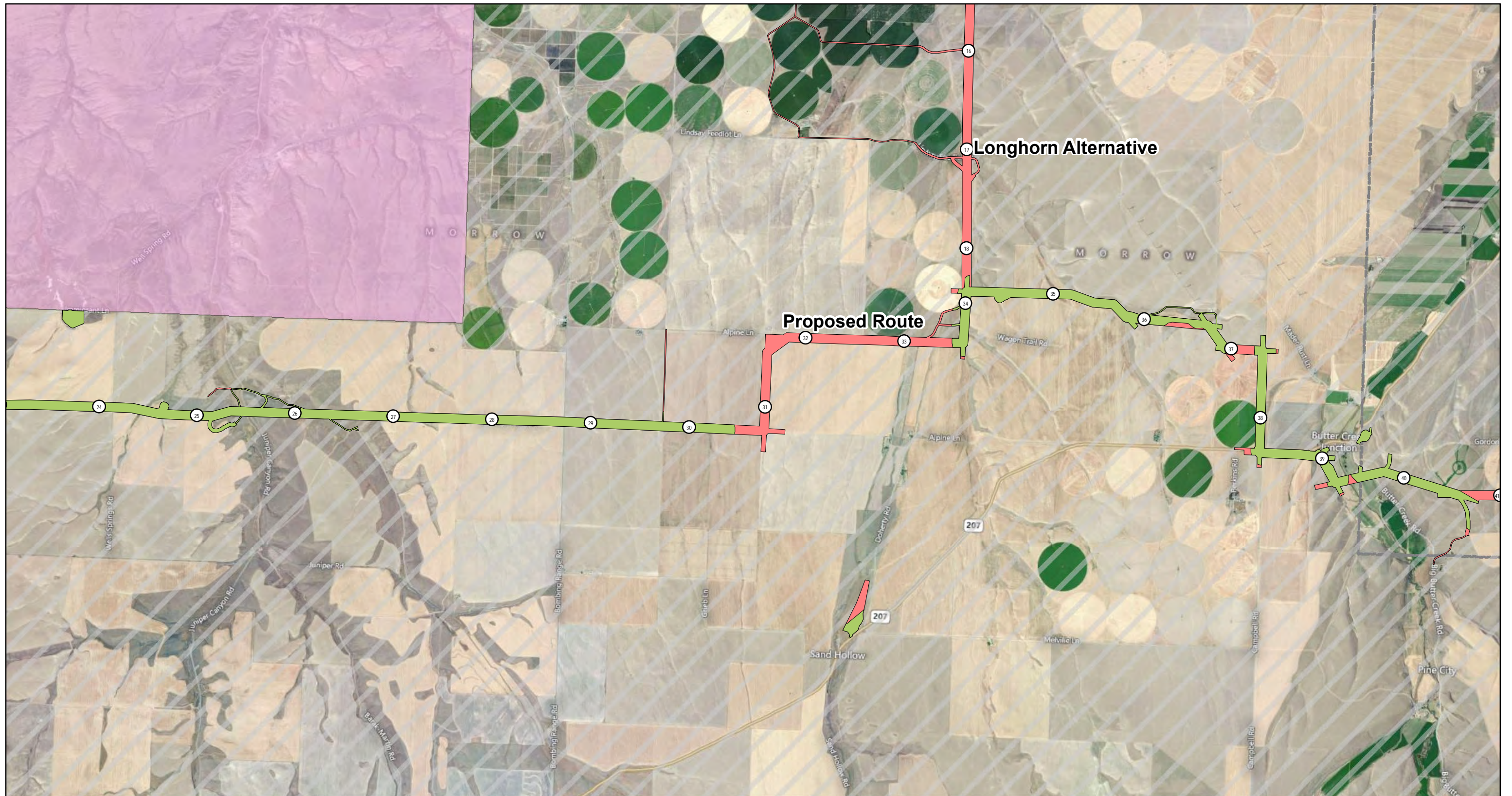


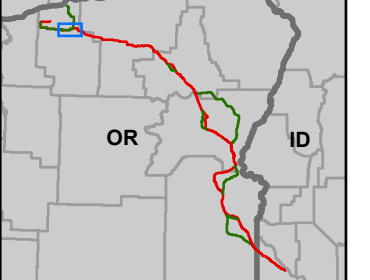
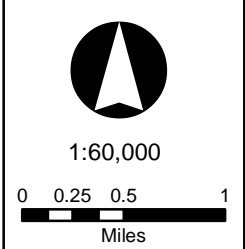
FIGURE 3 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership		
Surveyed Area	Calcareous buckwheat	Malheur cryptantha	Bureau of Land Management	Other Federal			
Unsurveyed Area	Cronquist's stickseed	Biennial stanleya	Bureau of Reclamation	Private			
Milepost	Cusick's false yarrow	Smooth mentzelia	Department of Defense	State			
County Boundary	Douglas' clover	Snake River goldenweed	CTUIR Lands	U.S. Fish and Wildlife			
State Boundary	Janish's penstemon		National Park Service	U.S. Forest Service			



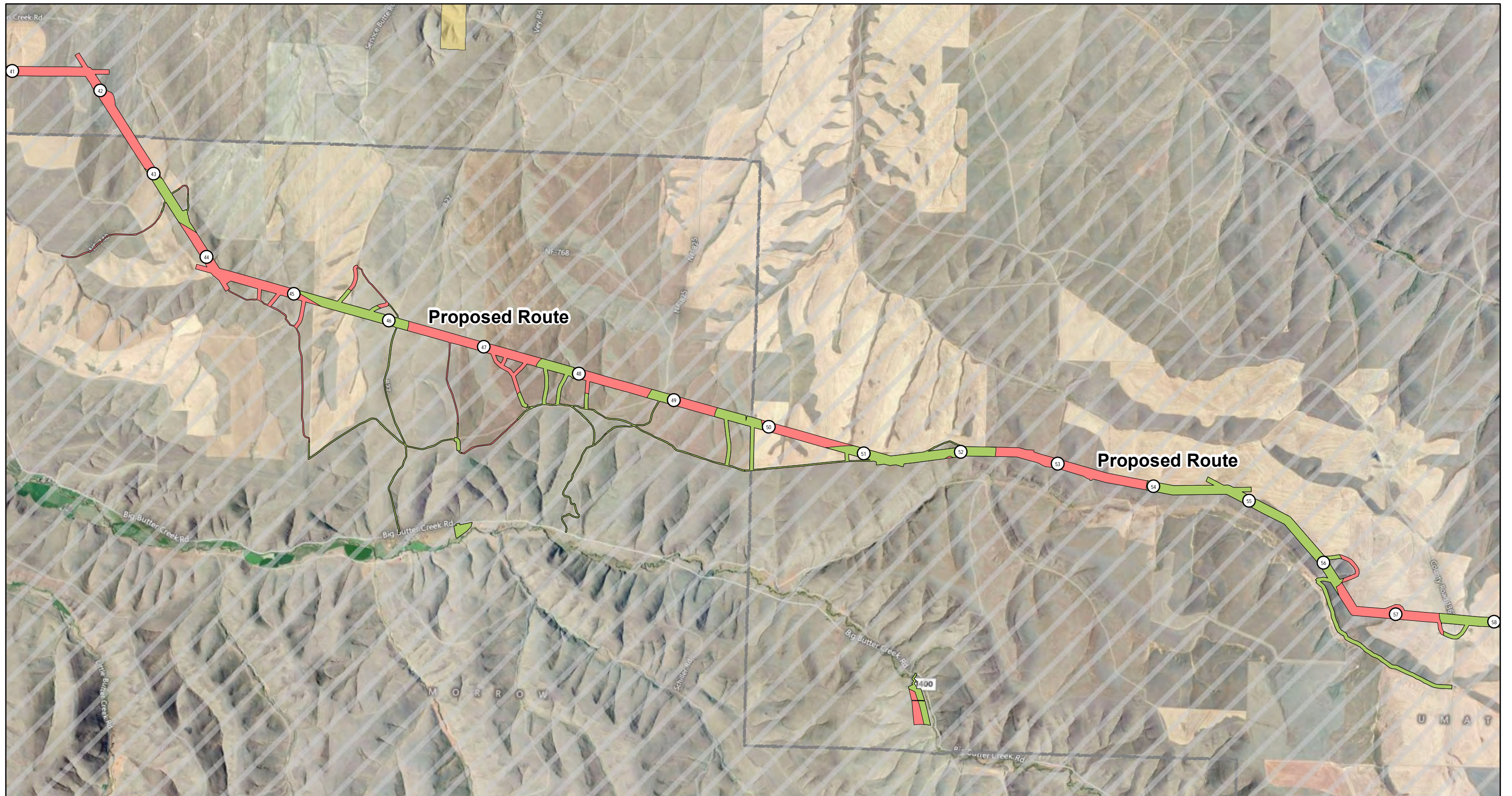


FIGURE 4 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service

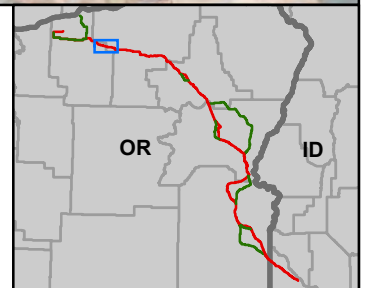
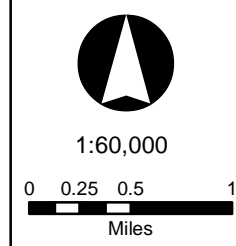




FIGURE 5 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership		
 Surveyed Area	 Unsurveyed Area	 Calcareous buckwheat	 Cronquist's stickseed	 Malheur cryptantha	 Bureau of Land Management	 Other Federal	
62 Milepost	 County Boundary	 Cusick's false yarrow	 Cusick's false yarrow	 Biennial stanleya	 Bureau of Reclamation	 Private	
 State Boundary		 Cusick's false yarrow	 Cusick's false yarrow	 Smooth mentzelia	 Department of Defense	 State	
		 Cusick's false yarrow	 Cusick's false yarrow	 Snake River goldenweed	 CTUIR Lands	 U.S. Fish and Wildlife	
		 Cusick's false yarrow	 Cusick's false yarrow	 Janish's penstemon	 National Park Service	 U.S. Forest Service	

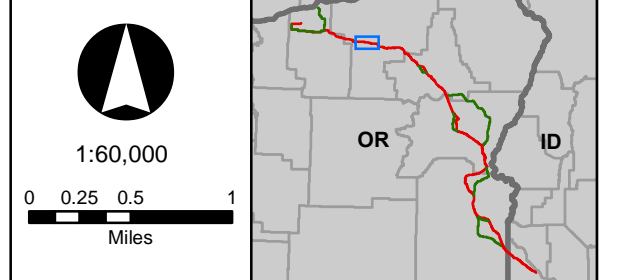




FIGURE 6 SPECIAL STATUS PLANT SURVEY RESULTS
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Special Status Plants Observed		Land Ownership	
Surveied Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Biennial stanleya	National Park Service	U.S. Forest Service
	Smooth mentzelia		
	Snake River goldenweed		
	Janish's penstemon		
	Malheur cryptantha		

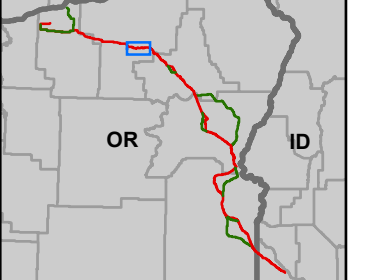
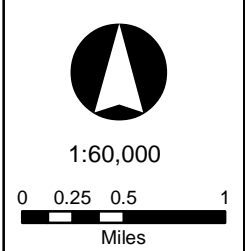




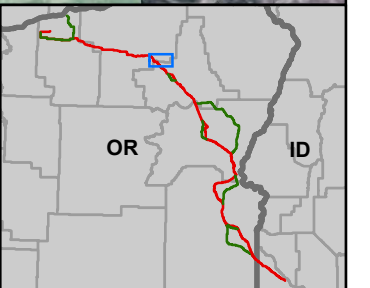
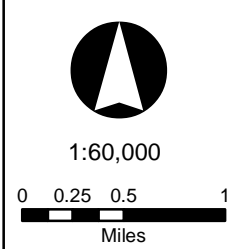
FIGURE 7 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Snake River goldenweed	National Park Service	U.S. Forest Service
	Janish's penstemon		
	Malheur cryptantha		
	Biennial stanleya		
	Smooth mentzelia		



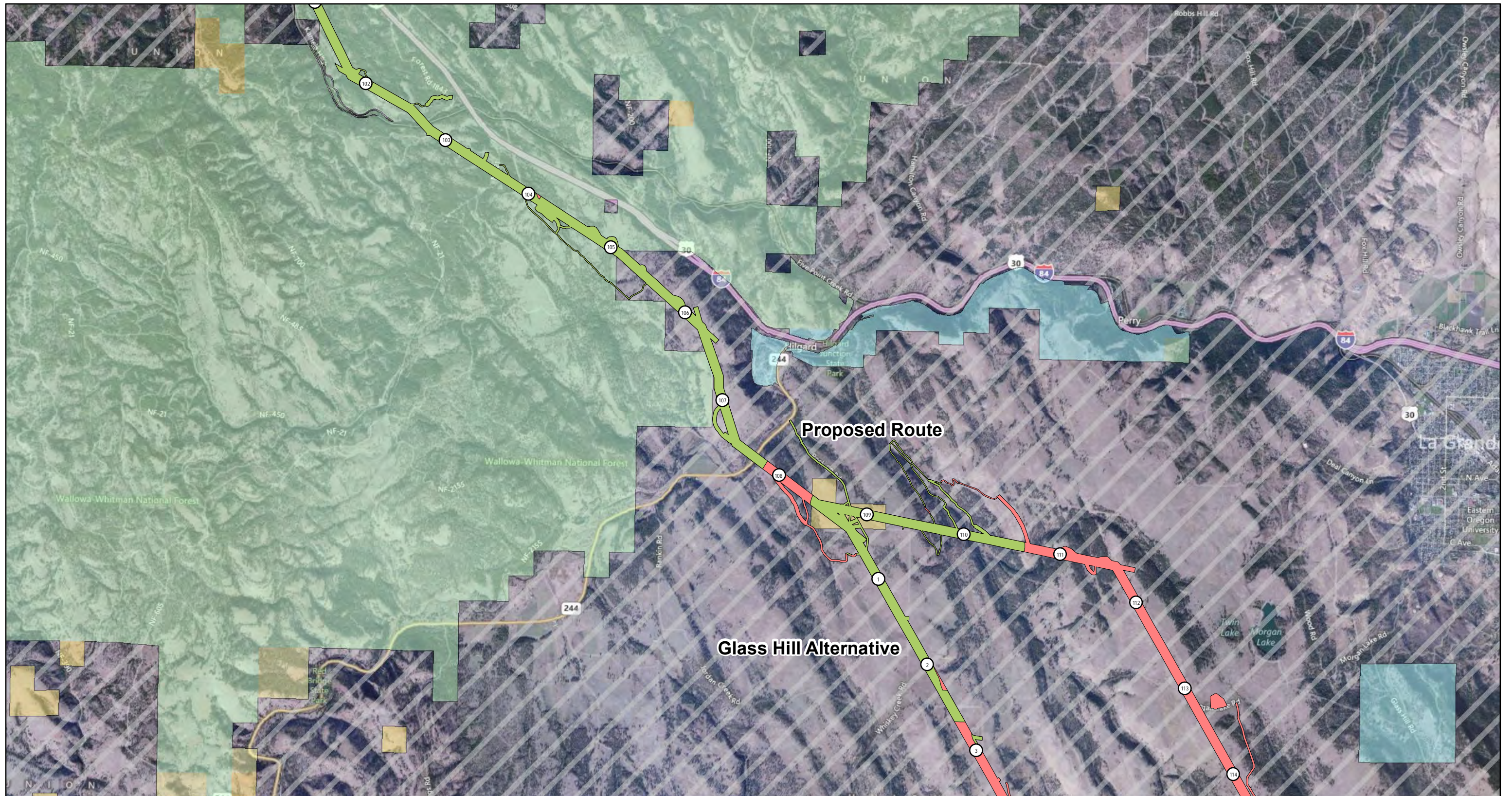


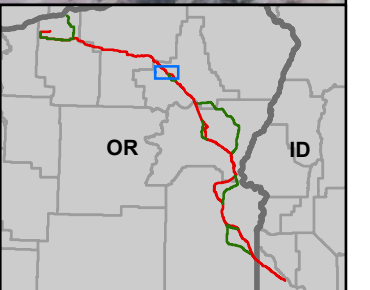
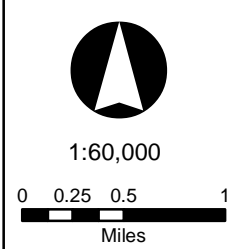
FIGURE 8 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



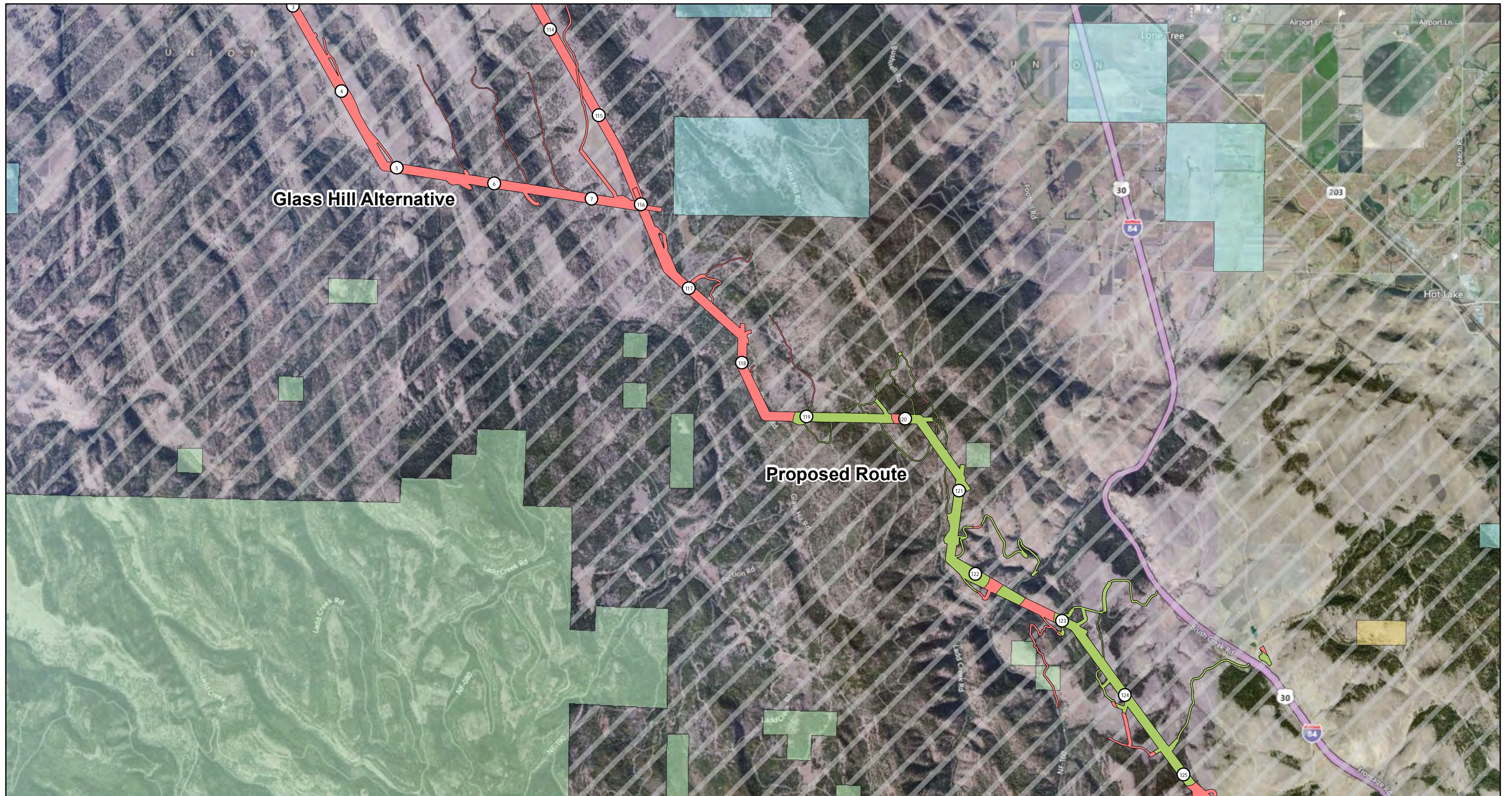


FIGURE 9 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service

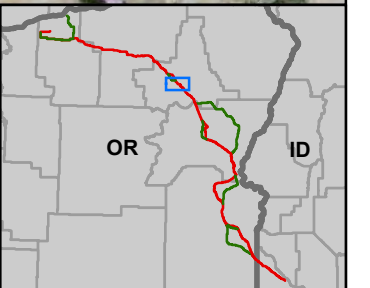
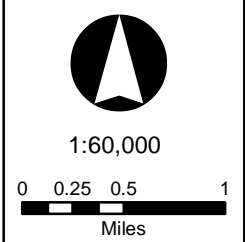




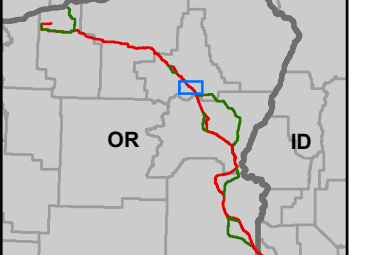
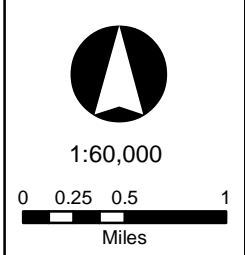
FIGURE 10 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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		Special Status Plants Observed			Land Ownership		
Surveyed Area	Calcareous buckwheat	Malheur cryptantha	Bureau of Land Management	Other Federal			
Unsurveyed Area	Cronquist's stickseed	Biennial stanleya	Bureau of Reclamation	Private			
Milepost	Cusick's false yarrow	Smooth mentzelia	Department of Defense	State			
County Boundary	Douglas' clover	Snake River goldenweed	CTUIR Lands	U.S. Fish and Wildlife			
State Boundary	Janish's penstemon		National Park Service	U.S. Forest Service			



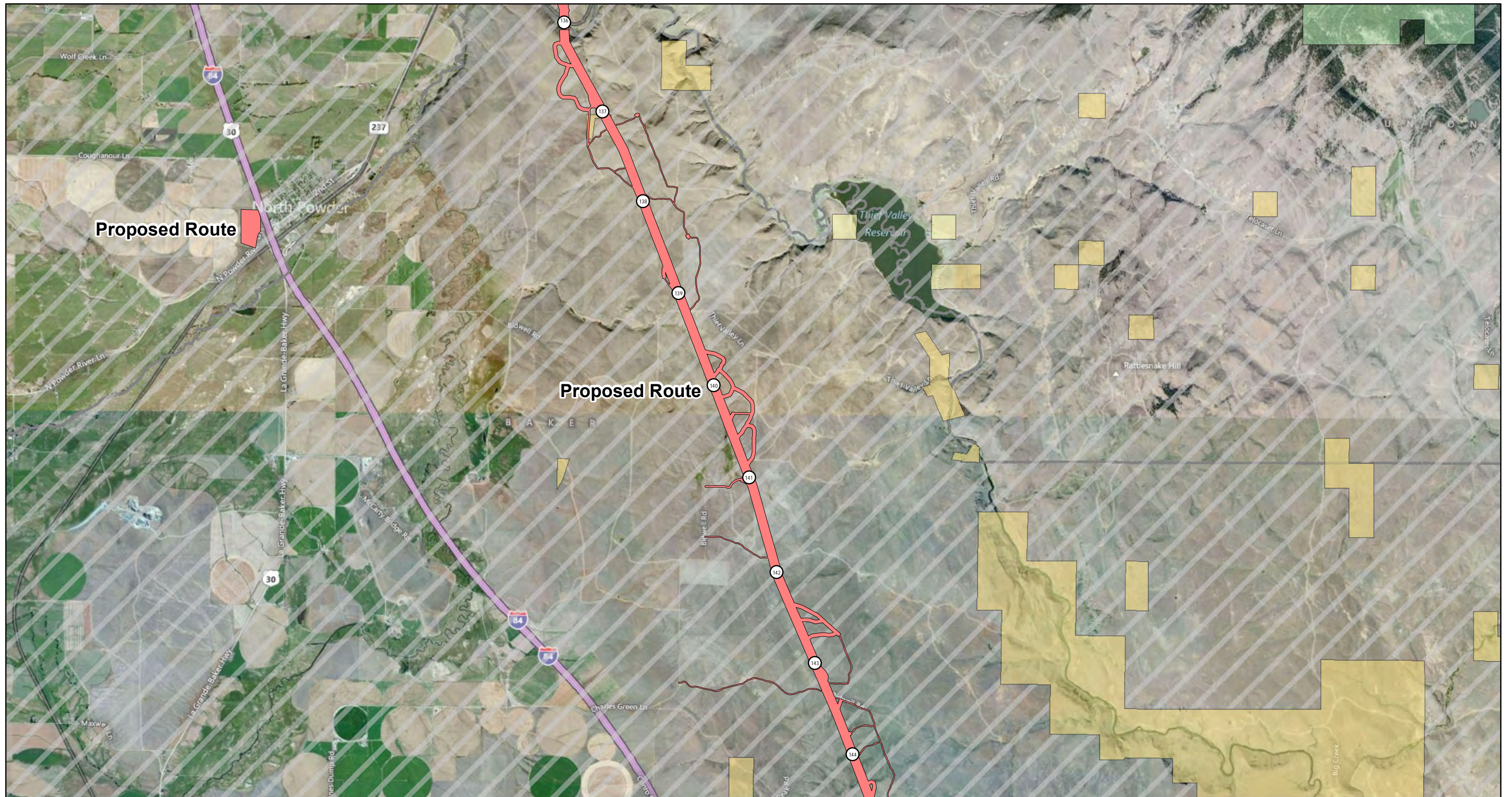


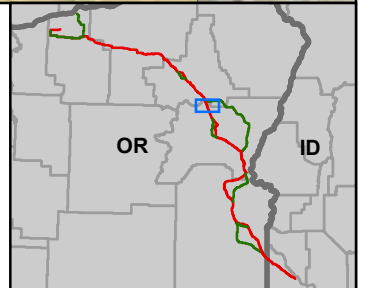
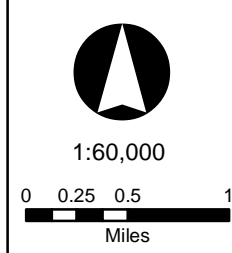
FIGURE 11 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Biennial stanleya	National Park Service	U.S. Forest Service
	Smooth mentzelia		
	Snake River goldenweed		
	Janish's penstemon		
	Malheur cryptantha		



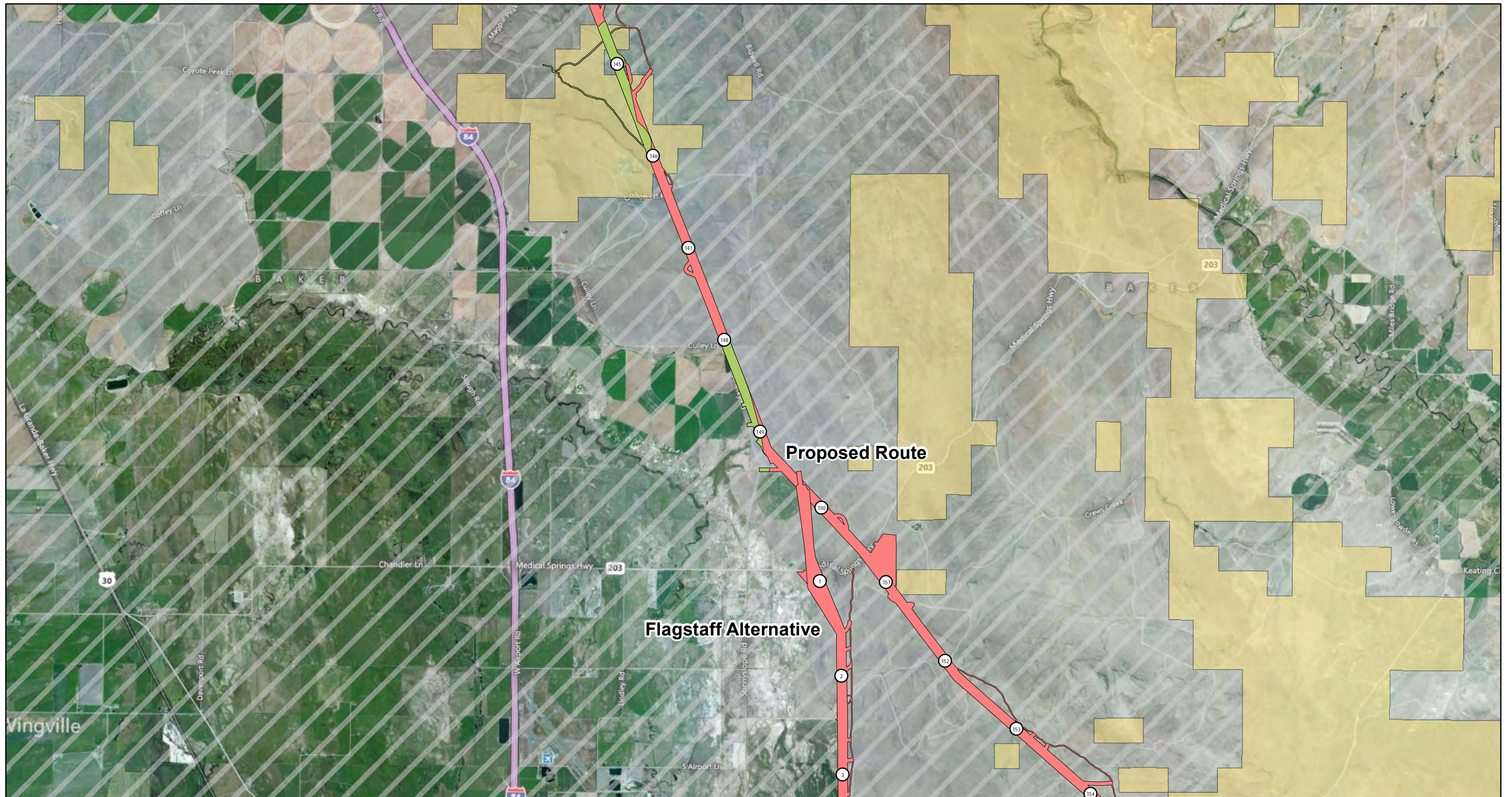


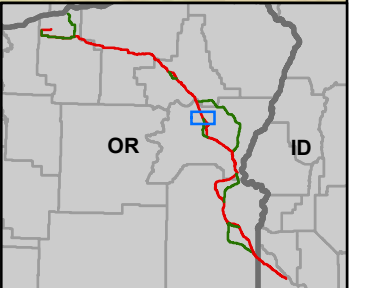
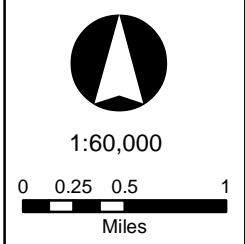
FIGURE 12 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



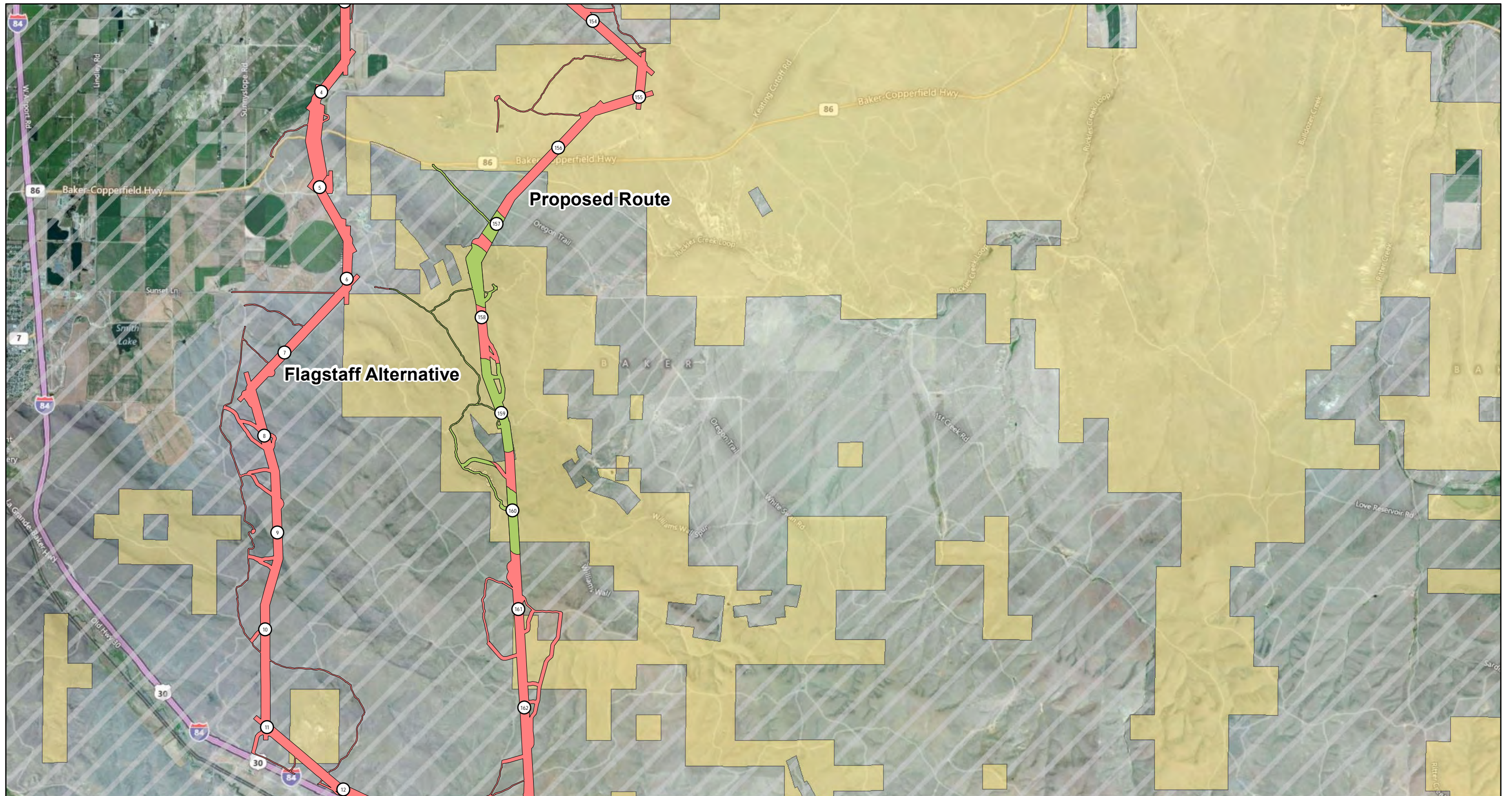


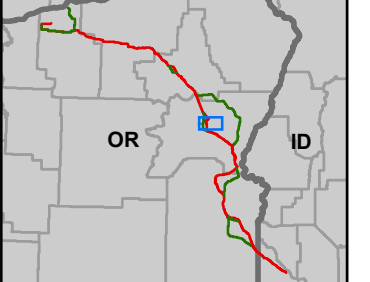
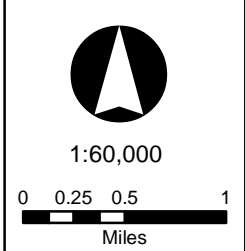
FIGURE 13 SPECIAL STATUS PLANT SURVEY RESULTS
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Special Status Plants Observed		Land Ownership	
■ Surveyed Area	● Calcareous buckwheat	■ Bureau of Land Management	■ Other Federal
■ Unsurveyed Area	■ Cronquist's stickseed	■ Bureau of Reclamation	■ Private
62 Milepost	▲ Cusick's false yarrow	■ Department of Defense	■ State
 County Boundary	★ Douglas' clover	■ CTUIR Lands	■ U.S. Fish and Wildlife
 State Boundary	● Janish's penstemon	■ National Park Service	■ U.S. Forest Service
	■ Malheur cryptantha		
	▲ Biennial stanleya		
	★ Smooth mentzelia		
	● Snake River goldenweed		



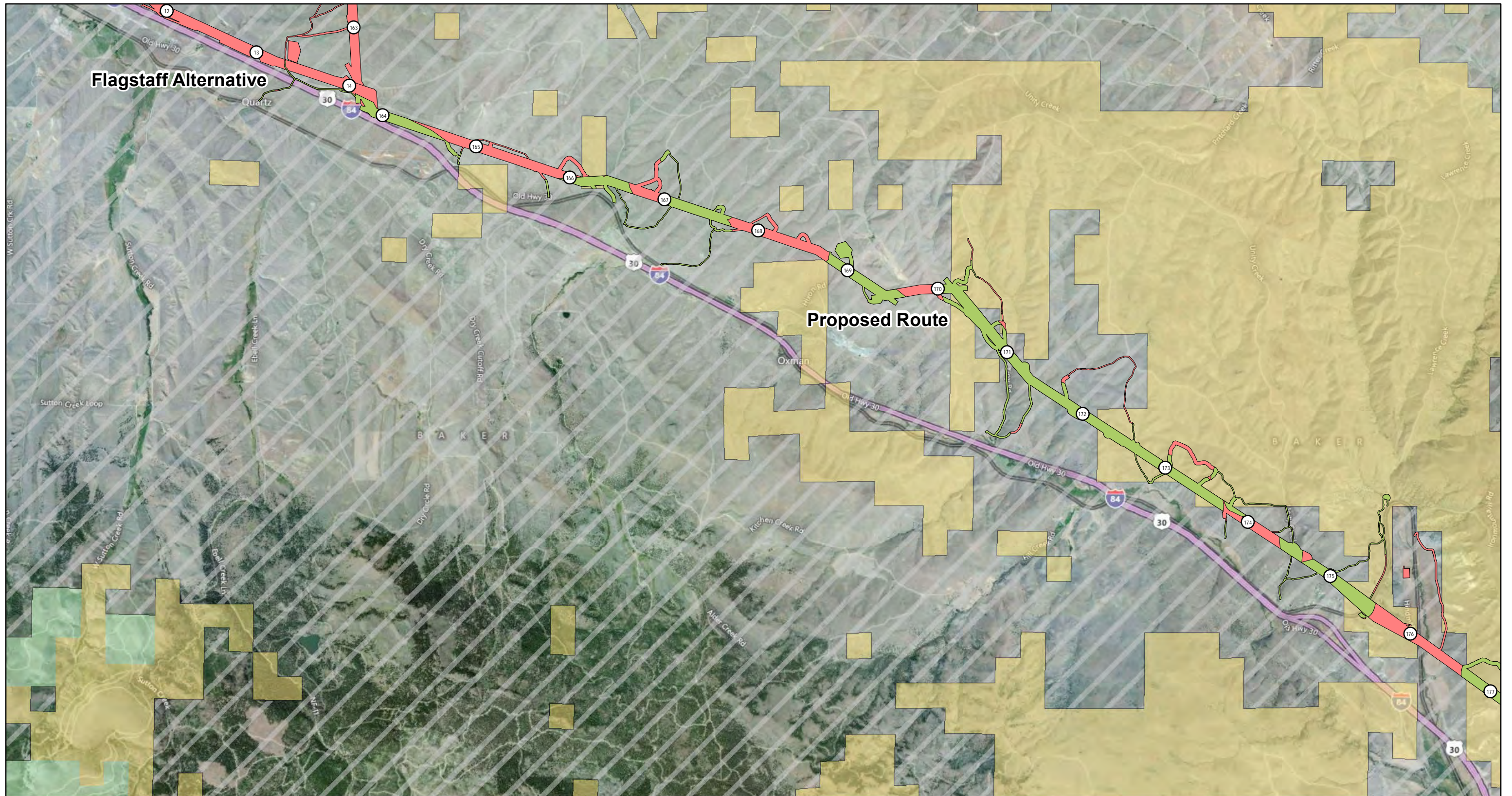


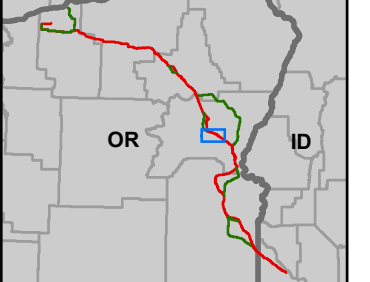
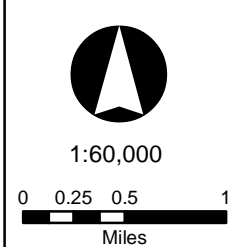
FIGURE 14 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
■ Surveyed Area	● Calcareous buckwheat	■ Bureau of Land Management	■ Other Federal
■ Unsurveyed Area	■ Cronquist's stickseed	■ Bureau of Reclamation	■ Private
62 Milepost	▲ Cusick's false yarrow	■ Department of Defense	■ State
 County Boundary	★ Douglas' clover	■ CTUIR Lands	■ U.S. Fish and Wildlife
 State Boundary	● Janish's penstemon	■ National Park Service	■ U.S. Forest Service
	■ Malheur cryptantha		
	▲ Biennial stanleya		
	★ Smooth mentzelia		
	● Snake River goldenweed		



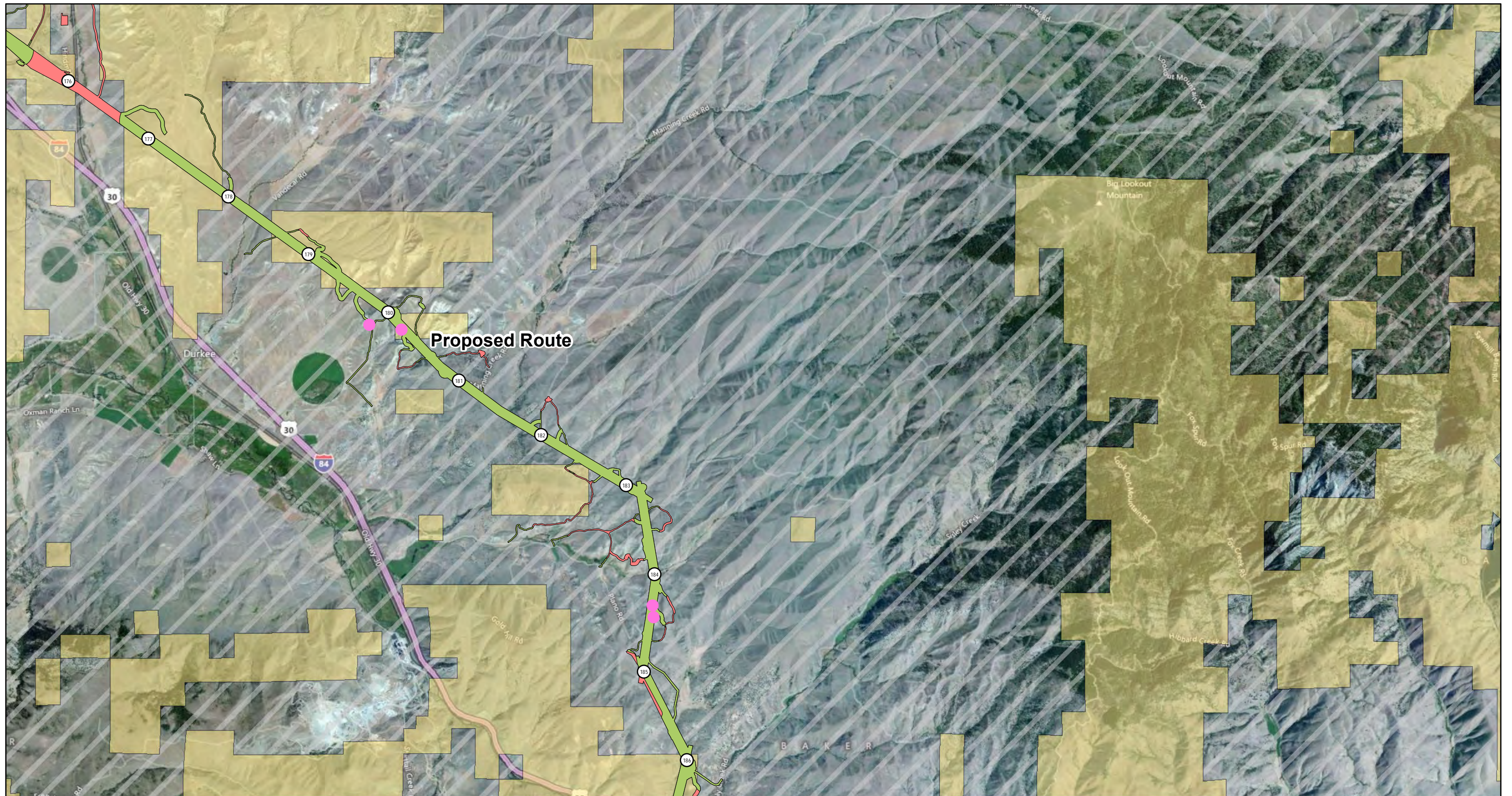


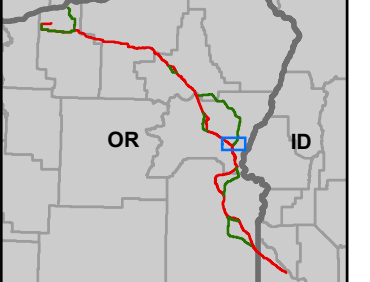
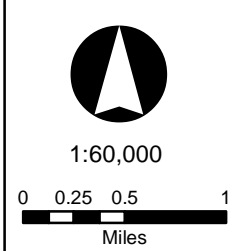
FIGURE 15 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Janish's penstemon	National Park Service	U.S. Forest Service
	Malheur cryptantha		
	Biennial stanleya		
	Smooth mentzelia		
	Snake River goldenweed		



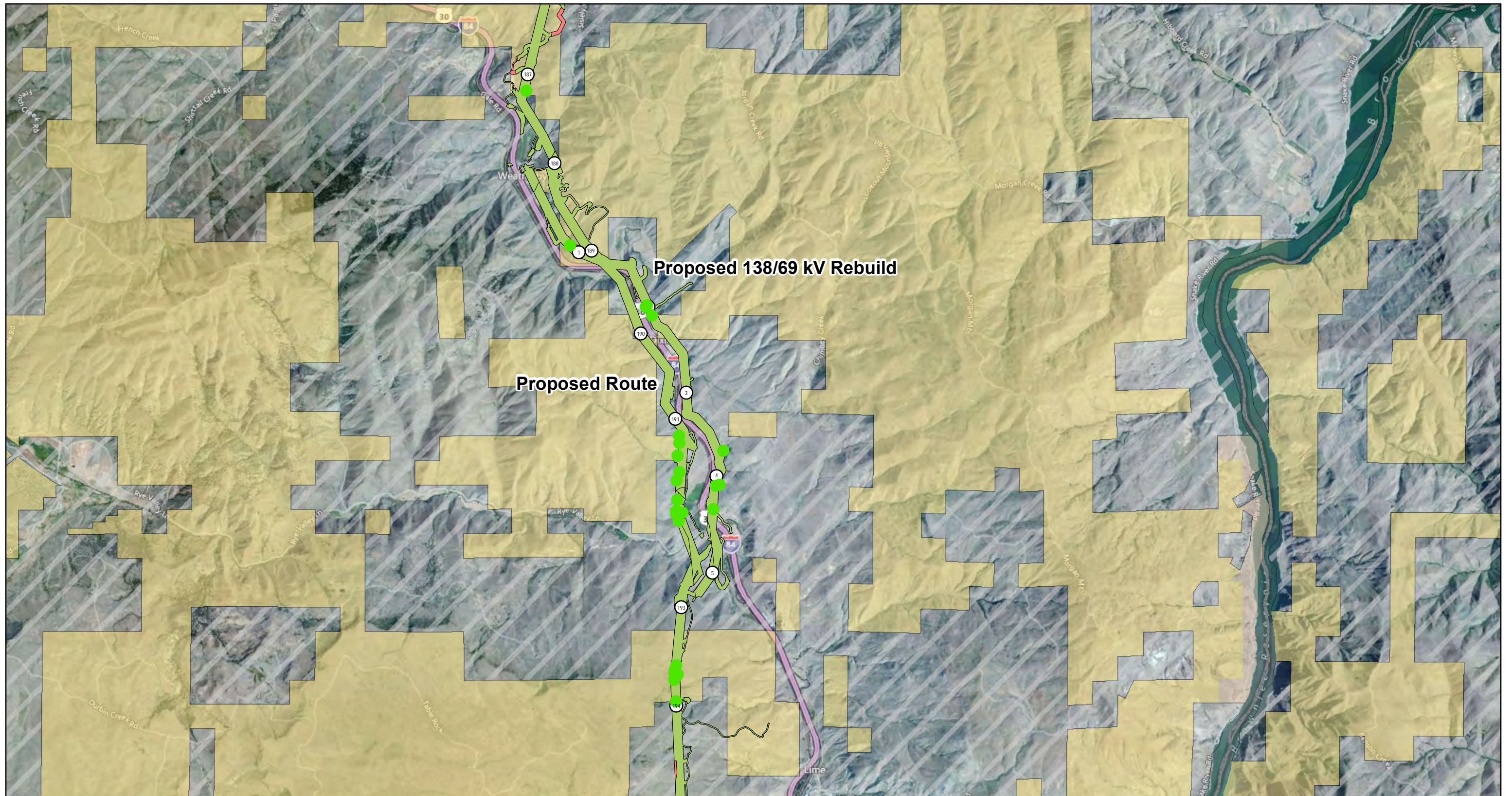


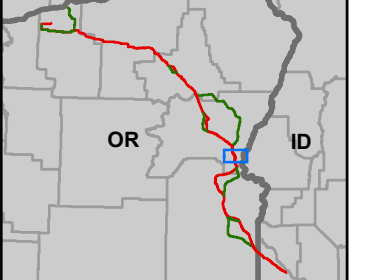
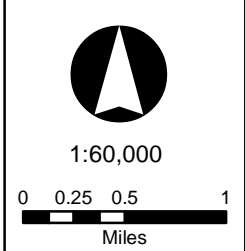
FIGURE 16 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



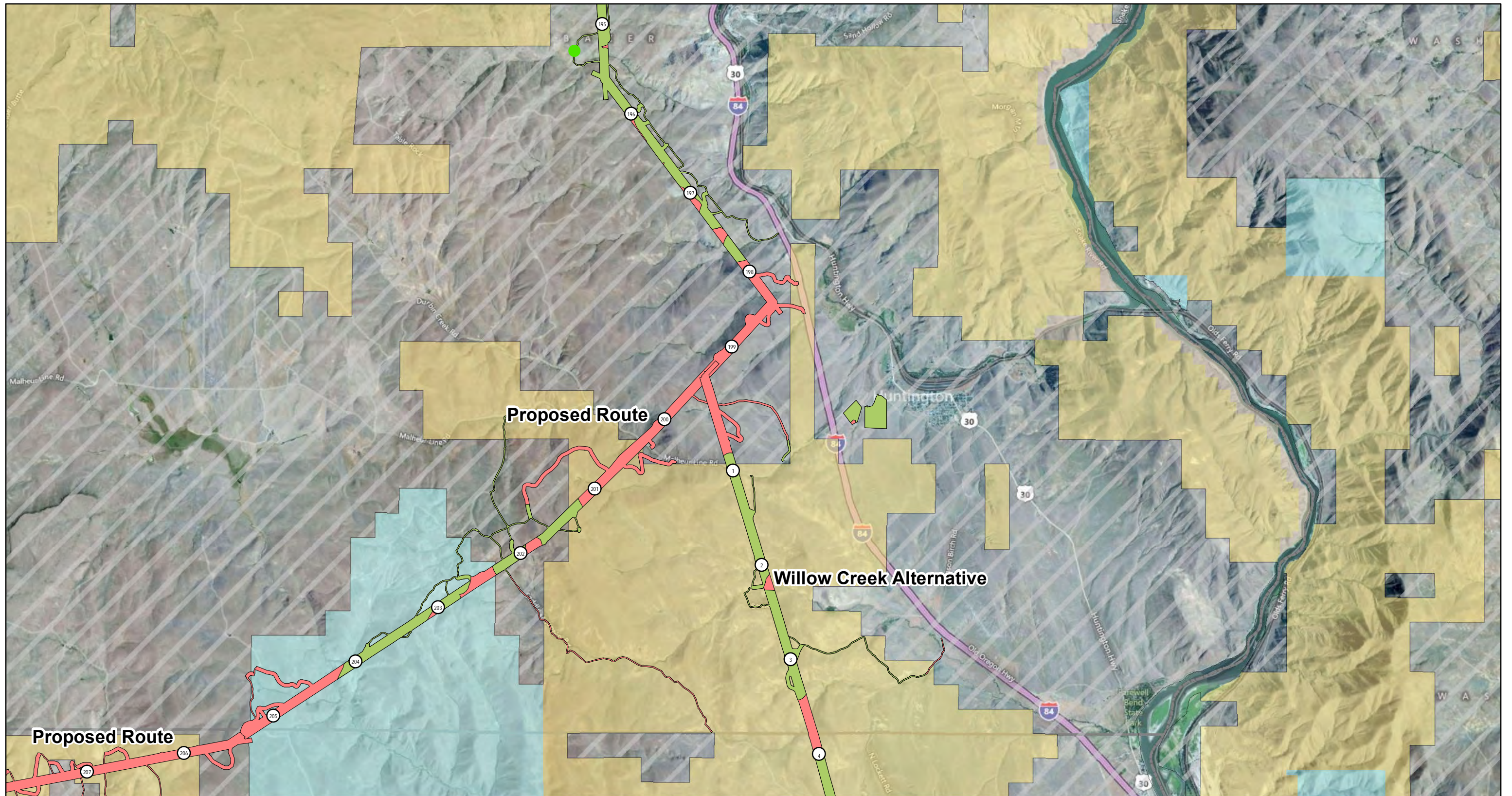


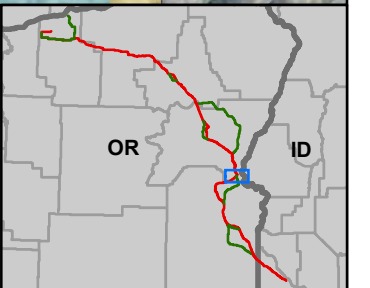
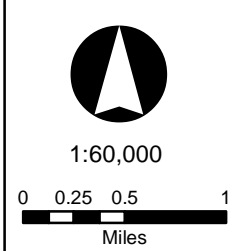
FIGURE 17 SPECIAL STATUS PLANT SURVEY RESULTS
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



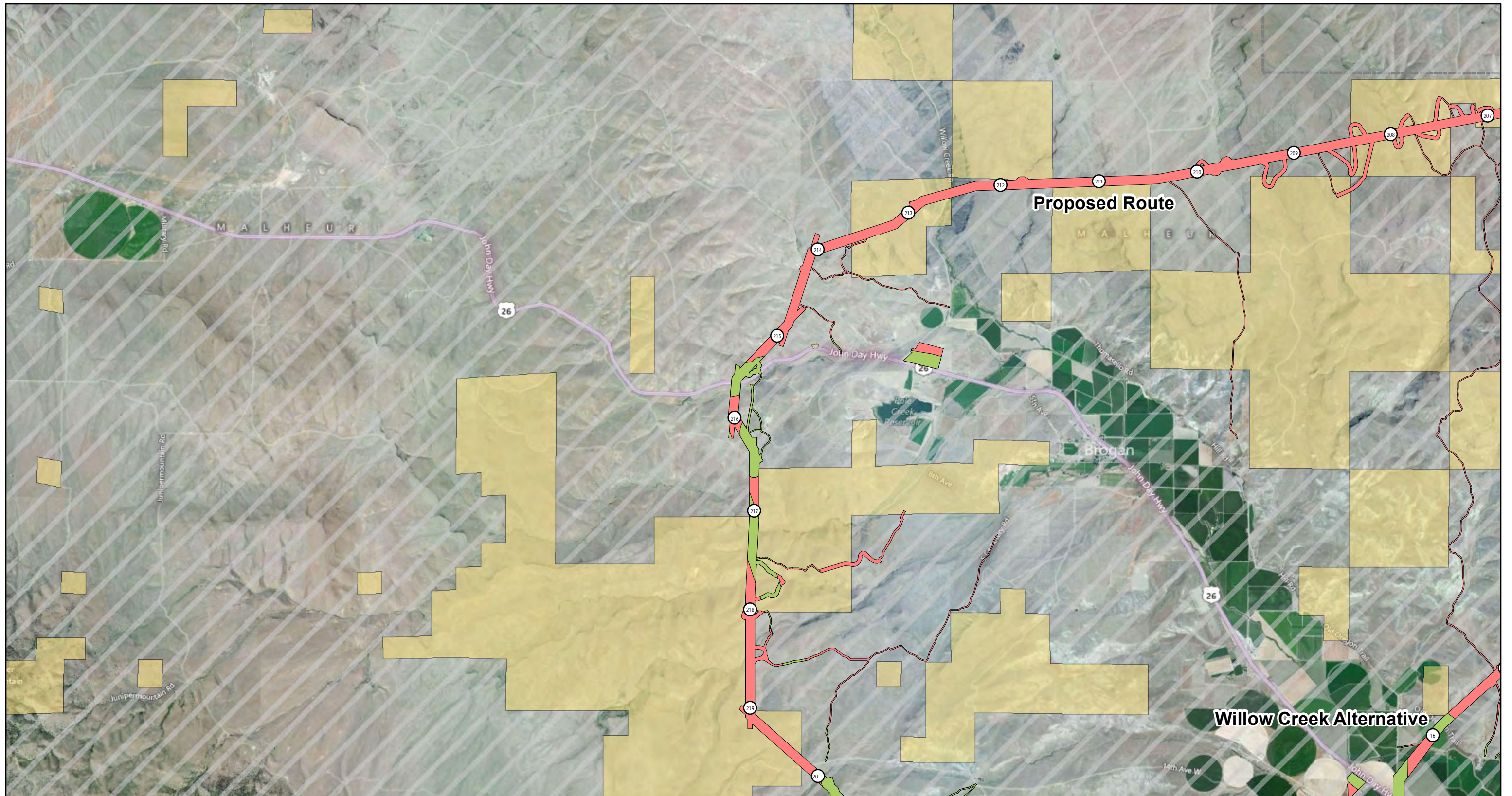


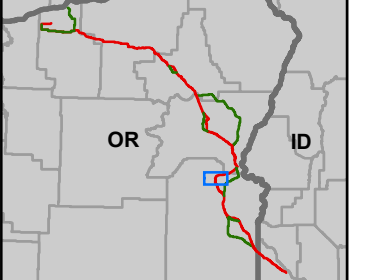
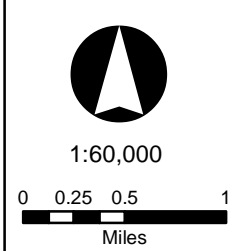
FIGURE 18 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Janish's penstemon	National Park Service	U.S. Forest Service
	Malheur cryptantha		
	Biennial stanleya		
	Smooth mentzelia		
	Snake River goldenweed		



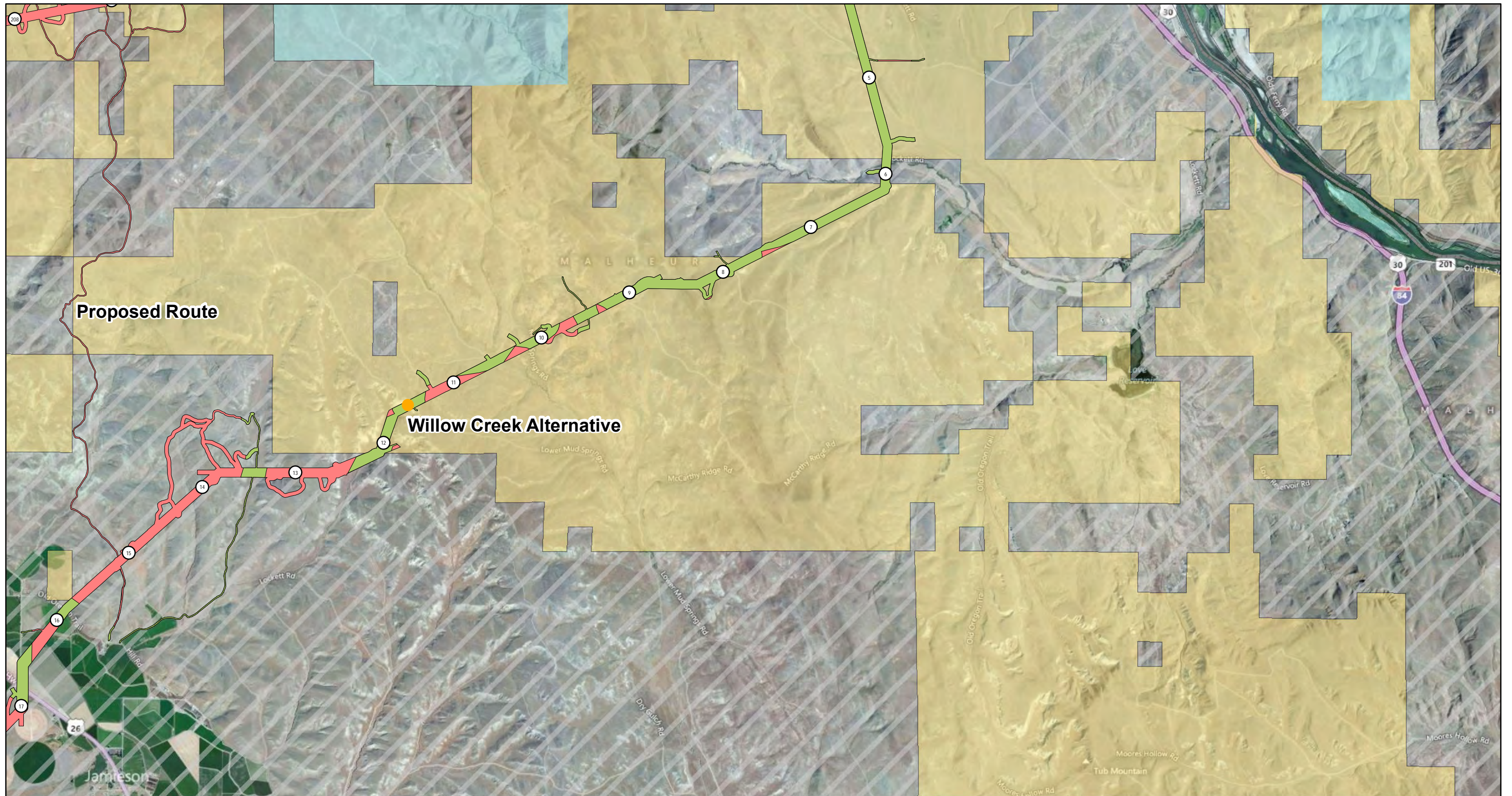


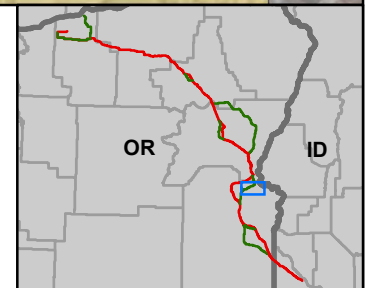
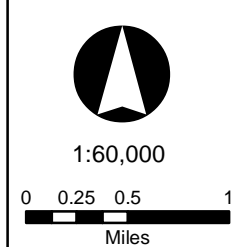
FIGURE 19 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
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Special Status Plants Observed		Land Ownership	
Surveied Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveied Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Janish's penstemon	National Park Service	U.S. Forest Service
	Malheur cryptantha		
	Biennial stanleya		
	Smooth mentzelia		
	Snake River goldenweed		



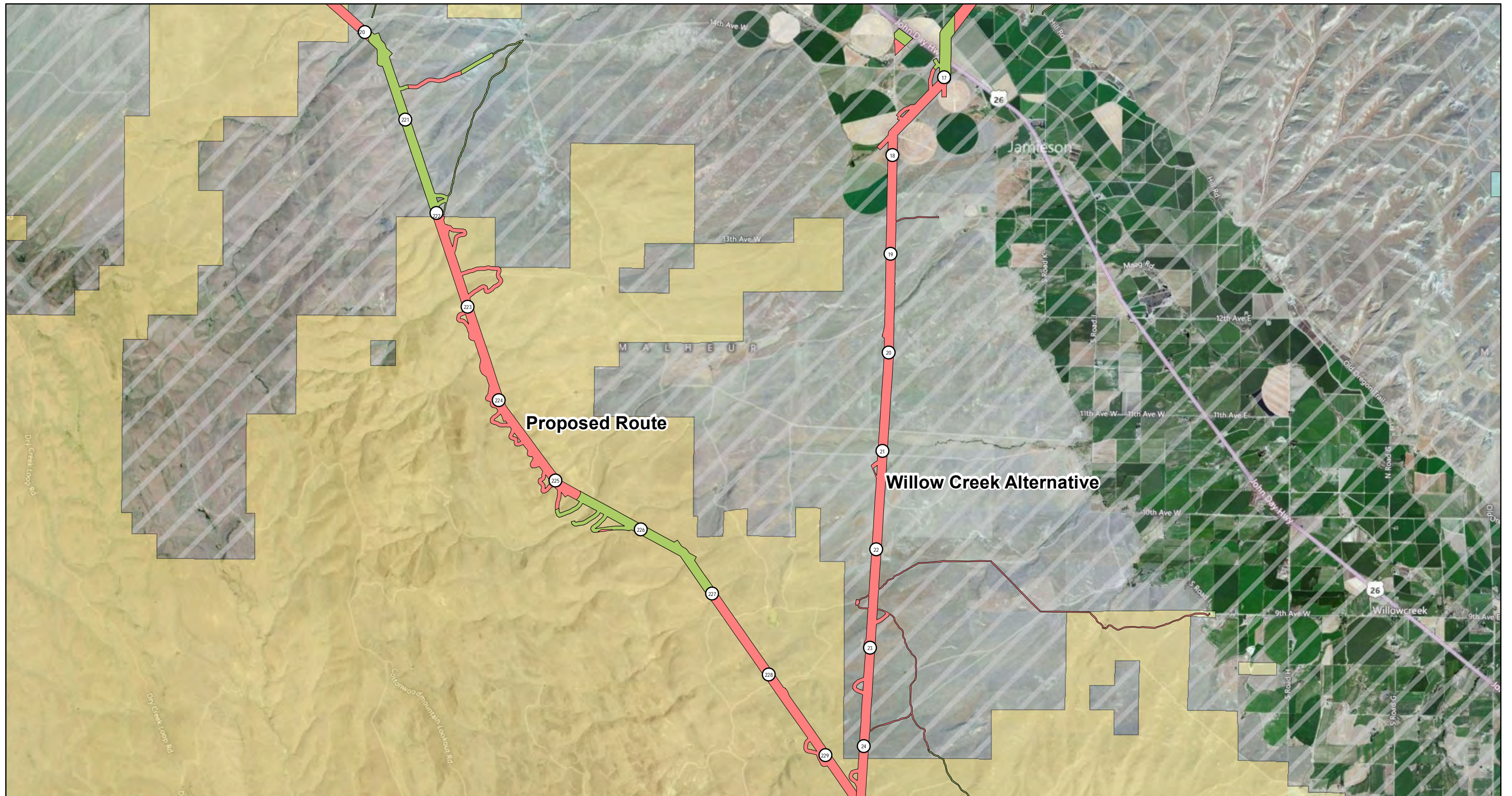


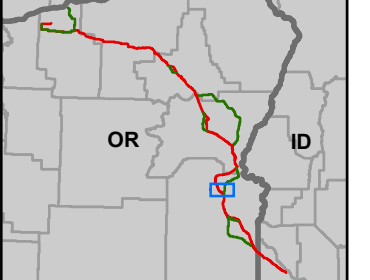
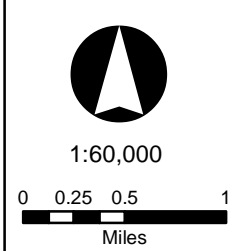
FIGURE 20 SPECIAL STATUS PLANT SURVEY RESULTS
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		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



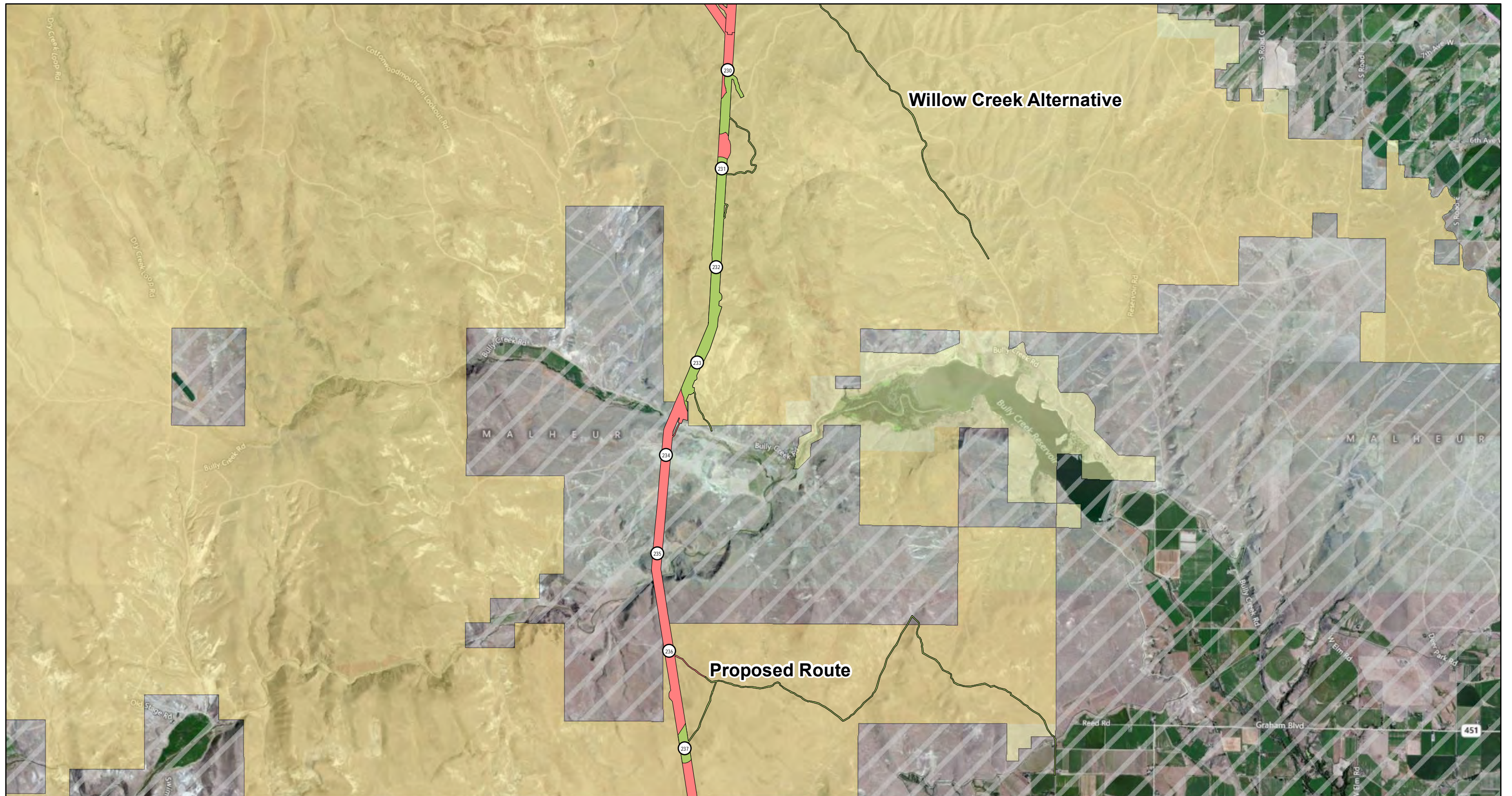


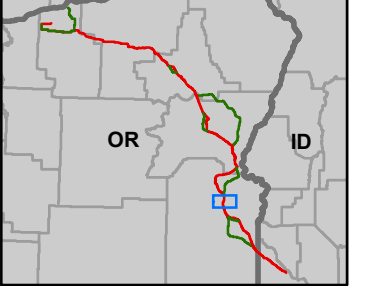
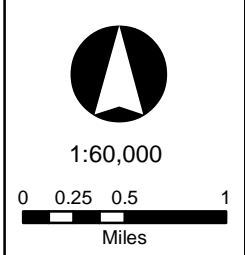
FIGURE 21 SPECIAL STATUS PLANT SURVEY RESULTS
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Special Status Plants Observed		Land Ownership	
■ Surveyed Area	● Calcareous buckwheat	■ Bureau of Land Management	■ Other Federal
■ Unsurveyed Area	■ Cronquist's stickseed	■ Bureau of Reclamation	■ Private
62 Milepost	▲ Cusick's false yarrow	■ Department of Defense	■ State
 County Boundary	★ Smooth mentzelia	■ CTUIR Lands	■ U.S. Fish and Wildlife
 State Boundary	★ Douglas' clover	■ National Park Service	■ U.S. Forest Service
	● Janish's penstemon		
	■ Malheur cryptantha		
	▲ Biennial stanleya		
	★ Snake River goldenweed		



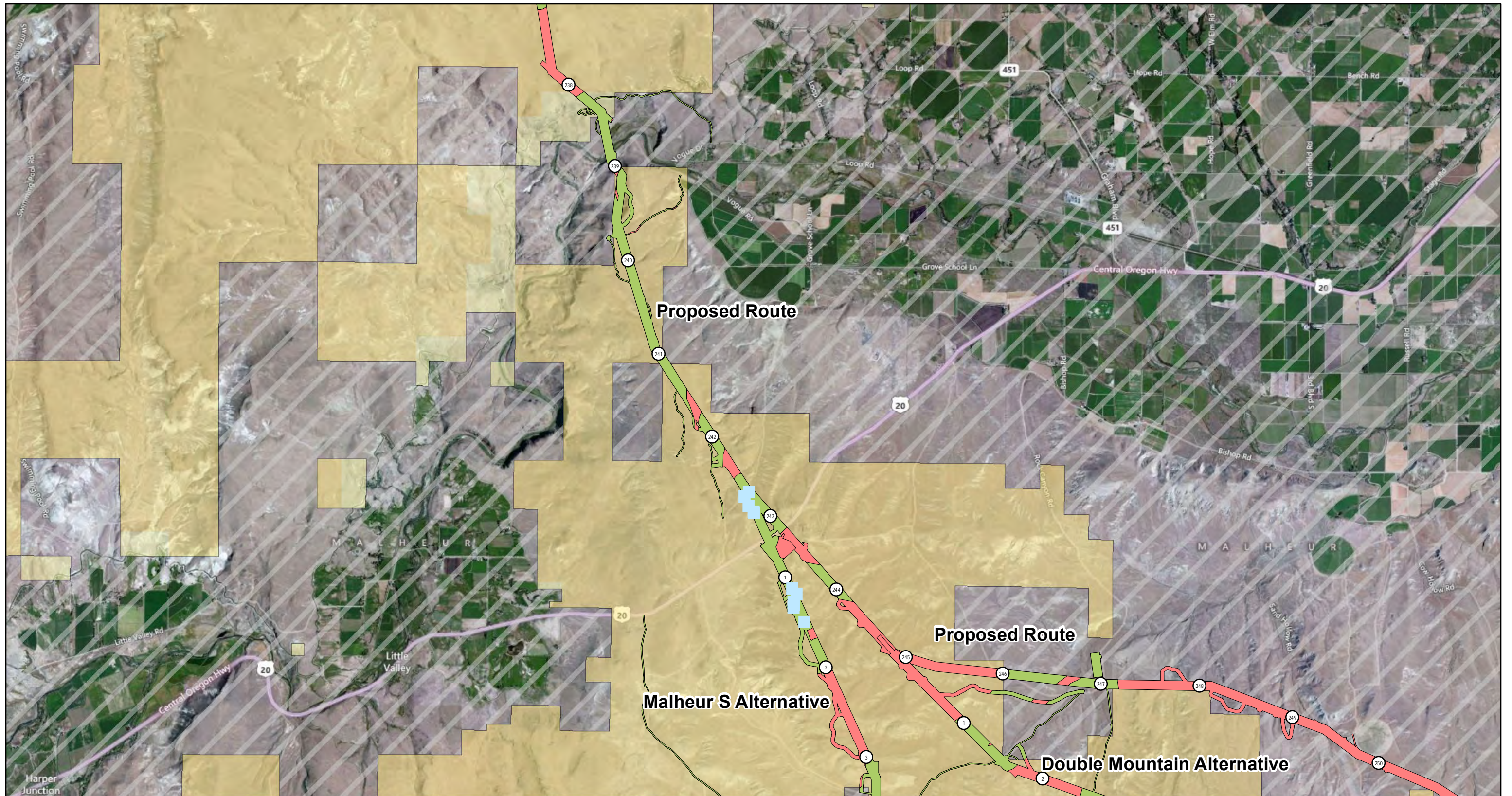


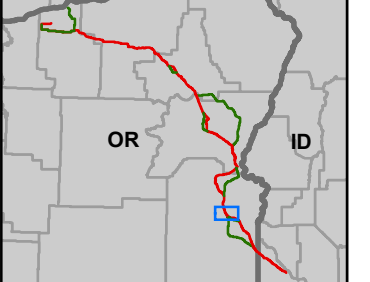
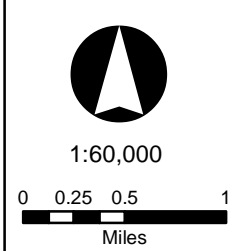
FIGURE 22 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



Special Status Plants Observed		Land Ownership	
■ Surveyed Area	● Calcareous buckwheat	■ Bureau of Land Management	■ Other Federal
■ Unsurveyed Area	■ Cronquist's stickseed	■ Bureau of Reclamation	■ Private
62 Milepost	▲ Cusick's false yarrow	■ Department of Defense	■ State
 County Boundary	★ Smooth mentzelia	■ CTUIR Lands	■ U.S. Fish and Wildlife
 State Boundary	★ Douglas' clover	■ National Park Service	■ U.S. Forest Service
	● Janish's penstemon		
	■ Malheur cryptantha		
	▲ Biennial stanleya		
	● Snake River goldenweed		



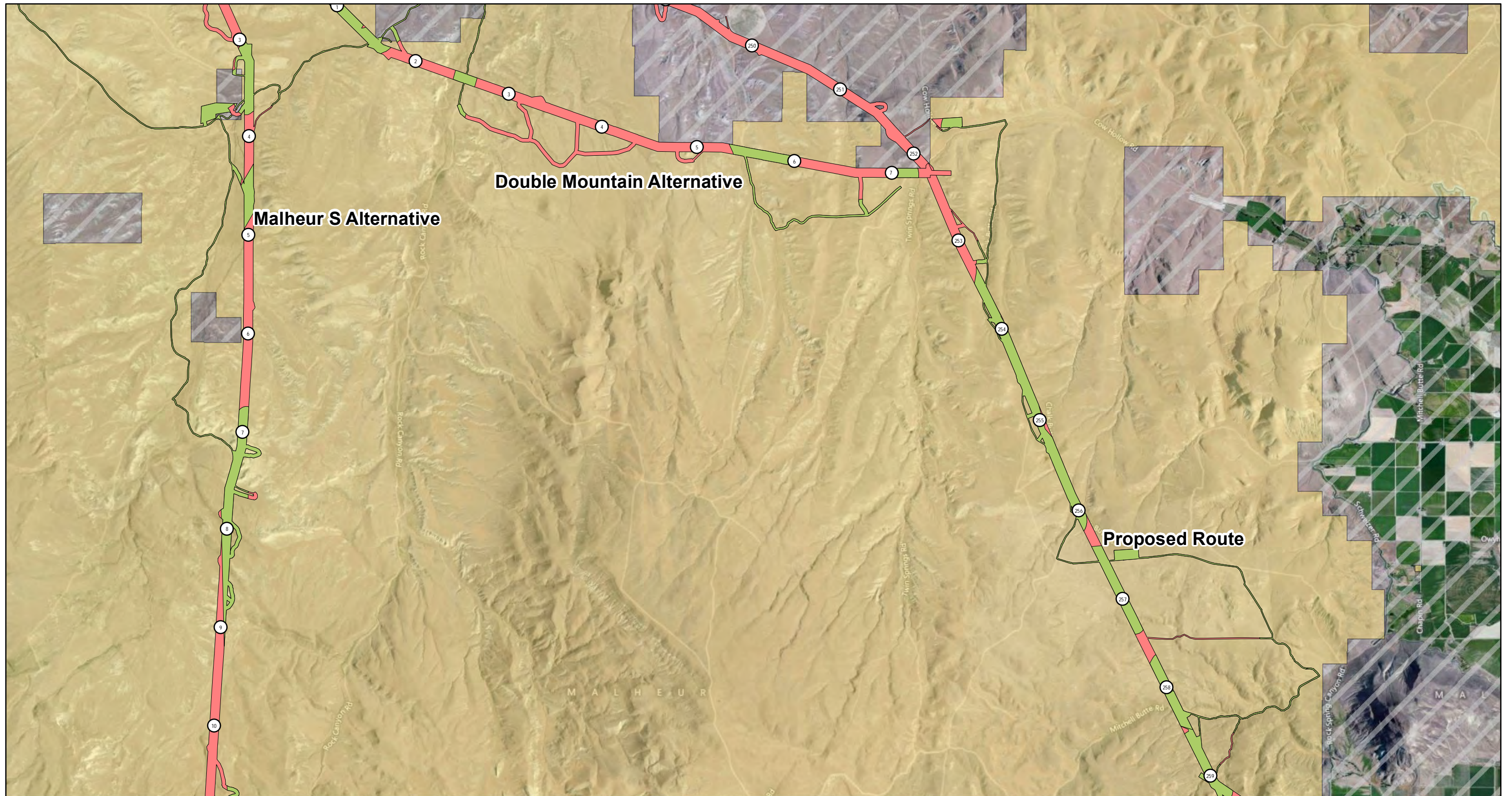


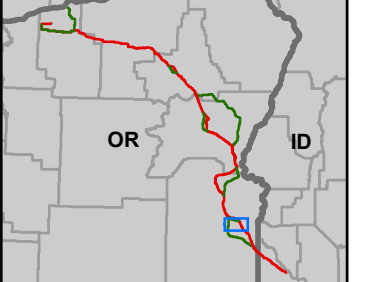
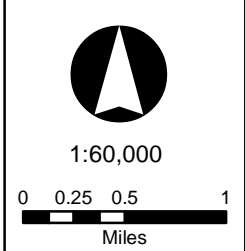
FIGURE 23 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
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	■ Malheur cryptantha		
	▲ Biennial stanleya		
	★ Smooth mentzelia		
	● Snake River goldenweed		



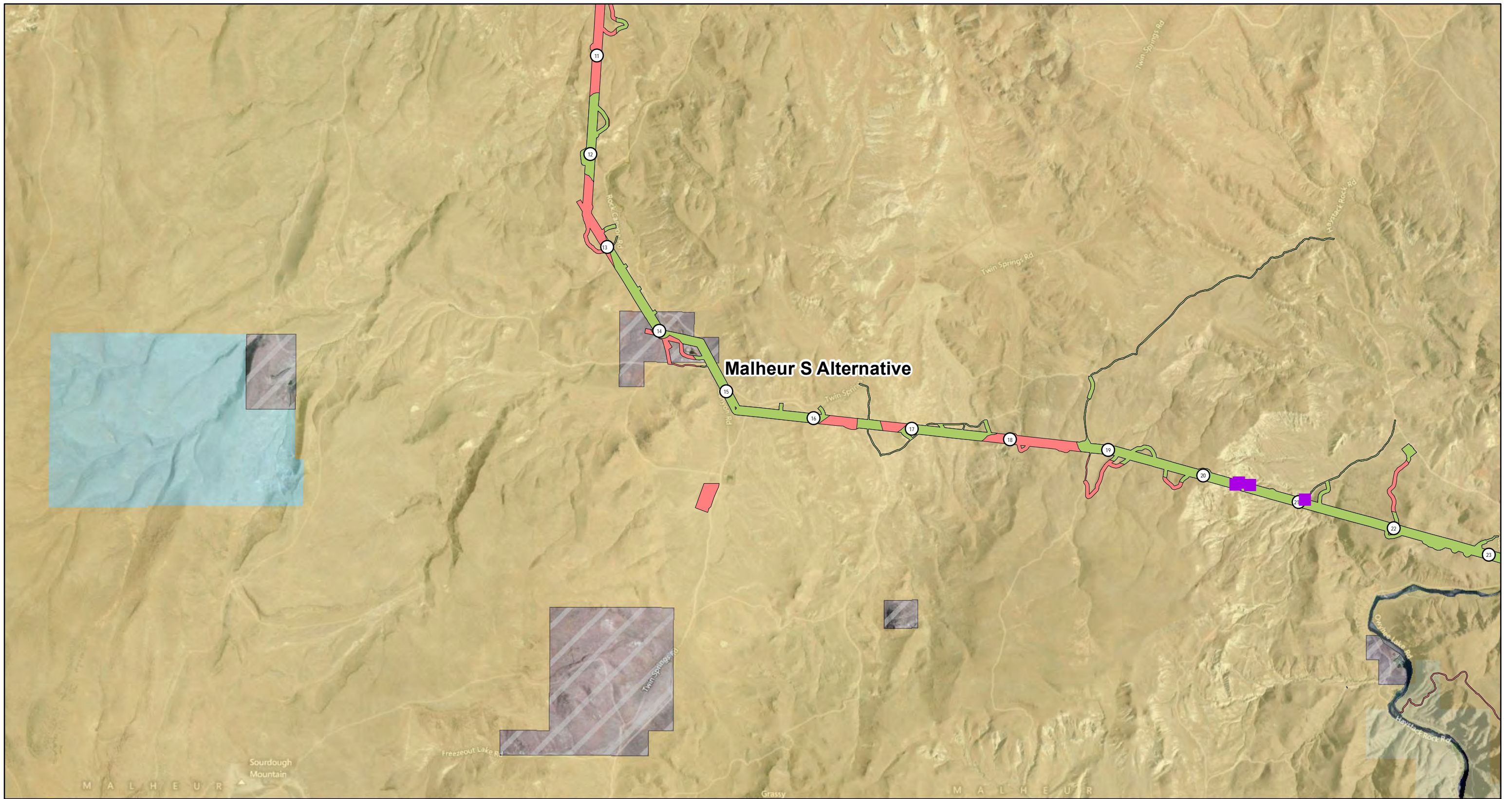


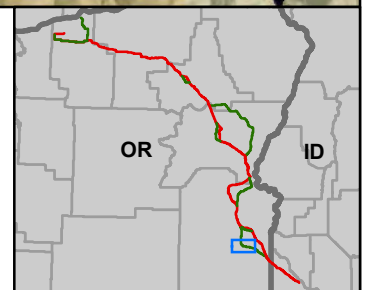
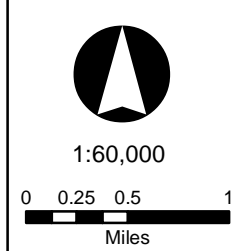
FIGURE 24 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



Special Status Plants Observed			Land Ownership		
Surveyed Area	Calcareous buckwheat	Malheur cryptantha	Bureau of Land Management	Other Federal	
Unsurveyed Area	Cronquist's stickseed	Biennial stanleya	Bureau of Reclamation	Private	
Milepost	Cusick's false yarrow	Smooth mentzelia	Department of Defense	State	
County Boundary	Douglas' clover	Snake River goldenweed	CTUIR Lands	U.S. Fish and Wildlife	
State Boundary	Janish's penstemon		National Park Service	U.S. Forest Service	



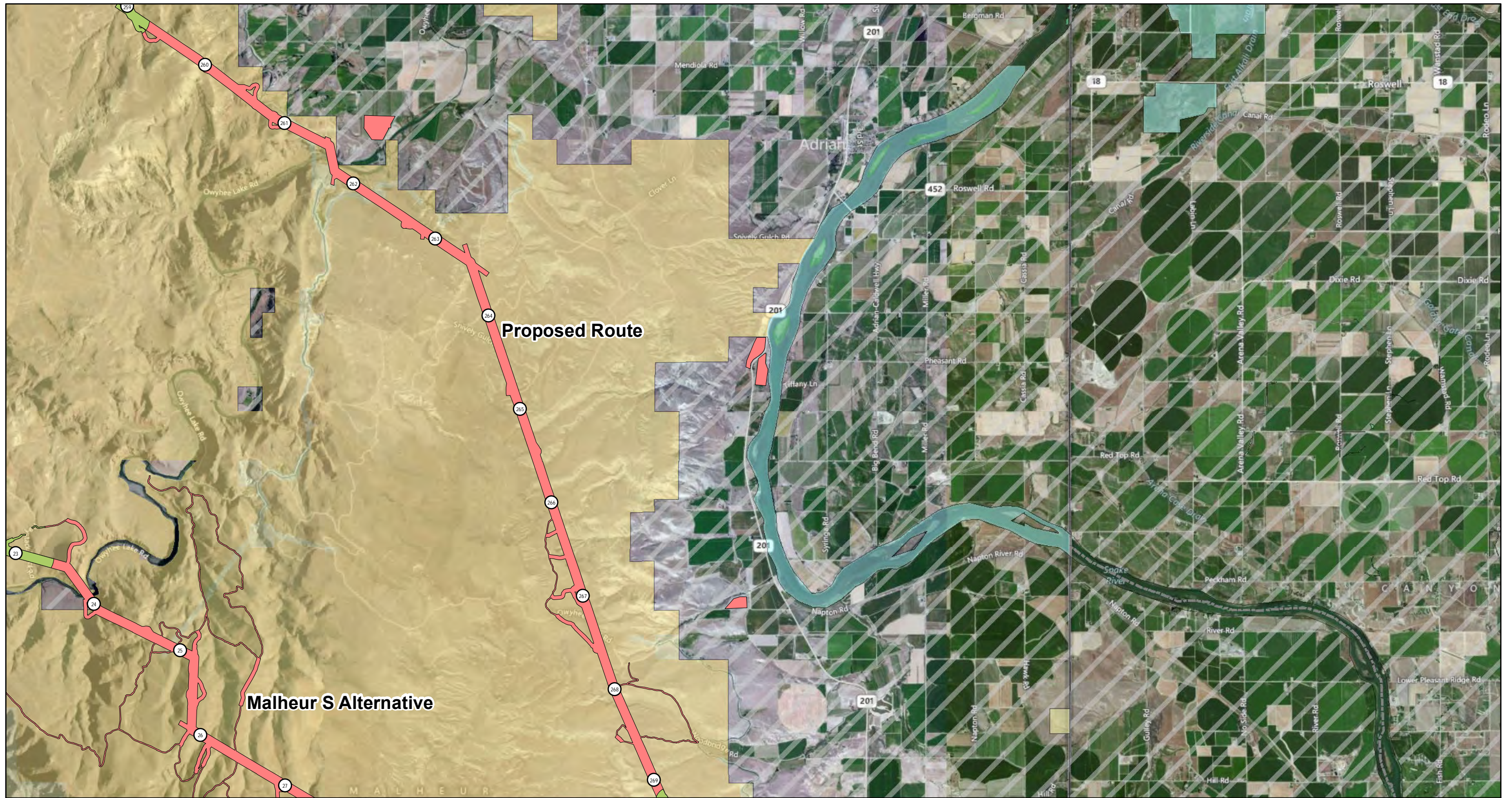


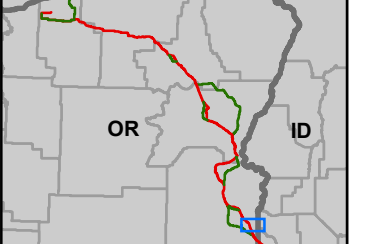
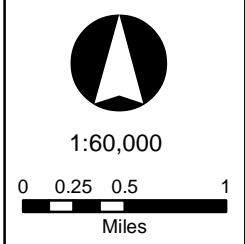
FIGURE 25 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Biennial stanleya	National Park Service	U.S. Forest Service
	Smooth mentzelia		
	Snake River goldenweed		
	Janish's penstemon		
	Malheur cryptantha		



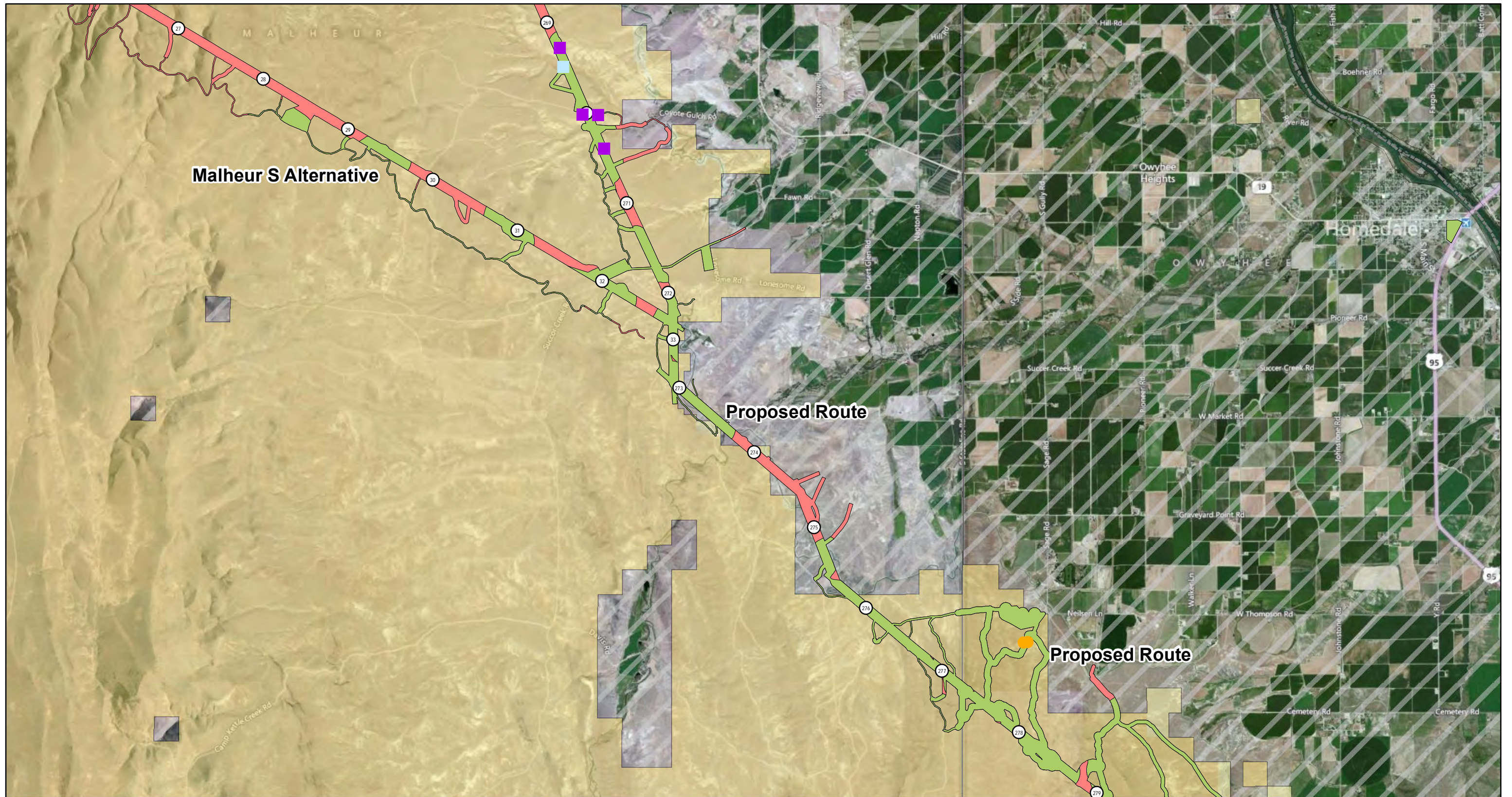


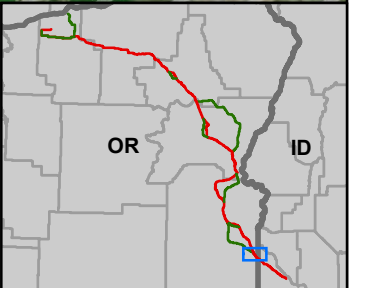
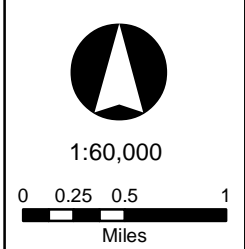
FIGURE 26 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



Special Status Plants Observed		Land Ownership	
Surveyed Area	Calcareous buckwheat	Bureau of Land Management	Other Federal
Unsurveyed Area	Cronquist's stickseed	Bureau of Reclamation	Private
Milepost	Cusick's false yarrow	Department of Defense	State
County Boundary	Douglas' clover	CTUIR Lands	U.S. Fish and Wildlife
State Boundary	Janish's penstemon	National Park Service	U.S. Forest Service
	Biennial stanleya		
	Smooth mentzelia		
	Snake River goldenweed		



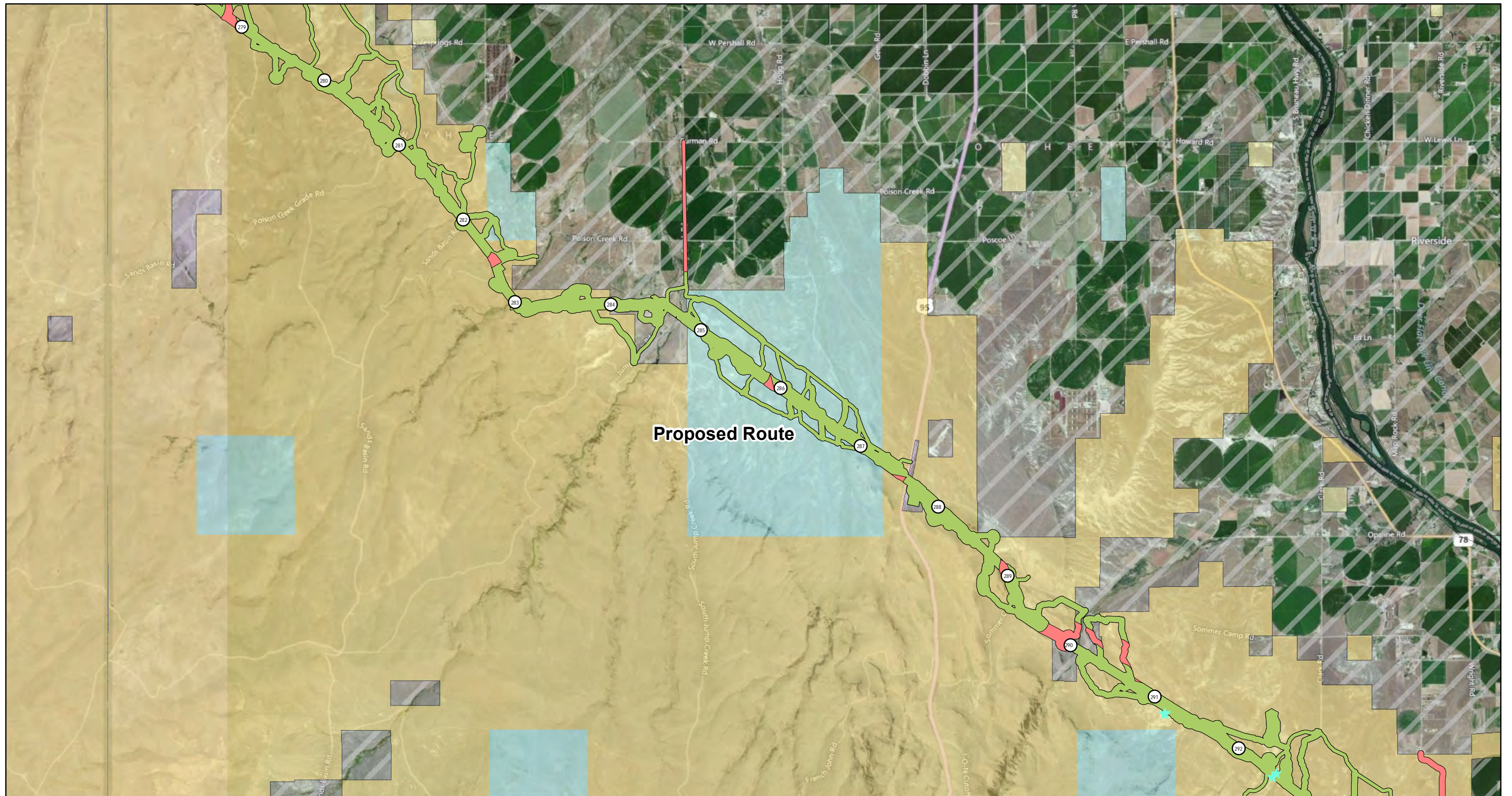


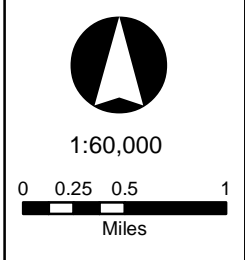
FIGURE 27 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership				
	Surveyed Area		Calcareous buckwheat		Malheur cryptantha		Bureau of Land Management		Other Federal
	Unsurveyed Area		Cronquist's stickseed		Biennial stanleya		Bureau of Reclamation		Private
	Milepost		Cusick's false yarrow		Smooth mentzelia		Department of Defense		State
	County Boundary		Douglas' clover		Snake River goldenweed		CTUIR Lands		U.S. Fish and Wildlife
	State Boundary		Janish's penstemon				National Park Service		U.S. Forest Service



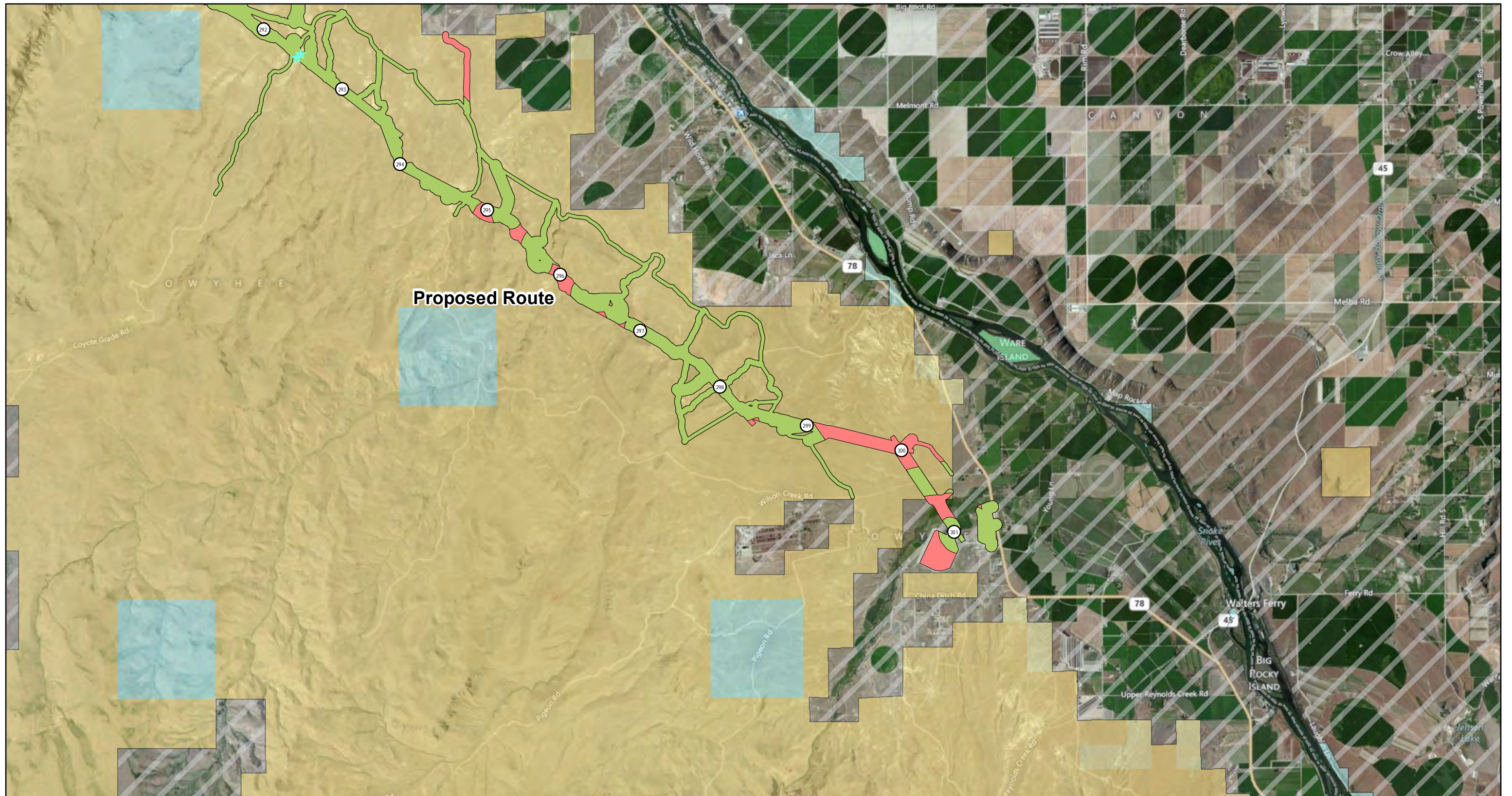


FIGURE 28 SPECIAL STATUS PLANT SURVEY RESULTS
DRAFT 2012 SPECIAL STATUS PLANT SURVEY
TECHNICAL REPORT

BOARDMAN TO HEMINGWAY
 500kV TRANSMISSION LINE PROJECT
 OREGON-IDAHO

NOVEMBER 2012



		Special Status Plants Observed			Land Ownership		
	Surveyed Area						Other Federal
	Unsurveyed Area						Private
62	Milepost						U.S. Fish and Wildlife
	County Boundary						U.S. Forest Service
	State Boundary						
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							
							

**APPENDIX A
SPECIAL STATUS PLANT SPECIES INCLUDED IN
2012 SURVEYS**

Special Status Plant Species Included in 2012 Surveys

Scientific Name	Common Name	Bloom/Survey Period					Counties					
		Survey 1 April	Survey 2 May	Survey 3 June	Survey 4 July	Non- targeted Survey (TVES or Wetland)	Owyhee	Malheur	Baker	Union	Umatilla	Morrow
<i>Artemisia packardiae</i> ^a	Packard's wormwood	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Astragalus conjunctus</i> ^b	Stiff milkvetch	No Survey	Not Found	Not Found	Not Found	-	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed
<i>Astragalus cusickii</i> var. <i>sterilis</i> ^{c,d}	Sterile milk-vetch	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Astragalus mulfordiae</i> ^{b,c,e}	Mulford's milk-vetch	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Astragalus purshii</i> var. <i>ophinogenes</i> ^b	Snake River milkvetch	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Botrychium hesperium</i> ^{c,f}	Western moonwort	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	No Survey
<i>Botrychium montanum</i> ^{c,f}	Mountain grape-fern	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	No Survey
<i>Carex retrorsa</i> ^{c,f}	Retorse sedge	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	No Survey
<i>Chaenactis cusickii</i> ^b	Cusick's false yarrow	No Survey	Found	Not Found	No Survey	-	Surveyed- Found	Surveyed- Found	Surveyed	No Survey	No Survey	No Survey
<i>Chaenactis stevioides</i> ^b	Desert pincushion	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Cryptantha propria</i> ^b	Malheur cryptantha	No Survey	Found	Not Found	No Survey	-	Surveyed	Surveyed- Found	Surveyed	No Survey	No Survey	No Survey
<i>Cymopterus acaulis</i> var. <i>greeleyorum</i> ^{b,c}	Greeley's cymopterus	Not Found	No Survey	No Survey	No Survey	-	No Survey	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Dimeresia howellii</i> ^p	Doublet	No Survey	Not Found	Not Found	No Survey	-	Surveyed	Surveyed	Surveyed	No Survey	No Survey	No Survey
<i>Eatonella nivea</i> ^a	White false tickhead	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Eriogonum chrysops</i> ^{b,d}	Golden buckwheat	No Survey	Not Found	Not Found	No Survey	-	Surveyed	Surveyed	Surveyed	No Survey	No Survey	No Survey
<i>Eriogonum ochrocephalum</i> var. <i>calcareum</i> ^b	Calcareous buckwheat	No Survey	Not Found	Found	Not Found	-	Surveyed	Surveyed	Surveyed- Found	Surveyed	No Survey	No Survey
<i>Glyptopleura marginata</i> ^b	White-margined wax plant	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Hackelia cronquistii</i> ^{b,c,d}	Cronquist's stickseed	No Survey	Found	Not Found	No Survey	Found	Surveyed	Surveyed- Found	Surveyed	No Survey	No Survey	No Survey
<i>Heliotropium curvassavicum</i> ^{c,f}	Salt heliotrope	No Survey	Not Found	Not Found	Not Found	-	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed
<i>Lepidium davisii</i> ^{b,c,d}	Davis' peppergrass	No Survey	Not Found	Not Found	No Survey	-	Surveyed	Surveyed	Surveyed	No Survey	No Survey	No Survey
<i>Lepidium papilliferum</i> ^{b,g}	Slickspot peppergrass	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Lomatium erythrocarpum</i> ^{c,e,f}	Red-fruited lomatium	No Survey	No Survey	Not Found	No Survey	-	No Survey	No Survey	Surveyed	No Survey	No Survey	No Survey
<i>Lomatium packardiae</i> ^b	Packard's desert parsley	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Lomatium roseanum</i> ^c	Rose's lomatium	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Lophozia gillmanii</i> ^{c,f}	Liverwort	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	Surveyed
<i>Lupinus lepidus</i> var. <i>cusickii</i> ^{c,e}	Cusick's lupine	No Survey	Not Found	Not Found	Not Found	-	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed	No Survey
<i>Mentzelia mollis</i> ^{b,c,e}	Smooth mentzelia	No Survey	Found	No Survey	No Survey	-	Surveyed- Found	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Mentzelia packardiae</i> ^h	Packard's mentzelia	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Mirabilis laevis</i> var. <i>retorsa</i>	Bigelow's four-o'clock	No Survey	Not found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey

Special Status Plant Species Included in 2012 Surveys

Scientific Name	Common Name	Bloom/Survey Period					Counties					
		Survey 1 April	Survey 2 May	Survey 3 June	Survey 4 July	Non- targeted Survey (TVES or Wetland)	Owyhee	Malheur	Baker	Union	Umatilla	Morrow
<i>Nemacladus rigidus</i> ^b	Rigid threadbush	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Pediocactus simpsonii</i> ^b	Simpson's hedgehog cactus	No Survey	Not Found	Not Found	Not Found	-	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed
<i>Penstemon janishiae</i> ^b	Janish's penstemon	No Survey	Found	No Survey	No Survey	-	Surveyed- Found	Surveyed- Found	No Survey	No Survey	No Survey	No Survey
<i>Phacelia lutea</i> var. <i>calva</i> ^b	Malheur yellow phacelia	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Phacelia minutissima</i> ^b	Least phacelia	No Survey	Not Found	Not Found	Not Found	-	Surveyed	Surveyed	Surveyed	Surveyed	No Survey	No Survey
<i>Phlox multiflora</i> ^{c,f}	Many-flowered phlox	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	Surveyed
<i>Pleuropogon oregonus</i> ^{c,d,f}	Oregon semaphoregrass	No Survey	No Survey	Not Found	Not Found	-	No Survey	No Survey	Surveyed	Surveyed	Surveyed	No Survey
<i>Psathyrotes annua</i> ^b	Turtleback	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Pyrrocoma radiata</i> ^{b,c,e}	Snake River goldenweed	No Survey	Not Found	Found	Not Found	Found	Surveyed	Surveyed	Surveyed- Found	Surveyed	Surveyed	No Survey
<i>Pyrrocoma scaberula</i> ^{a,c}	Rough goldenweed	No Survey	No Survey	No Survey	No Survey	-	See Footnote	See Footnote	See Footnote	See Footnote	See Footnote	See Footnote
<i>Sairocarpus kingii</i>	Least snapdragon	No Survey	Not Found	Not Found	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey
<i>Stanleya confertifolia</i> ^{b,c}	Biennial stanleya	No Survey	Not Found	Found	No Survey	-	Surveyed	Surveyed	Surveyed- Found	No Survey	No Survey	No Survey
<i>Thelypodium howellii</i> ssp. <i>spectabilis</i> ^{c,e,g,h}	Howell's spectacular thelopody	No Survey	Not Found	Not Found	Not Found	-	No Survey	Surveyed	Surveyed	Surveyed	Surveyed	Surveyed
<i>Trifolium douglasii</i> ^{b,c,f}	Douglas' clover	No Survey	No Survey	Not Found	Not Found	Found	No Survey	No Survey	Surveyed	Found during Non-targeted Survey	Surveyed	Surveyed
<i>Trifolium owyheense</i> ^{b,c,e}	Owyhee clover	No Survey	Not Found	No Survey	No Survey	-	Surveyed	Surveyed	No Survey	No Survey	No Survey	No Survey

*According to Mark Darrach, Threatened & Endangered Plant Species Program Manager for the Umatilla National Forest, co-author of *An investigation of morphological evidence supports the resurrection of *Pyrrocoma scaberula** (Björk, C. R., and M. Darrach. 2009. Journal of the Botanical Research Institute of Texas 3:231–238.), the species would not occur anywhere near the project area.

^aThis species is not a federal- or state-listed species or a BLM/USFS sensitive species. It has been included at the request of the BLM.

^bIdaho BLM sensitive

^cOregon BLM sensitive

^dOregon state threatened

^eOregon state endangered

^fUSFS sensitive

^gFederally listed threatened

^hOregon strategic species

APPENDIX B
PHOTOGRAPHS OF SPECIAL STATUS PLANT
SPECIES IDENTIFIED IN 2012 SURVEYS



2012-05-06 16:28Z
Lat: 43° 48' 18.3172" N
Lon: 117° 24' 52.8970" W
Chaenactis cusickii-Malheur S MP 7.4



2012-05-08 11:52 AM
Lat: 43° 61' 20.4217" N
Lon: 117° 11' 84.1167" W
Chaenactis cusickii-Malheur S MP 31.1



2012-05-08 1:57 PM
Lat: 43° 38' 34.7376" N
Lon: 117° 6' 29.0952" W
Cryptantha propria-MP 269.2



2012-05-08 2:43 PM
Lat: 43° 37' 59.4058" N
Lon: 117° 6' 12.3650" W
Cryptantha propria-MP MP 270



2012-05-05 19:34Z
Lat: 43° 53' 32.9484" N
Lon: 117° 25' 49.1274" W
Cryptantha propria-Malheur S MP 1.1



2012-05-07 17:46Z
Lat: 43° 41' 25.0308" N
Lon: 117° 25' 25.56" W
Cryptantha propria-Malheur S MP 20.3



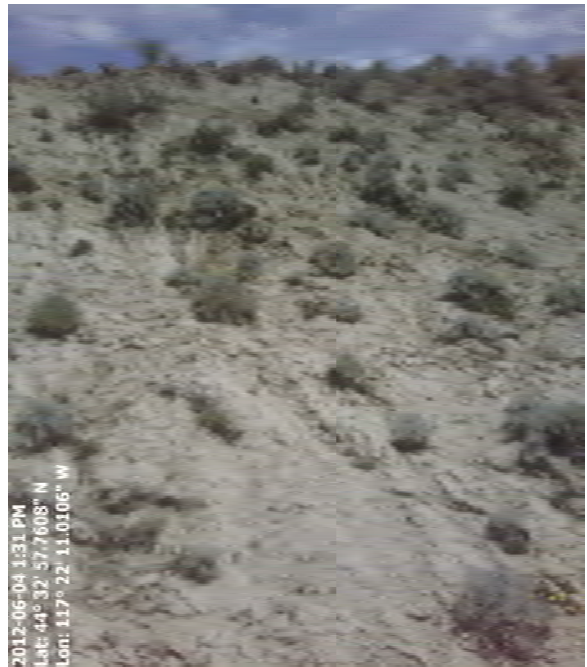
Crytantha propria- Malheur S MP 20.5



Crytantha propria- Malheur S MP 21



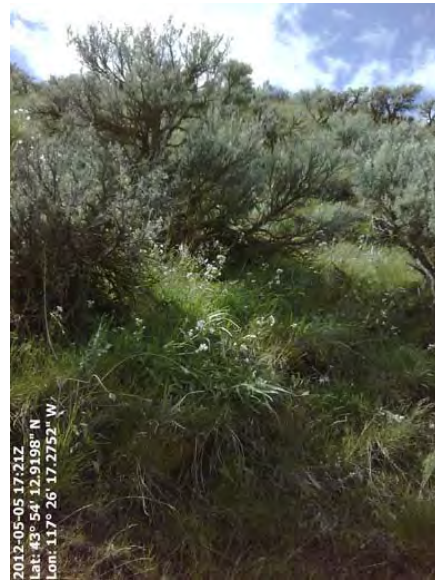
Eriogonum ochrocephalum var. *calcareum*-MP 180.3



Eriogonum ochrocephalum var. *calcareum*-MP 184.3



Eriogonum ochrocephalum var. *calcareum*-MP 184.5



Hackelia cronquistii-Malheur S MP 0.2



Hackelia cronquistii-Malheur S MP 1.2



Mentzellia mollis-MP 292.5



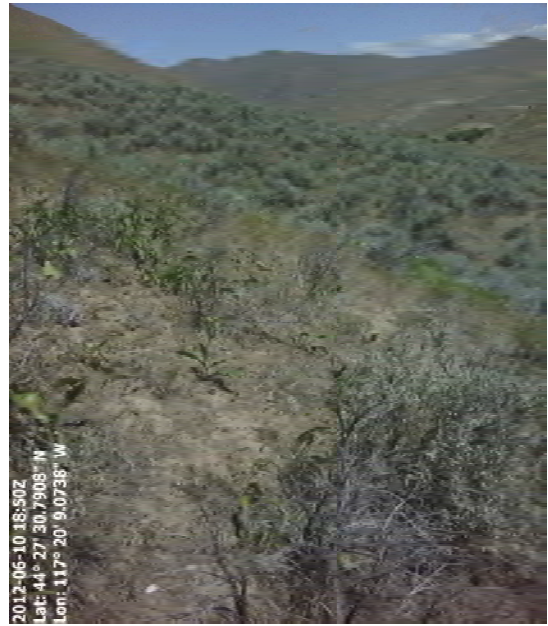
Penstemon janishiae-MP 277.5 (Access Road)



Penstemon janishiae-MP 277.5 (Access Road)



Pyrrocoma radiata-MP 187.1



Pyrrocoma radiata-MP 191.2



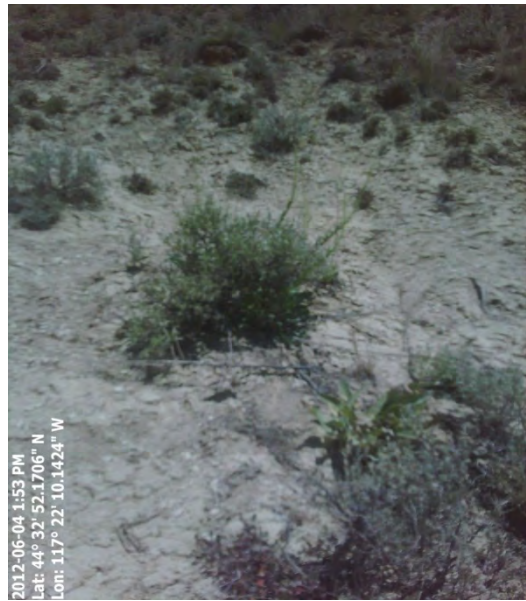
Pyrrocoma radiata-MP 193.6



Pyrrocoma radiata-MP 193.9



Pyrrcoma radiata-138/69kV Rebuild MP 4.3



Stanleya confertifolia-MP 184.5



Trifolium douglasii-MP 130.4