

3.3 VEGETATION, SPECIAL STATUS PLANT SPECIES, AND NOXIOUS WEEDS

This section presents information about the existing environment and potential effects from the Project, and proposes mitigation for Project effects to vegetation, special status plant species, and noxious weeds in the Project Area. Potential effects from the Project would include permanent and temporary effects to native vegetation communities from vegetation removal, trampling, and treatments for noxious weeds. One or more special status plant species could be affected by Project construction and operation if such species are present in proposed construction areas. The Proposed Action (including the two options for the Proposed Action), alternatives, and the No Action Alternative were evaluated as part of this analysis.

3.3.1 Methodology

The evaluation was conducted using BLM planning documents, Project-specific field studies, digital data sources, and previously conducted studies. Sources reviewed included:

- Proposed Three Rivers Resource Management Plan and Final Environmental Impact Statement (BLM 1991).
- Three Rivers Resource Management Plan, Record of Decision, and Rangeland Program Summary (BLM 1992).
- Noxious Weed Management Program Environmental Assessment (BLM 1998).
- Decision Record/Finding of No Significant Impact for Noxious Weed Management Program (BLM 1998).
- Andrews Management Unit/Steens Mountain Cooperative Management and Protection Area Proposed Resource Management Plan/Final Environmental Impact Statement (BLM 2004).
- Steens Mountain Cooperative Management and Protection Area Record of Decision and Resource Management Plan (BLM 2005).
- BLM Current Vegetative Cover, mapped from 1984 to 1991 as part of the Ecological Site Inventory (ESI) for the Burns District (BLM 2003).
- Oregon Biodiversity Information Center (formerly Natural Heritage Information Center Ecological Systems) Map of Oregon, which links previous GAP vegetation mapping to the National Vegetation Classification System (ONHIC 2008).
- Northwest Wildlife Consultants, Inc. (NWC). Echanis Wind Energy Project Initial Wildlife/Vegetation Reconnaissance. Harney County, Oregon. Unpublished report prepared for Columbia Energy Partners, LLC. August 31, 2007.
- Echanis Wind Project Special Status Plant Surveys, Summer 2008 (draft) (NWC 2008). Echanis Transmission Line West Alternative (2010e) and North Alternative (2010r) Wildlife Habitat Mapping, Harney County, Oregon (NWC 2010e).
- Echanis Transmission Line (West Alternative) 2009 Special Status Plant Species Investigation, Harney County, Oregon (NWC 2010b).

Project-specific wildlife habitat (plant community) mapping was completed for the Echanis Project site in 2008 and for Alternatives B and C in 2010. Data that were outstanding when the DEIS was published, but were added to this FEIS, include special status plant and wildlife surveys as well as wildlife habitat (plant community) mapping along Alternative C.

For the wildlife habitat mapping, initial habitat boundaries were delineated within this Project boundary at a scale of 1:5,000 in a digital GIS environment using 1-meter resolution 2005 orthophotographs (Alternative B:

NAIP, 2005; image dates July 8 and 10, 2005; Alternative C: image dates July 8 and 10, 2005, USDA-FSA 2005; July 20, 26, and 27, 2009; USDA-FSA 2009). Initial boundaries were delineated based upon obvious differences in vegetation, land form, and land use. Overlay of USGS digital elevation model (DEM) data, hydrology, and transportation layers aided with these delineations. Habitat structure and composition were assessed in conjunction with 2010 special status plant (NWC 2010f, 2010o, and 2008a), wildlife ground surveys (NWC 2007b, 2008b, 2009e), and 2009–2010 avian use surveys (NWC 2010l, 2010p). These field assessments were applied to the fall 2010 digital delineation. Polygon boundaries were subsequently verified by visits to the Project site between July 17 and August 8, 2008 (Alternative B) and spring and summer 2010 (Alternative C). The purpose for conducting the field assessments was to accurately classify the habitat types present, and to ground-truth habitat type boundaries. Any necessary boundary corrections were hand drawn on orthophoto topographic maps in the field and later transferred to the digital boundary layer. The mapping effort included reconnaissance sampling for species composition and cover, to assess dominant, co-dominant, and other common plant species within each habitat type.

The vegetation community descriptions provided below address the types inside of the narrow mapping corridor. However, they include the general setting of the mapped area within the context of adjacent vegetation and functionality in the immediate landscape. Habitats were typed from the perspective of dominant vegetation and wildlife use, both general (for species assemblages, i.e., shrub-steppe obligates) and specific (for individual species). Wildlife species of interest were vertebrate species native to Oregon, with an emphasis upon species having special state or federal status (a list of these can be found in NWC 2010n). Habitat types were designated to be consistent with Conservation Strategy Habitats, as described by the ODFW (2006), and thus followed a wildlife-use approach to vegetative habitat delineation, with some practical considerations related to mapping scale.

Project specific vegetation mapping was completed only for Alternative B—West Route, data from two other sources were used to categorize the vegetation at the Echanis site and the other transmission line alternatives. BLM vegetation data were used for much of this area (BLM 2003). Where the alternatives cross areas that are not included in the Project surveys or in the BLM data, the most recent available data from the Oregon GAP program were used (ONHIC 2008). Because these sources mapped vegetation with different approaches (from aerial interpretation only to comprehensive foot surveys), at different scales (from 640-acre sections to units less than 1 acre), and with correspondingly different accuracies, quantification of dominance percentages was not possible. Additionally, the data were developed, and in some cases, revised, over a period of 25 years. Appendix B shows how these data sets were incorporated into the vegetation types described in this section. The nomenclature that was used was based upon Mansfield (2000), with various other sources used for species not covered in his treatment.

For the purposes of this analysis, the Project Area was defined to include the area within the 150-foot wide transmission line right-of-way (ROW) and all areas affected by construction and operation of the transmission line, access roads, interconnection stations, substations, turbine towers, power collection systems, and other permanent and temporary Project features, including temporary laydown areas and tensioning sites for the Echanis Wind Energy Project (NWC 2008a), Alternative B – West Route (2010f), and Alternative C - North Route (2010o) Special Status Plant Surveys (NWC 2008a).

Special status plant surveys were conducted for the Echanis Project and Alternatives B and C. Surveys did not specifically address the Alternative B route options (i.e., South Diamond Lane and Hog Wallow). The field surveys covered 400-foot wide corridors centered on the proposed transmission line. Prior to the beginning of field surveys, a list of rare plant taxa with the greatest likelihood of occurrence at the Project site was compiled from information gathered from ORBIC, USFWS County list, and a list of all rare taxa known to occur in the general vicinity from existing data (Oregon Flora Project 2008; NWC 2008a, 2010f, and 2010o). The field surveys were concentrated upon plant communities considered, based upon this information, to be more likely to support the rare taxa likely to occur in the Project Area.

The analysis in this section was based upon information in the Plan of Development (POD) for the transmission line project (Columbia Energy Partners [CEP] 2009) and the Application for Conditional Use Permit for the Echanis Wind Farm (CEP 2007), along with supplemental information provided through personal communications with the Applicant.

The analysis in this section also considered comments received from the public during the public scoping process that occurred from July to September 2009 and the DEIS comment period from July to September 2010. In general, comments from local organizations and private citizens related to vegetation, special status plant species, and noxious weeds were focused upon the following key issues:

- Vegetation disturbance and subsequent invasion by nonnative plant species, particularly from access road development.
- Prevention of the spread of noxious weeds and chemicals used to treat them.
- Effects to rare plants.

3.3.2 Affected Environment

This section presents a summary of the vegetation, special status plant species, and noxious weed issues for the entire Project Area. The affected environments for the Proposed Action and action alternatives are presented together because of their proximity to each other and shared characteristics.

3.3.2.1 Vegetation

The Project Area is located within the EPA Level III Northern Great Basin and Range Ecoregion in southeastern Oregon. Four Level IV ecoregions are within the Project Area, including the High Desert Wetlands found in the MNWR, High Lava Plains around the MNWR vegetated by sagebrush and grasslands, Semiarid Uplands higher in elevation than the High Lava Plains and noted for the presence of juniper woodlands, and the Partly Forested Mountains zone that is above the juniper woodlands and is nearly treeless except for scattered groves of aspens. Lands within the Project Area are used for agriculture and cattle grazing, and a network of dirt-track and improved access roads cross the region. Most Project Area drainages flow to internal basins.

~~The Project lies at the northern end of the Northern Great Basin and Range ecoregion (Thorson, et al. 2003), most of the drainages flow to internal basins.~~ The Echanis Project would be located on private land on Steens Mountain. The transmission line alternatives would cross hills and lava beds, descending to the valley floors. Vegetation types on the Echanis Project site and along the transmission line alternatives would include grasslands, shrublands, woodlands, riparian and wetland communities, barren (sparsely vegetated) lands, agricultural lands, and developed areas. Typical species assemblages that occur in these vegetation types in the Project Area are described in this section.

The distribution of each vegetation type for the Echanis Project and for the transmission line alternatives are provided in Figures 3.3-1a through 3.3-1k, and acreages are provided in Table 3.3-1. However, much of the vegetation on the Echanis Project site and along the transmission line alternatives would be unaffected by the Project. The vegetation type is provided for each transmission line alternative and the Echanis Project site. Because of the scale of some of the vegetation data, it is possible that stands of a vegetation type that are smaller than the mapping limits might be present, but not shown, for an action alternative.

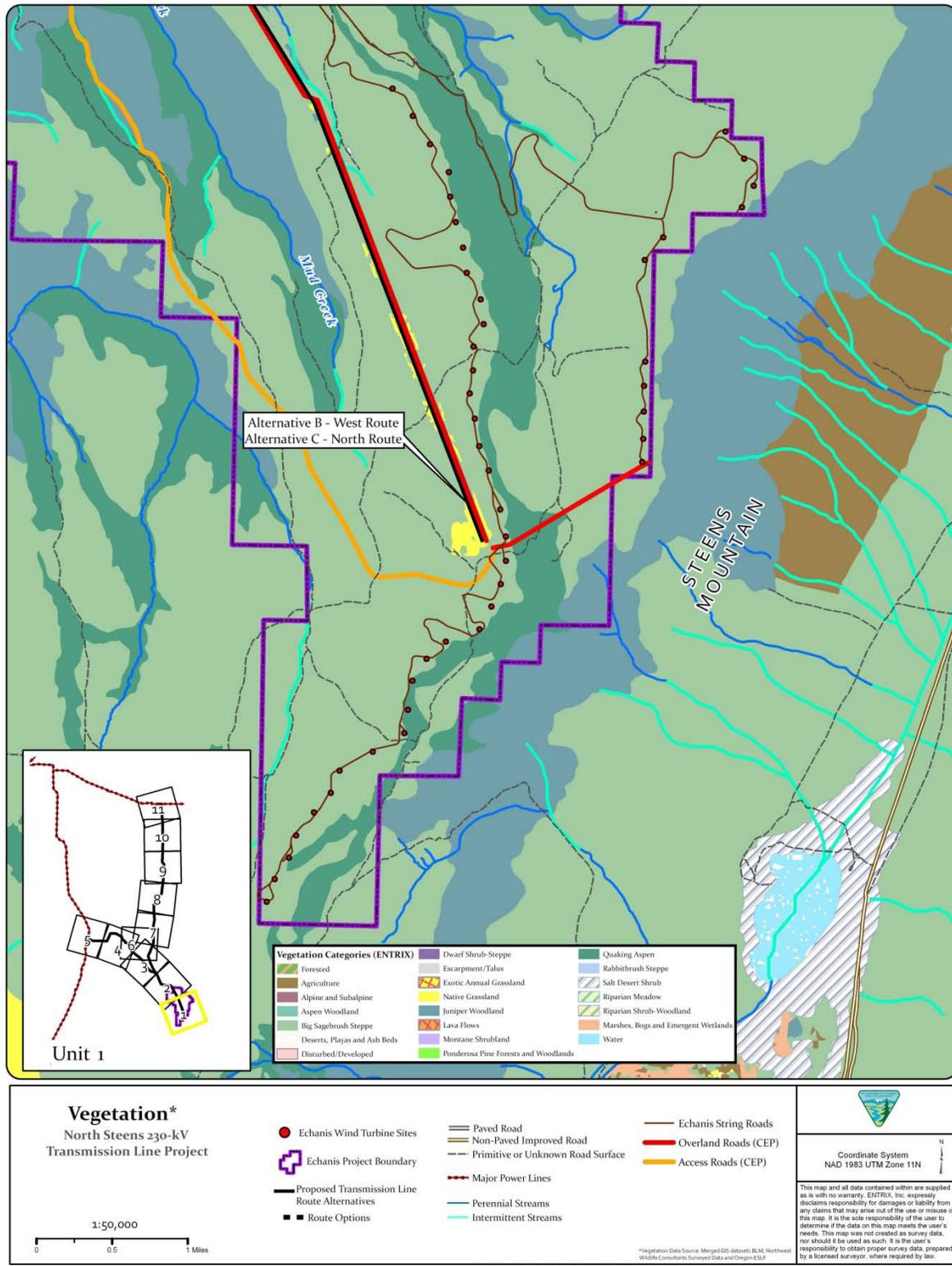


Figure 3.3-1a Vegetation along the Transmission Line ROWs, Unit 1 of 11.

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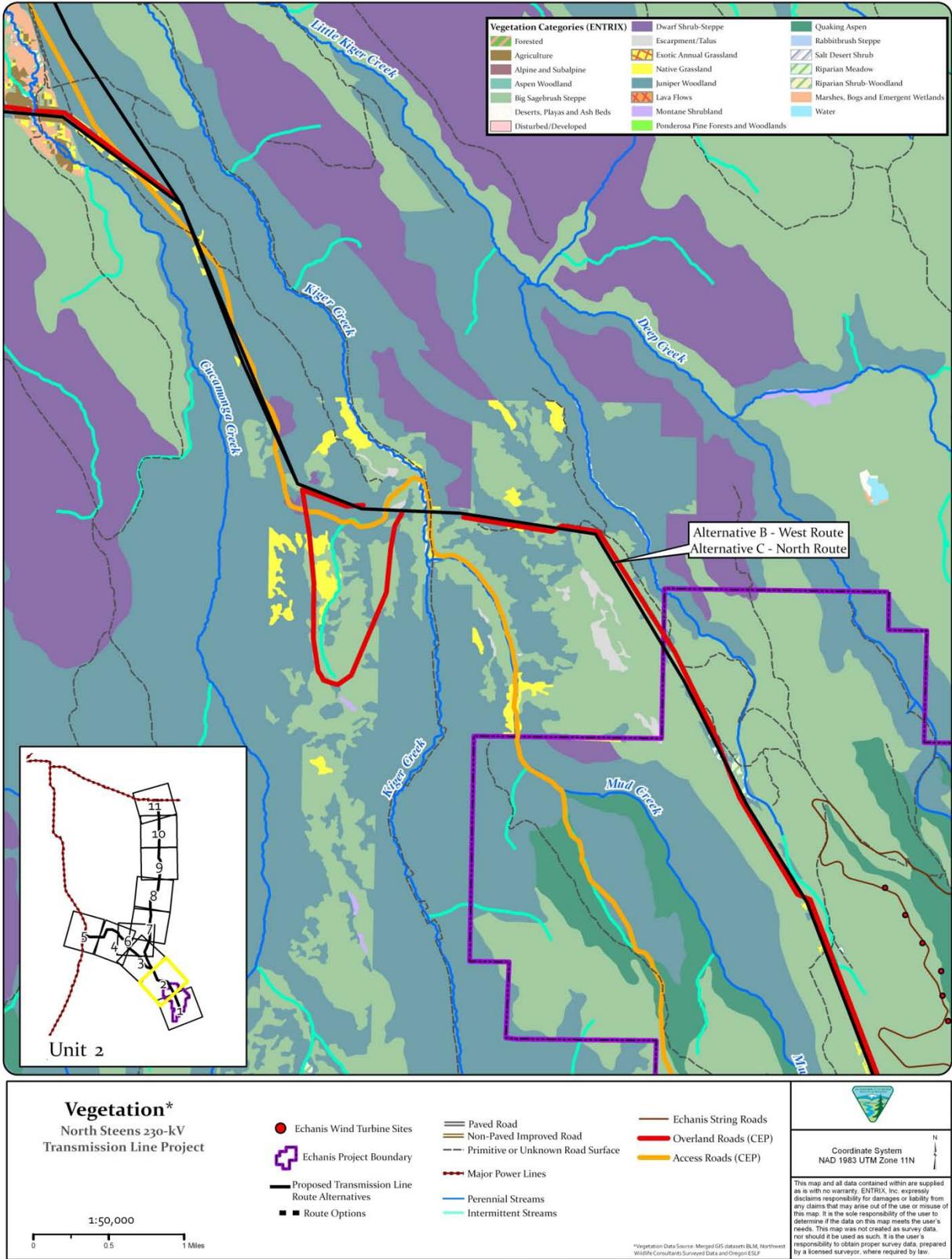


Figure 3.3-1b Vegetation along the Transmission Line ROWs, Unit 2 of 11.

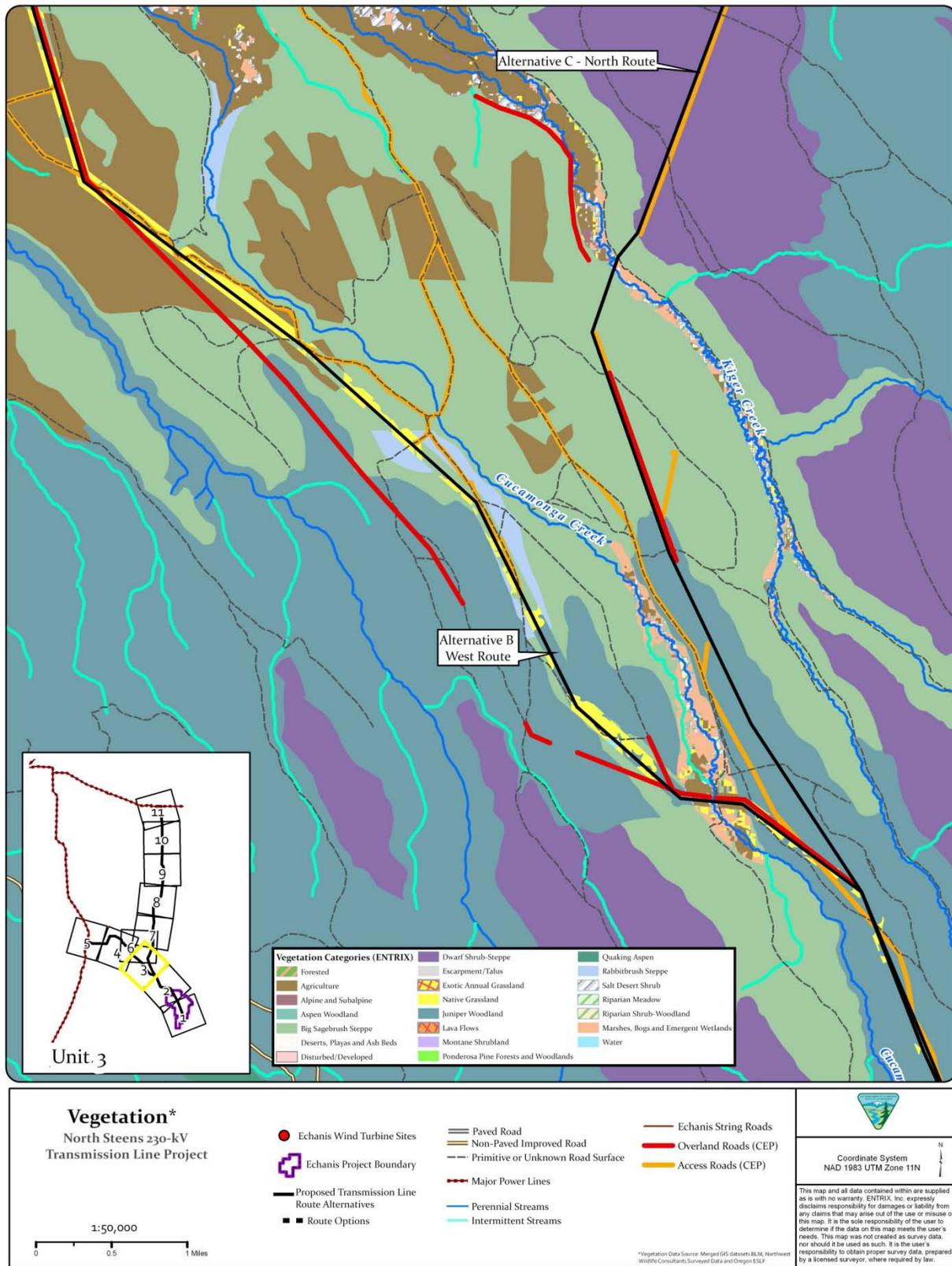


Figure 3.3-1c Vegetation along the Transmission Line ROWs, Unit 3 of 11.

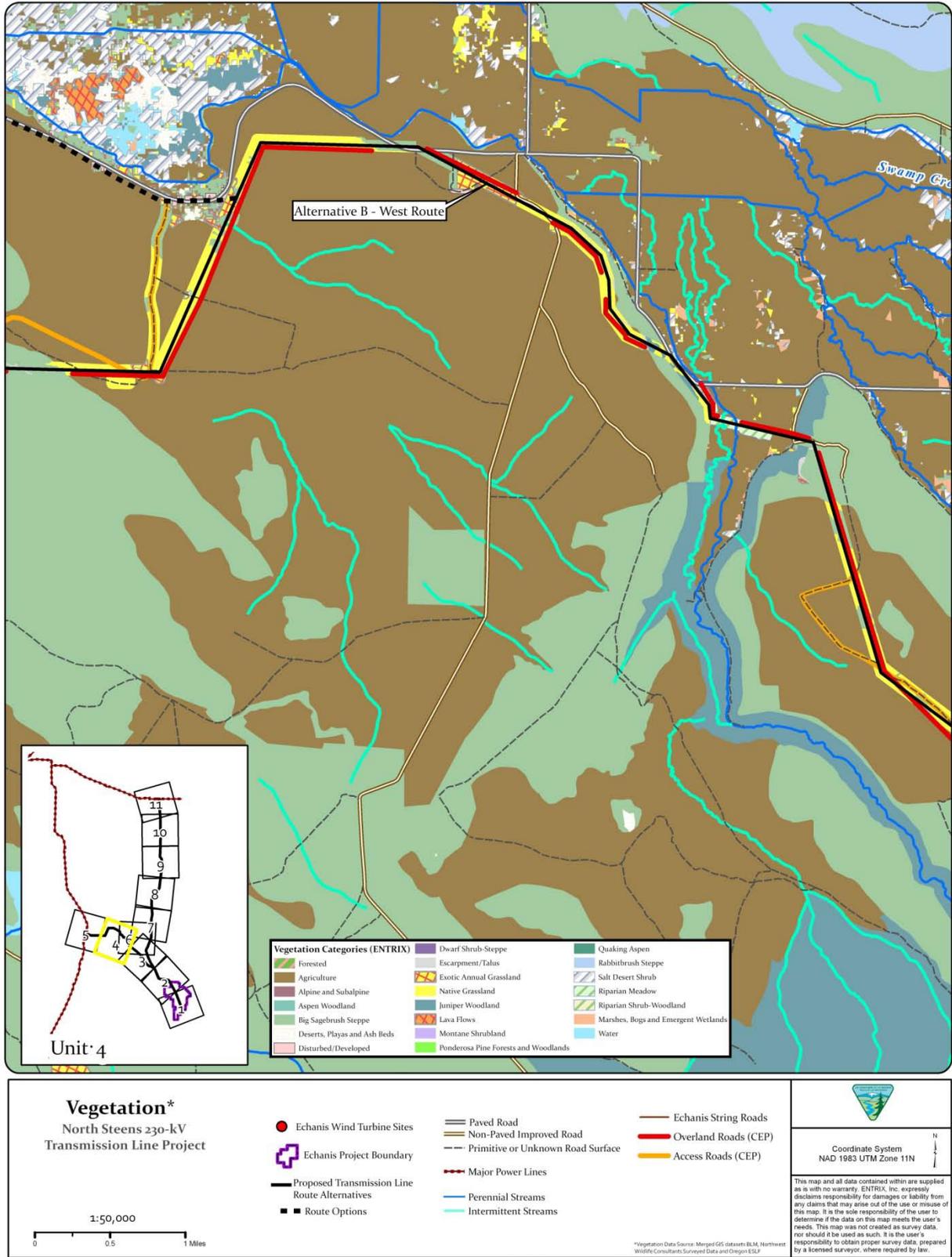


Figure 3.3-1d Vegetation along the Transmission Line ROWs, Unit 4 of 11.

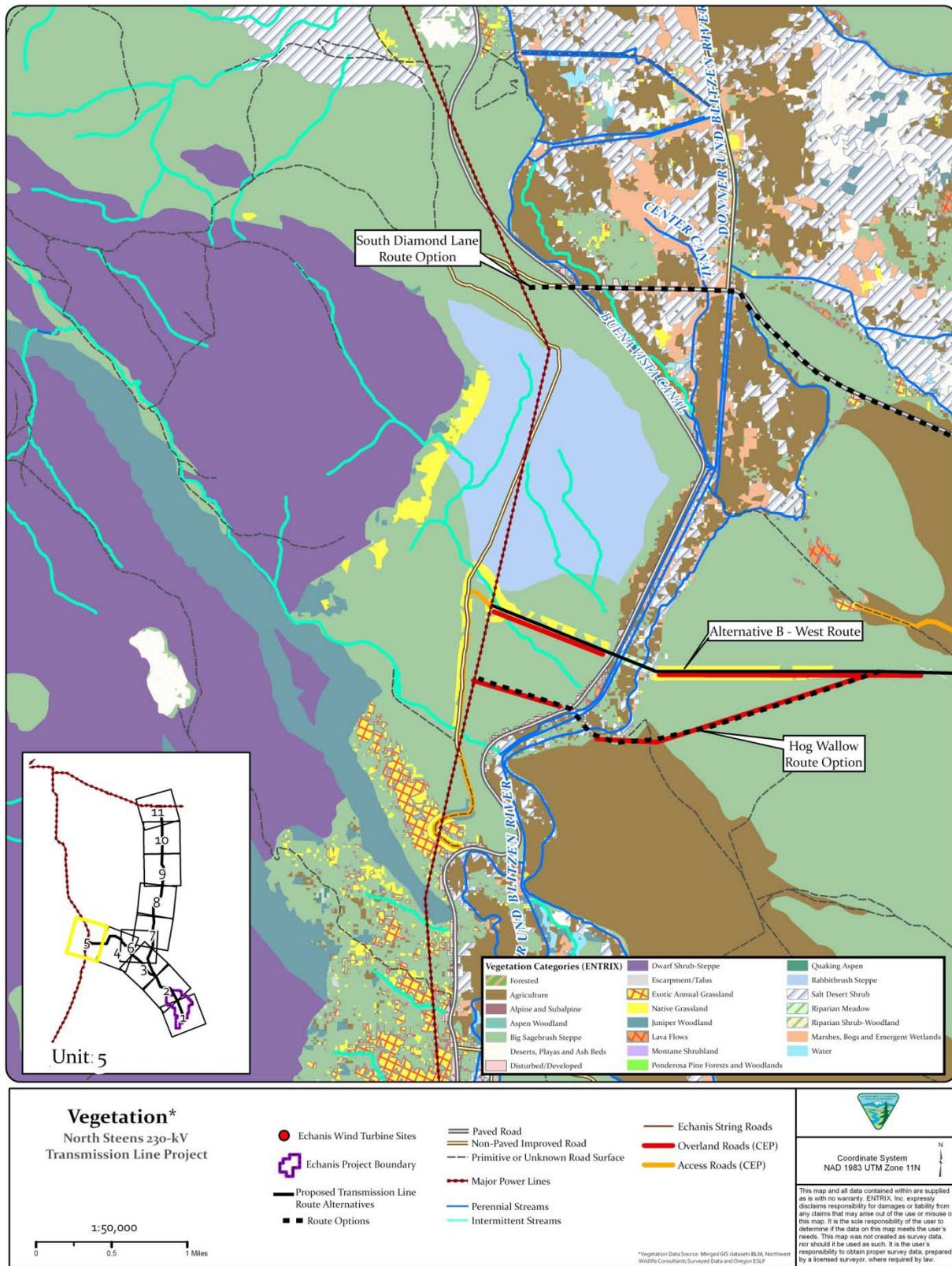


Figure 3.3-1e Vegetation along the Transmission Line ROWs, Unit 5 of 11.

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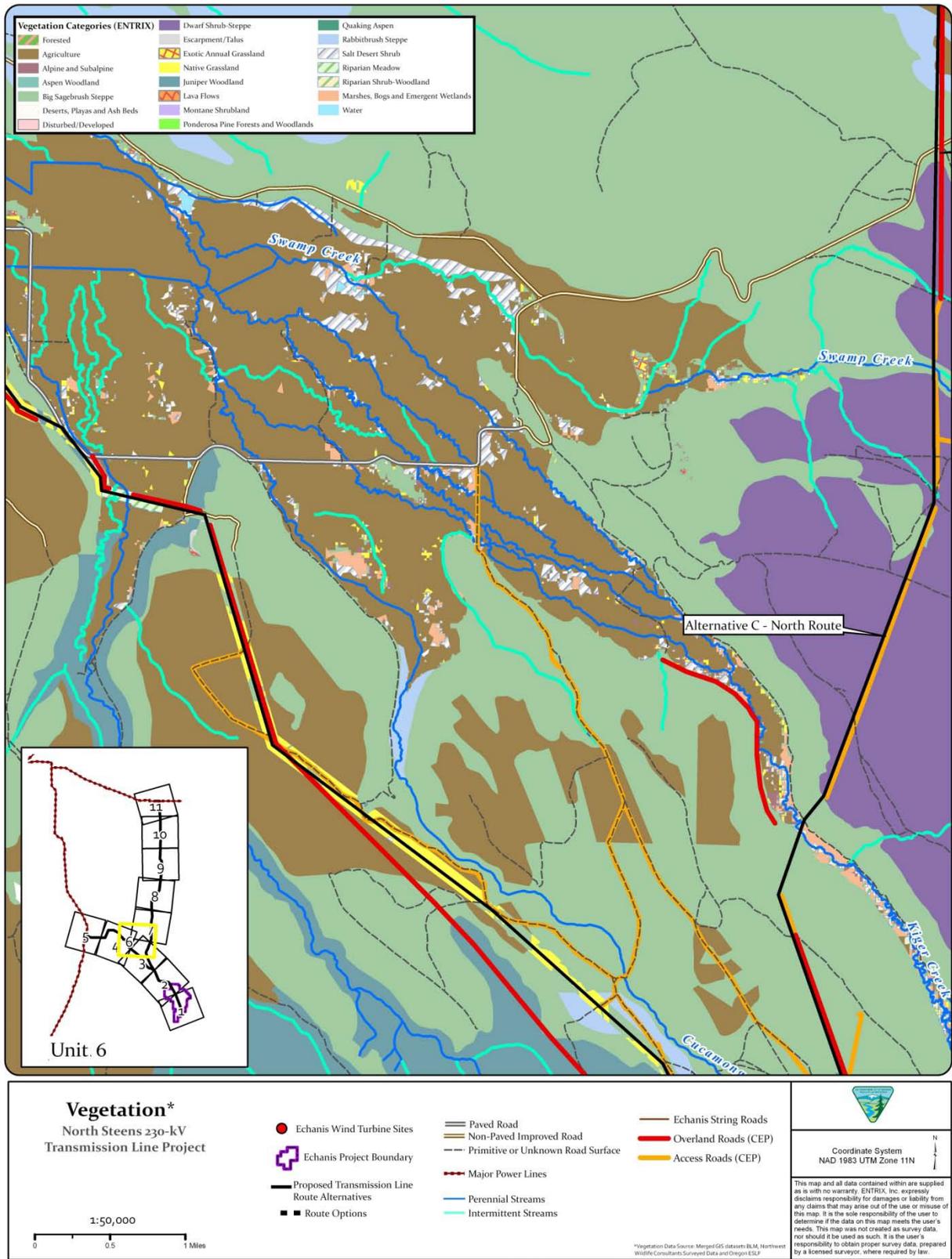


Figure 3.3-1f Vegetation along the Transmission Line ROWs, Unit 6 of 11.

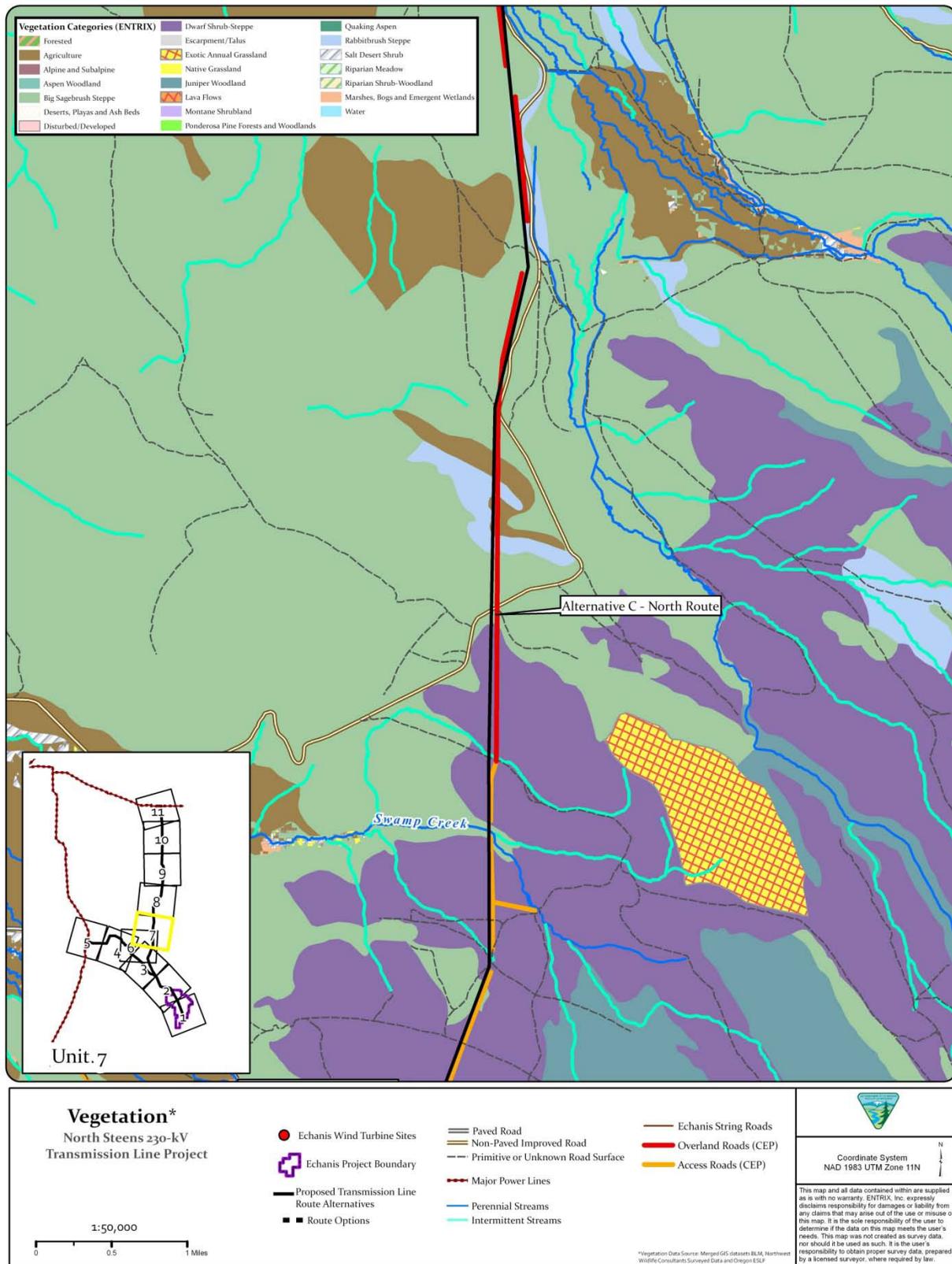


Figure 3.3-1g Vegetation along the Transmission Line ROWs, Unit 7 of 11.

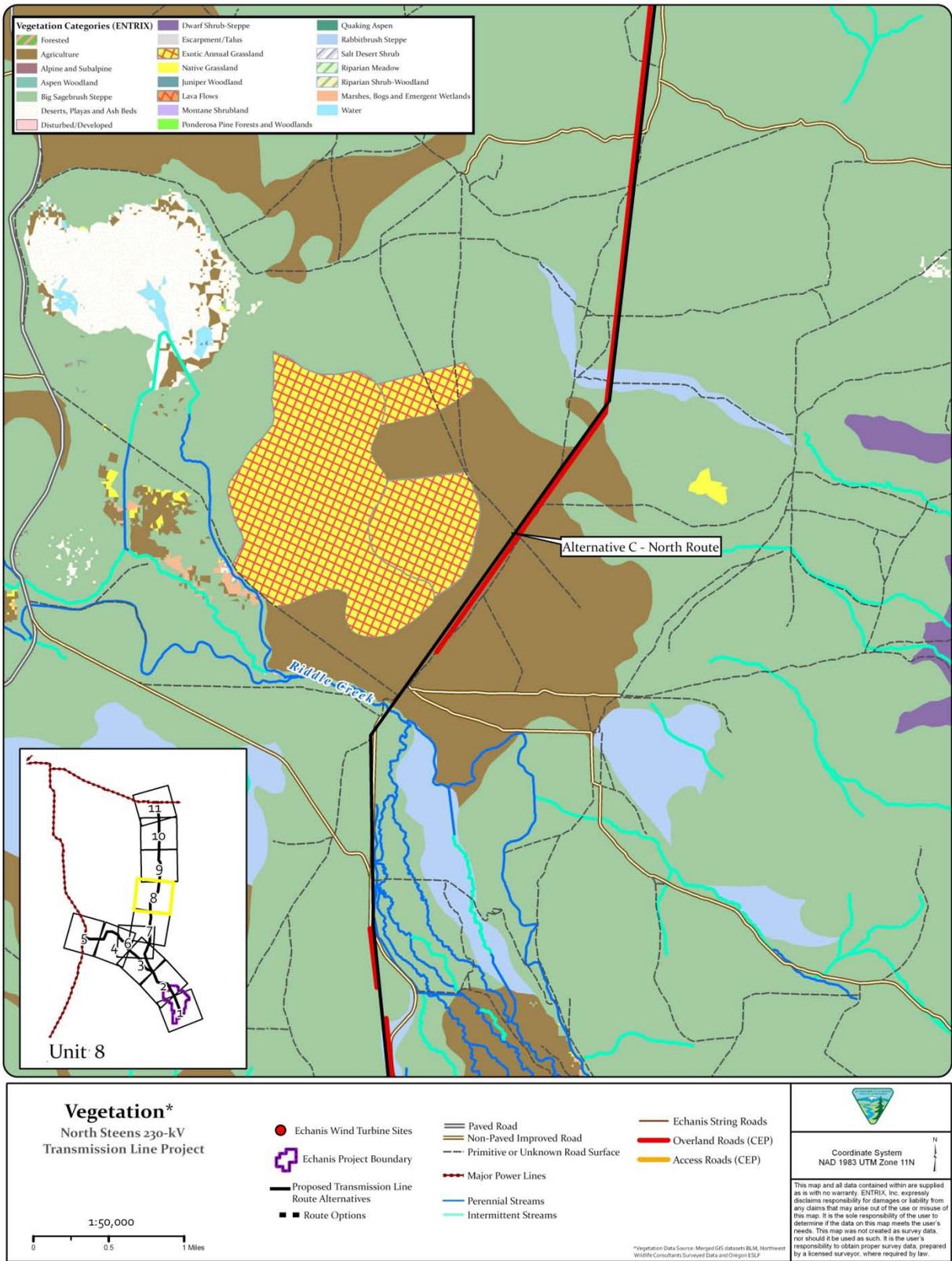


Figure 3.3-1h Vegetation along the Transmission Line ROWs, Unit 8 of 11.

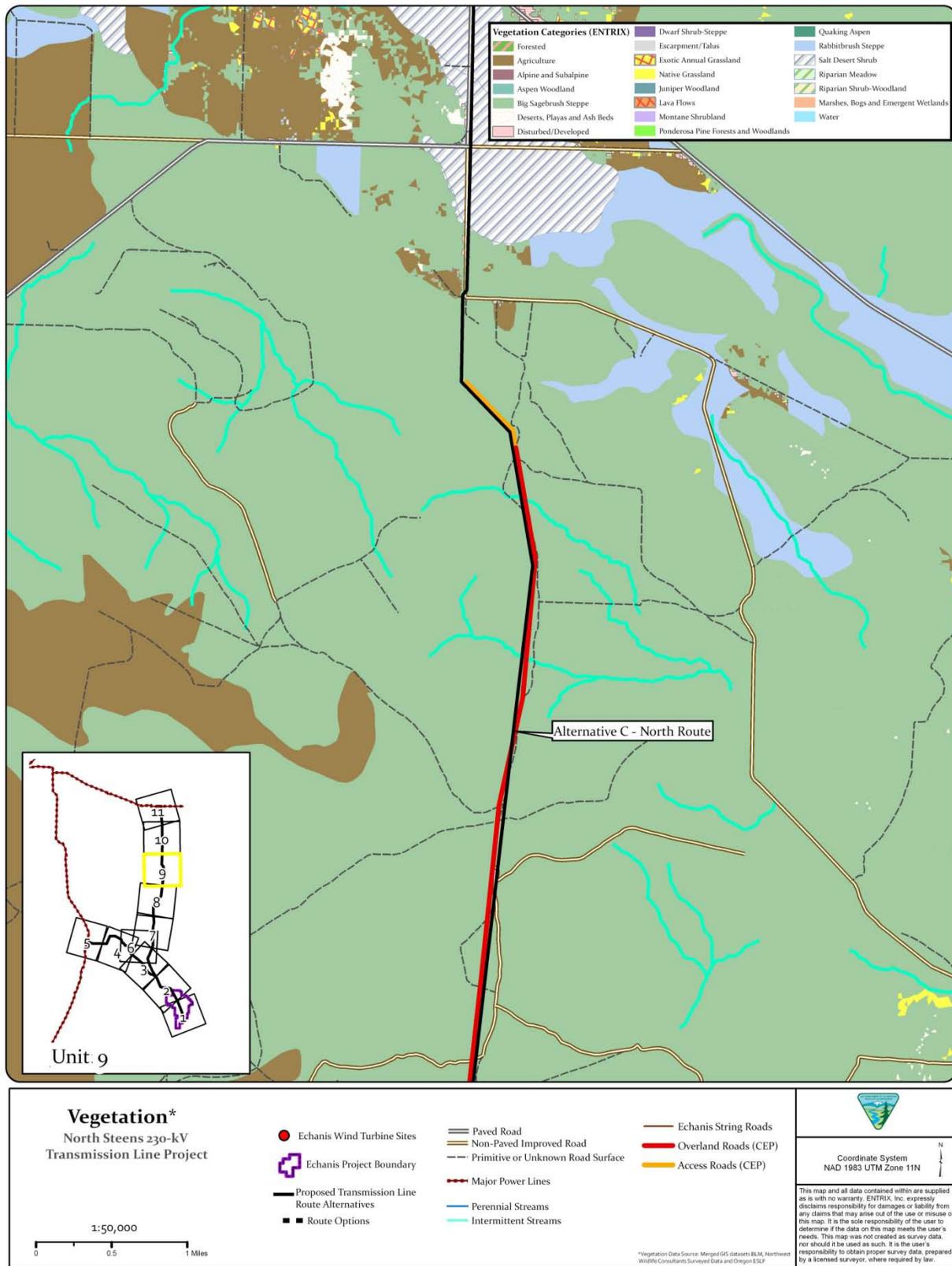


Figure 3.3-1i Vegetation along the Transmission Line ROWs, Unit 9 of 11.

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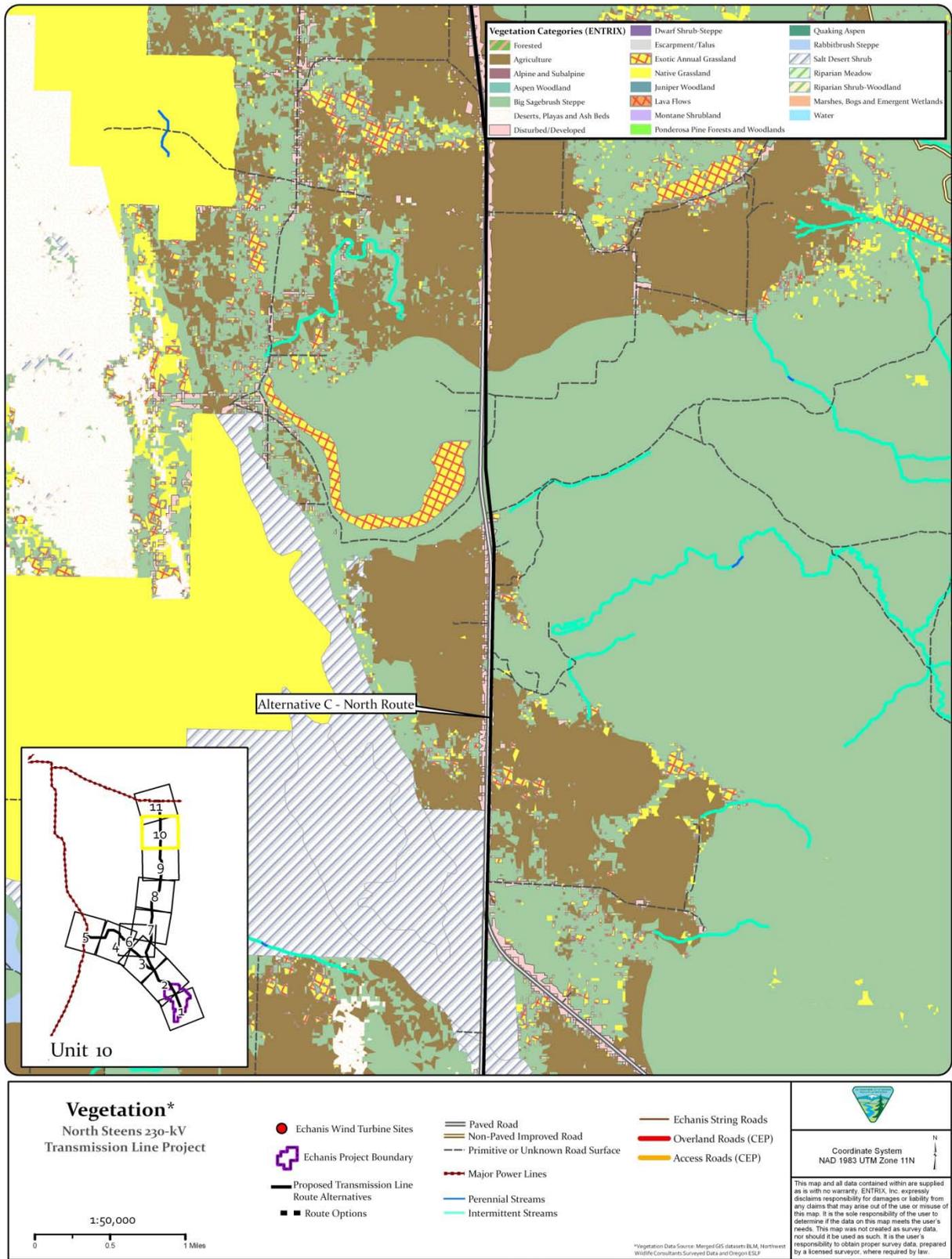


Figure 3.3-1j Vegetation along the Transmission Line ROWs, Unit 10 of 11.

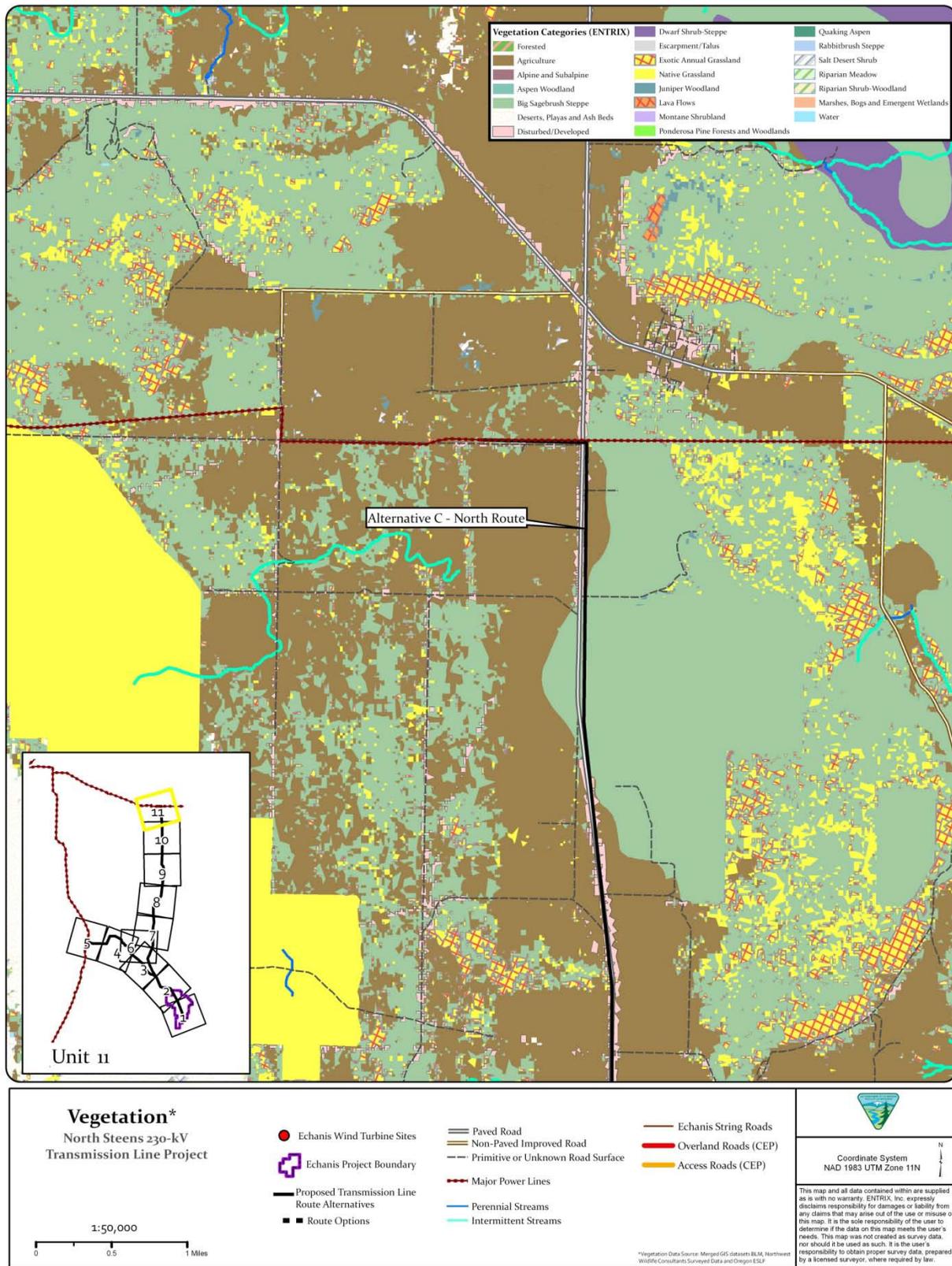


Figure 3.3-1k Vegetation along the Transmission Line ROWs, Unit 11 of 11.

Table 3.3-1 Existing Vegetation Communities (acres)

	Vegetation Community																	
	Upland									Riparian				Barren			Agric.	Dev.
	<u>Native Perennial Grassland</u>	<u>Exotic Annual Grassland</u>	<u>Big Sagebrush Steppe</u>	<u>Dwarf Shrub Steppe</u>	<u>Rabbitbrush Steppe</u>	<u>Salt Desert Shrub</u>	<u>Juniper Woodland</u>	<u>Quaking Aspen</u>	<u>Alpine and Subalpine</u>	<u>Riparian Meadow</u>	<u>Riparian Scrub-Shrub Woodland</u>	<u>Marshes, Bogs, and Emergent Wetlands</u>	<u>Lake/Pond</u>	<u>Escarpment/Talus</u>	<u>Deserts, Playas, and Ash Beds</u>	<u>Lava Flows</u>	<u>Agriculture</u>	<u>Developed/Disturbed</u>
<u>Echanis Project</u>	<u>2.2</u>	<u>.</u>	<u>93.2</u>	<u>.</u>	<u>.</u>	<u>.</u>	<u>22.3</u>	<u>12.6</u>	<u>.</u>	<u>.</u>	<u>2.7</u>	<u>0.2</u>	<u>.</u>	<u>.</u>	<u>.</u>	<u>.</u>	<u>1.7</u>	<u>.</u>
<u>Alternative B – West Route</u>	<u>206.3</u>	<u>12.5</u>	<u>174.6</u>	<u>1.5</u>	<u>.</u>	<u>.</u>	<u>95.7</u>	<u>.</u>	<u>.</u>	<u>17.2</u>	<u>1.9</u>	<u>.</u>	<u>0.6</u>	<u>2.6</u>	<u>.</u>	<u>.</u>	<u>8.1</u>	<u>4.1</u>
<u>S. Diamond Lane Route Option</u>	<u>152.4</u>	<u>12.2</u>	<u>171.6</u>	<u>1.5</u>	<u>.</u>	<u>1.4</u>	<u>95.7</u>	<u>.</u>	<u>0.1</u>	<u>12.4</u>	<u>1.9</u>	<u>8.6</u>	<u>0.7</u>	<u>.</u>	<u>0.1</u>	<u>0.3</u>	<u>36.7</u>	<u>17.3</u>
<u>Hog Wallow Route Option</u>	<u>178.8</u>	<u>12.8</u>	<u>202.5</u>	<u>1.5</u>	<u>.</u>	<u>2.1</u>	<u>95.7</u>	<u>.</u>	<u>.</u>	<u>12.3</u>	<u>1.9</u>	<u>.</u>	<u>0.8</u>	<u>2.0</u>	<u>.</u>	<u>.</u>	<u>13.6</u>	<u>4.6</u>
<u>Alternative C – North Route</u>	<u>24.6</u>	<u>176.1</u>	<u>401.7</u>	<u>48.8</u>	<u>.</u>	<u>.</u>	<u>98.7</u>	<u>.</u>	<u>.</u>	<u>3.1</u>	<u>2.7</u>	<u>0.8</u>	<u>.</u>	<u>0.6</u>	<u>0.6</u>	<u>.</u>	<u>38.7</u>	<u>39.4</u>

Upland Vegetation

NATIVE PERENNIAL GRASSLAND

Grassland communities are the most extensive habitat type found within the Project Area, where they occur in a variety of landscape settings. These include relatively steep canyon slopes with talus/escarpment, gently sloped draws, and upland flats, where they often grade into adjacent shrub-steppe and dwarf shrub-steppe habitats. Native grassland occurs along Alternatives B and C. In addition to the mapped grassland, substantial amounts of native grassland occur as small patches finely intermixed within areas dominated by extensive shrub-steppe and juniper woodlands along Alternatives B and C. Because of mapping scale constraints, these occurrences could not be mapped at the scale of these efforts (NWC 2010e, 2010r). This vegetation type is common on Alternative B (206.3 acres), as well as Alternative B – Hog Wallow Route Option (178.8 acres), and Alternative B – South Diamond Lane Route Option (152.4 acres). It is less common on Alternative C (24.6 acres) and the Echanis Project site (2.2 acres) (Figure 3.3-1 and Table 3.3-1).

Native perennial grasslands are characterized by a relatively consistent, high percent cover of bluebunch wheatgrass, Sandberg's bluegrass, usually with some amount of needlegrass (*Achnatherum* sp.), prairie Junegrass (*Koeleria cristata*), and California brome (*Bromus carinatus*) (NWC 2010a; Johnson and O'Neil 2001). The forb layer is diverse but lupines (*Lupinus* spp.), sandwort (*Arenaria* spp.), hawksbeards (*Crepis* spp.), yarrow (*Achillea millefolium*), and several lomatiums (*Lomatium* spp.) are consistent elements (NWC 2010e, 2010r). In the Project Area, this vegetation type occurs on all transmission line alternatives and at the Echanis Project site (Figure 3.3-1).

EXOTIC ANNUAL GRASSLAND

Exotic annual grasslands within the Project Area have developed as a result of past agricultural disturbance and/or intensive domestic livestock use, often compounded by the effects of wildfire. This category includes lands mapped as "exotics" in the Oregon GAP data. These grasslands are vegetated primarily by exotic grasses and forbs such as cheatgrass (*Bromus tectorum*), bulbous bluegrass (*Poa bulbosa*), prickly lettuce (*Lactuca serriola*), pepperweeds (*Lepidium* spp.), tall tumble mustard (*Sisymbrium altissimum*), and a variety of other non-native, invasive species (NWC 2010e, 2010r). Exotic annual grassland is most common on Alternative C (176.1 acres). Approximately 12 acres of exotic annual grassland occurs on Alternative B, as well as the route options. It does not occur at the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

BIG SAGEBRUSH STEPPE

Big sagebrush vegetation is extensive in the Project Area and can include both mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) communities (NWC 2010a, Kagan et al. 1999). Mountain big sagebrush dominates at montane and subalpine elevations where it occurs in nearly all slope positions, especially on sites with deeper soils and southerly aspects. Wyoming big sagebrush communities occur more commonly at lower elevations and on shallower, drier soils. All big sagebrush communities often intergrade into adjacent aspen and juniper woodlands. Structurally, these habitats are dominated by 2- to 6- foot (0.75 to 2 meters) tall, widely-spaced sagebrush, scattered green rabbitbrush (*Ericameria viscidiflora*), and a well-developed, diverse understory of perennial bunchgrasses and forbs. Among the most common forbs and grasses are needlegrasses (*Achnatherum* spp.), bluebunch wheatgrass (*Pseudoroegneria spicata*), lupines (*Lupinus* spp.), paintbrushes (*Castilleja* spp.), lomatiums (*Lomatium* spp.), common yarrow (*Achillea millefolium*), hawksbeards (*Crepis* spp.), and common yampah (*Perideridia gairdneri* ssp. *borealis*) (NWC 2010e, 2010r). In the Project Area, this vegetation type occurs on all transmission line alternatives and at the Echanis Project site (Figure 3.3-1). It is particularly common on Alternative C (401.7 acres), and also common on Alternative B and the route options (171.6 to 202.5 acres). It is the most common vegetation community on the Echanis Project site (68 percent of the site), covering 93.2 acres (Table 3.3-1).

DWARF SHRUB-STEPPE

Dwarf shrub-steppe generally occurs on shallow basalt soil and rocky conditions at scattered locations in eastern Oregon. Generally, this vegetation type is a component of a big sagebrush-sagebrush steppe mosaic (Kagan et al. 1999). Dominant shrub species in this community are generally less than 20 inches high and include low sagebrush (*Artemisia arbuscula*), rigid sagebrush (*Artemisia rigida*), and silver sagebrush (*Artemisia cana*). Big sagebrush and bitterbrush are occasionally found in this community. Short grasses provide most of the herbaceous cover, particularly Sandberg's bluegrass (*Poa secunda*), cheatgrass, bottlebrush squirreltail (*Sitanion hystrix*), bluebunch wheatgrass, Idaho fescue (*Festuca idahoensis*), and onespoke oatgrass (*Danthonia unispicata*), although both annual and perennial forbs such as cous (*Lomatium cous*), serrate balsamroot (*Balsamorhiza serrata*), and Oregon bitterroot (*Lewisia rediviva*) also are common (Kagan et al. 1999, Johnson and O'Neil 2001). In the Project Area, 4.8 acres of this vegetation type occur on Alternative C, and 1.5 acres occur on Alternative B and each route option. It does not occur on the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

RABBITBRUSH STEPPE

Rabbitbrush steppe is an early seral stage of sagebrush communities and occupies disturbed areas such as burns, as well as naturally disturbed areas such as washes, sand dunes, and talus slopes (Tirmenstein 1999a, 1999b). Dominant shrub species are various rabbitbrushes, including common rabbitbrush (*Ericameria nauseosa*) and green rabbitbrush. Typical grass species include Sandberg's bluegrass, cheatgrass, bottlebrush squirreltail, bluebunch wheatgrass, and Idaho fescue (BLM 2003). ~~In the Project Area, this vegetation type occurs only on Alternative C.~~ This vegetation type occurs near the Project Area, but does not occur within the Echanis Project Area or any of the alternatives (Figure 3.3-1).

SALT DESERT SHRUB

Salt desert shrub communities are found primarily in playas formed by ephemeral lakes, although smaller patches are scattered throughout southeastern Oregon (Kagan et al. 1999). Dominant species vary according to the salinity and the extent of seasonal flooding. Black greasewood (*Sarcobatus vermiculatus*) and winterfat (*Krascheninnikovia lanata*) dominate the most saline areas. In areas with better drainage, dominant species include shadscale (*Atriplex confertifolia*), hopsage (*Grayia spinosa*), budsage (*Artemisia spinescens*), Mormon tea (*Ephedra viridis*), common rabbitbrush, saltbush (*Atriplex nuttallii*), and red sage (*Kochia americana*). This vegetation type is uncommon in the Project Area, occurring only on the Alternative B route options (1.4 to 2.1 acres) (Figure 3.3-1 and Table 3.3-1).

JUNIPER WOODLAND

Along with native perennial grasslands, juniper woodlands are also a major habitat element of the Project Area. They are most prevalent on upland flats, slopes with at least some west to south aspect, and at lower elevations; all factors contributing to relatively arid conditions (NWC 2010e, 2010r; Kagan et al. 1999). Juniper woodlands often grade ecotonally into more xeric sagebrush steppe and more mesic riparian and aspen habitats. They are comprised largely of sparse western juniper (*Juniperus occidentalis*) cover of varying age. The understory is frequently dominated by big sagebrush but with cover of native perennial bunchgrasses (including bluebunch wheatgrass, Sandberg's bluegrass, needlegrasses, and California brome) and a diverse forb layer (pussytoes [*Arenaria* spp.], common yarrow, paintbrushes, and lupines are some of the most common). Cheatgrass and bottlebrush squirreltail are typical and dominant in the herbaceous understory on overgrazed or disturbed sites (Kagan et al. 1999). In some locations, curl-leaf mountain mahogany (*Cercocarpus ledifolius*) is common in a narrow strip along upper slope breaks.

These open woodlands have high wildlife value, providing forage, cover, and nesting habitat for several raptors, loggerhead shrike, and numerous other passerines. In eastern Oregon, overall avian diversity has been documented to be greater in juniper woodlands than in other upland habitats (Miller 2001, in NWC 2010r). Numerous species of small mammals and bats are also associated with upland woodlands, and this habitat is important thermal cover for mule deer during the winter months (NWC 2010r). Most of the juniper

woodlands along the transmission line corridor are younger stands that have encroached upon native grasslands and shrub-steppe as a result of fire suppression (NWC 2010e, 2010r) and grazing practices (Kerr and Salvo 2007), ~~and this is likely to be the case for the Alternative C as well.~~ In the Project Area, approximately 95 to 98 acres of this vegetation type occurs on each of the transmission line alternatives. It also occurs at the Echanis Project site (22.3 acres) (Figure 3.3-1 and Table 3.3-1).

QUAKING ASPEN

Quaking aspen communities form a subalpine belt on Steens Mountain in southern Oregon (Johnson and O'Neil 2001). Aspen typically forms one to many clusters of trees, with larger trees located toward the center of each cluster. While this vegetation community is relatively uncommon in most of Oregon, it dominates sheltered and mesic sites on Steens Mountain at elevations from 6,500 to 7,500 feet (Mansfield 2005).

Quaking aspen (*Populus tremuloides*) is the characteristic tree in this habitat. On Steens Mountain, quaking aspen communities do not include the various conifer species that are associated with this community elsewhere. Snowberry (*Symphoricarpos* sp.) is the most common dominant shrub, and Scouler's willow (*Salix scouleriana*) and serviceberry could be abundant. On mountain slopes, antelope bitterbrush, mountain big sagebrush, low sagebrush, and curl-leaf mahogany often occur adjacent to or within these woodland habitats. In some stands without shrubs, common grasses include pinegrass (*Calamagrostis rubescens*), Idaho fescue, California brome, and blue wildrye (*Elymus glaucous*). Characteristic tall forbs include horsemint (*Agastache* spp.), aster (*Aster* spp.), senecio (*Senecio* spp.), and coneflower (*Rudbeckia* spp.). Low forbs could include meadowrue (*Thalictrum* spp.), bedstraw (*Galium* spp.), sweet cicely (*Osmorhiza* sp.), and valerian (*Valeriana* spp.). In the Project Area, this vegetation type occurs at the Echanis Project site (12.6 acres), but not on any of the transmission line route alternatives (Figure 3.3-1 and Table 3.3-1).

ALPINE AND SUBALPINE

The subalpine zone on Steens Mountain is atypical of mountains in the western United States because it does not support forests of subalpine conifers. This could be the result of isolation, the biology of seed-dispersing birds, or the effects of pre-historical burning by Native Americans (Mansfield 1995, 2000). Vegetation in the subalpine and alpine zones of Steens Mountain consists of subalpine/alpine meadows or tundra, dominated by sedges, grasses, and forbs, as well as the quaking aspen forest described above. In the Project Area, only a very small amount (0.1 acre) of this vegetation type occurs, located on the Alternative B – South Diamond Lane Route Option (Figure 3.3-1 and Table 3.3-1).

Riparian and Wetland Communities

RIPARIAN MEADOW

Riparian meadow occurs as small patches within deep soils kept saturated by perennially flowing water, whether streams or springs. Vegetation is characterized by a dense graminoid layer of meadow grasses, sedges (*Carex* spp.), and rushes (*Juncus* spp.) along with lesser cover from a variety of forbs (NWC 2010a, Kagan et al. 1999). In the Project Area, this vegetation type occurs on Alternative B (17.2 acres), Alternative B route options (12.3 to 12.4 acres), and Alternative C (3.1 acres). ~~It does not occur on the Echanis Project site all transmission line alternatives and at the Echanis Project site~~ (Figure 3.3-1).

RIPARIAN SHRUB-WOODLAND

Riparian shrub-woodlands cover is relatively limited along the Project alternatives, occurring only as narrow corridors along the bottoms of the various drainages. This vegetation type occurs as finely interspersed patches of vegetation variably dominated by riparian forest and riparian shrub species (NWC 2010a). Woodland portions have an overstory consisting mostly of black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), aspen, and taller willows (*Salix* spp.). Dominant shrub species include shrub willows, mountain alder (*Alnus incana*), elderberry (*Sambucus nigra*), and snowbrush ceanothus (*Ceanothus velutinus* var. *velutinus*). Graminoid and forb cover is variable and diverse with a variety of wetland sedges, rushes, and

forbs represented. Limited amounts (1.9 to 2.7 acres) of this vegetation type occur on all transmission line alternatives and at the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

MARSHES, BOGS, AND EMERGENT WETLANDS

Desert wetlands in Oregon form in basins with flat terrain that do not drain externally. Water from tributary streams and springs located in valley floors forms shallow lakes that can range up to thousands of acres in size. These lakes also might vary from nearly always dry to permanently flooded (USGS 2000). Wetlands in the Project Area are discussed in more detail in Section 3.4. In the Project Area, this vegetation type occurs on the Alternative B - South Diamond Lane Route Option (8.6 acres), and in very small amounts on Alternative C (0.8 acre) and the Echanis Project site (0.2 acre) (Figure 3.3-1 and Table 3.3-1).

LAKE/POND

Scattered small ponds are present in the Project vicinity. In the ponds surveyed along Alternative B, vegetation varies from shallow-water aquatics such as watermilfoil (*Myriophyllum* spp.) and pondweed (*Potamogeton* spp.) in open water, to wetland sedges, common spikerush (*Eleocharis palustris*), creeping buttercup (*Ranunculus flammula*), and creeping bentgrass (*Agrostis stolonifera*) in saturated soils along the pond margins (NWC 2010e). In the Project Area, this habitat type occurs only along Alternative B (including the route options) in small amounts (0.6 to 0.8 acre), but not along Alternative C or at the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

Barren

ESCARPMENT/TALUS

Escarpsments and talus have been mapped together in this analysis because these features tend to be closely associated and have similar wildlife use values. Because the proposed transmission line alternatives cross a number of canyons of varying sizes, relatively small escarpment/talus patches are found at several places along the length of the alternatives. Escarpments are comprised of rock outcroppings, usually with associated bands of poorly vegetated talus beneath. Escarpment/talus habitats can harbor small, perched high-quality grassy patches dominated by bluebunch wheatgrass and Sandberg's bluegrass, and with occasional shrubs such as wax currant and big sagebrush (NWC 2010e). Plant diversity and cover is generally quite low on escarpments and talus, but several rare plant taxa are associated with these rocky habitats. In the Project Area, this vegetation type occurs on Alternative B (2.6 acres) and the Hog Wallow Route Option (2.0 acres) and at the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

DESERTS, PLAYAS, AND ASH BEDS

These cover types were mapped together and represent areas generally barren of vegetation. Playas are barren, alkali flats formed by ephemeral lakes. Playas are generally surrounded by salt desert shrub or big sagebrush steppe (Kagan et al. 1999). Barren ash beds and sand dunes are also found in the Harney Basin (Mansfield 2000). In the Project Area, this cover type is rare, occurring in small amounts on Alternative B – South Diamond Lane Option (0.1 acre) and on Alternative C (0.6 acre) (Figure 3.3-1 and Table 3.3-1).

LAVA FLOWS

The lava flows cover type represents surface flows that are mostly unvegetated (Kagan et al. 1999). Sparse vegetation on these flows in eastern Oregon could include big sagebrush and cheatgrass. In the Project Area, this cover type occurs only on Alternative B – South Diamond Lane Option (0.3 acre) (Figure 3.3-1 and Table 3.3-1).

Agriculture

Crop and pasture agricultural lands include cultivated cropland, orchards, vineyards, nurseries, improved and unimproved pastures, and associated scattered dwellings (Johnson and O'Neil 2001). Improved pastures are used to produce herbaceous plants for grass seed and hay and are one of the most common agricultural uses in

Oregon, both with and without irrigation. Common vegetation in improved pastures includes alfalfa, fescue, and bluegrass. Unimproved pastures include rangelands and exotic grasses, often with little or no active management such as irrigation or fertilization. Grasses commonly planted in eastern Oregon pastures include crested wheatgrass (*Agropyron cristatum*), tall fescue (*Festuca arundinacea*), perennial bromes (*Bromus* spp.), and wheatgrasses (*Elytrigia* spp.). Intensively grazed rangelands could also include exotic plant species such as Kentucky bluegrass (*Poa pratensis*) or tall oatgrass (*Arrhenatherum elatius*) (Johnson and O’Neil 2001). In the Project Area, this vegetation type occurs on all transmission line alternatives, with 8.1 acres on Alternative B, 36.7 acres on Alternative B – South Diamond Lane Route Option, 13.6 acres on Alternative B – Hog Wallow Route Option, and 38.7 acres on Alternative C. A small amount of agricultural land occurs on the Echanis Project site (0.7 acre) (Figure 3.3-1 and Table 3.3-1).

Disturbed and Developed Lands

Alteration associated with developed lands ranges from rural to suburban to urban. Native vegetation is replaced by impermeable surfaces, buildings and other structures, and horticultural plantings. Rural development has less artificial surfaces than vegetative cover and might include areas of native vegetation. Suburban development is intermediate in the extent of man-made structures and surfaces, but has primarily horticultural vegetation, while urban development has limited vegetation that is usually entirely horticultural. In the Project Area, this cover type occurs on all transmission line alternatives, with 4.1 acres on Alternative B, 4.6 acres on Alternative B – Hog Wallow Route Option, 17.3 acres on Alternative B – South Diamond Lane Route Option, and 39.4 acres on Alternative C. It does not occur on the Echanis Project site (Figure 3.3-1 and Table 3.3-1).

3.3.2.2 Special Status Plant Species

Several special status plant species could occur in the Project Area (Table 3.3-2). Project surveys for special status plant species have been conducted for Alternative B, Alternative C, and at the Echanis Project site. No federal or state-listed (i.e., threatened, endangered, or candidate) plant species were observed. Two Oregon Biodiversity Information Program (ORBIC) List 3 species were found during surveys of Alternative B. ORBIC List 3 species are those for which more information is needed before a status can be determined, but might be threatened or endangered in Oregon or throughout their range. The proposed transmission line would be near, but would avoid, two small populations of wheat sedge (*Carex atherodes*) and a smaller population of western whiteflower beardtongue (*Penstemon pratensis*) located in wetlands near the western terminus of where it would cross the Malheur National Wildlife Refuge (MNWR).

Table 3.3-2 Special Status Plant Species Potentially Occurring in the Project Area

Common Name	Scientific Name	Status ¹
Crenulate grape fern	<i>Botrychium crenulatum</i>	SC
Dwarf evening-primrose	<i>Camissonia pygmaea</i>	SC
Slender wild cabbage	<i>Caulanthus major var. nevadensis</i>	SC
Cusick’s buckwheat	<i>Eriogonum cusickii</i>	SC
Prostrate buckwheat	<i>Eriogonum prociduum</i>	SC
Disappearing monkeyflower	<i>Mimulus evanescens</i>	SC
Playa phacelia	<i>Phacelia inundata</i>	SC, S
Williams combleaf	<i>Polycytenium williamsiae</i>	SC
Columbia yellow cress	<i>Rorippa columbiae</i>	S

¹ SC - Federal Species of Concern; S - BLM Oregon Sensitive Species

Crenulate grape fern

Crenulate grape fern is a federal species of concern. This species occurs in scattered locations in Idaho, western Montana, western Wyoming, eastern Washington, eastern Oregon, Utah, Nevada, and eastern and southern California (FNA 1993). This perennial fern is found in marshes and spring areas, at elevations from 3,935 to 8,200 feet. Although this species has been reported in Harney County (USDA 2010), it has not been reported to date along any of the transmission line alternatives or on the Echanis Project site.

Dwarf evening-primrose

Dwarf evening-primrose is a federal species of concern. This species occurs primarily in the John Day Mountains of central Oregon, but its range extends to the base of Steens Mountain and into south-central Washington (Cronquist et al. 1997). Dwarf evening-primrose is found in sagebrush-steppe vegetation, in unstable soil or gravel in steep talus, or in dry, gravelly washes, sandy banks, and roadcuts, at elevations from 500 to 4,825 feet. This annual evening-primrose flowers from May to June (Cronquist et al. 1997). This species is found in eastern Oregon in Gilliam, Grant, Harney, and Wheeler counties (WNHP 1999), but has not been reported to date along any of the transmission line alternatives or on the Echanis Project site.

Slender wild cabbage

Slender wild cabbage is a federal species of concern. This species occurs from Alpine County and the southern Modoc Plateau in California, to northern and western Nevada, and southeastern Oregon (Hickman 1993). This wild cabbage is found in several plant communities, including sagebrush, pinyon-juniper, ponderosa pine, fir, and aspen. Often found on rocky slopes, slender wild cabbage occurs at elevations from 4,900 to 10,420 feet (Holmgren et al. 2005). On Steens Mountain, this species is found in talus slopes on the lower east side of the mountain (Mansfield 2000). Slender wild cabbage can be either perennial or biennial, and flowers from May to July (Holmgren et al. 2005). The Project alternatives could be north of the range for this species, and it has not been reported along any of the transmission line alternatives or on the Echanis Project site.

Cusick's buckwheat

Cusick's buckwheat is a federal species of concern. This species is endemic to eastern Oregon in scattered portions of Deschutes, Harney, Klamath, and Lake counties (Mansfield 2000, FNA 2005). This buckwheat is found in sagebrush and mixed grassland communities and montane coniferous woodlands, on volcanic flats at elevations from 4,265 to 4,925 feet. This perennial species flowers from June to July (FNA 2005). Cusick's buckwheat has been reported from northern Harney County and its range could include Steens Mountain (Mansfield 2000). However, it has not been reported along any of the transmission line alternatives or on the Echanis Project site.

Prostrate buckwheat

Prostrate buckwheat is a federal species of concern. This species includes two subspecies, *Eriogonum prociduum* var. *prociduum* and Pueblo Mountains wild buckwheat (*Eriogonum prociduum* var. *mystrium*). The type variety occurs in Nevada, northeastern California, and Lake and Baker counties in Oregon (FNA 2005). Pueblo Mountains wild buckwheat occurs in Idaho; Nevada; and the Oregon Canyon, Pueblo, Steens, and the Trout Creek mountains of Harney County, Oregon. This species is found in sagebrush, mixed grassland, and pinyon juniper communities on volcanic, sandy, or gravelly slopes at elevations from 4,595 to 8,860 feet (FNA 2005). Prostrate buckwheat is a perennial species that flowers from May to July. This species has not been reported along any of the transmission line alternatives or on the Echanis Project site.

Disappearing monkeyflower

Disappearing monkeyflower is a federal species of concern. This species occurs in the Modoc Plateau and Great Basin, from California to Nevada and Oregon. (BLM 2010) This monkeyflower is found in the ecotone between the edge of the sagebrush-juniper shrub zone and the semi-aquatic sedges near the water, along intermittent streams, or near the edges of small lakes and ponds, at elevations below 5,580 feet (BLM 2010, Mansfield 2000). Disappearing monkeyflower is an annual species. Habitat for this species is present along the Project alternatives, but this species has not been reported on any of the transmission line alternatives or on the Echanis Project site.

Playa phacelia

Playa phacelia is a federal species of concern. This species occurs in southeastern Oregon and northeastern California (Cronquist et al. 1984, Mansfield 2000). This phacelia is found on alkali flats and on the margins of fluctuating lakes, sinks, and playas, at elevations from 4,800 to 6,400 feet (Cronquist et al. 1984). This annual phacelia flowers from June to July. Habitat for this species could be present, but it has not yet been found along the Project alternatives.

Williams combleaf

Williams combleaf is a federal species of concern and is a BLM sensitive species in Oregon. This species occurs from Lassen and Mono counties in California to Nevada and Oregon (CNPS 2010). This combleaf is found in playas, alkali marshes, and vernal pools perched over siliceous volcanic bedrock at elevations from 4,215 to 8,935 feet (CDFG 2010). Williams combleaf is a perennial species that flowers from March to July (CNPS 2010). Habitat for this species is present, but it has not yet been found, along Project alternatives.

Columbia yellow cress

Columbia yellow cress is a BLM sensitive species in Oregon. This species occurs in southern Washington, Oregon, and the Modoc Plateau in northern California (Holmgren et al. 2005, Mansfield 2000). This cress is found in moist locations along ponds, lakes, streams, and ditches (Holmgren et al. 2005). This perennial cress flowers in July (Holmgren et al. 2005). Columbia yellow cress is found on the Malheur Lake shoreline in the vicinity of Alternative C. This species could occur, but it has not yet been found, along streams or wet meadows on the transmission line alternatives.

3.3.2.3 Noxious Weeds

Many exotic plant species are found within the Project Area, but only a portion of these are considered to be noxious weeds. The Oregon Department of Agriculture's Noxious Weed Control Program maintains a list of noxious weeds that are scheduled for control in Oregon (ODA 2009b). Infestations of "A" designated weeds are subject to eradication or intensive control when and where found. Treatment of "B" designated weeds is limited to intensive control at the state, county, or regional level, as determined on a site-specific, case-by-case basis. Some of these species have also been designated "T" or target weeds species (ODA 2010). ODA annually develops a list of target weed species that will be the focus for prevention and control by the Noxious Weed Program.

A list of noxious weed species that are of particular concern to the BLM (Burns District Office) is provided in Table 3.3-3. Four of these species have been reported along various transmission line alternatives: Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), perennial pepperweed (*Lepidium latifolium*), and field bindweed (*Convolvulus arvensis*). Yellow starthistle (*Centaurea solstitialis*) has been reported on the Echanis Project site. An additional "B" designated species, kochia (*Kochia scoparia*), has also been found along the transmission line alternatives. The noxious weed species most prevalent in the vicinity of the Project include: Canada thistle, bull thistle, Scotch thistle (*Onopordum acanthium*), and perennial pepperweed. Some of the roads in the vicinity of the Project contain whitetop (*Cardaria draba*), and

medusahead rye (*Taeniatherum caput-medusae*) is also present in the vicinity and could spread into areas disturbed by Project activities (Meinicke 2010). Medusahead rye is the Burns District's priority weed species (Meinicke 2010). This species poses the greatest risk for spread into any newly disturbed areas (Meinicke 2010).

Table 3.3-3 Noxious Weed Species Potentially Occurring in the Project Area

Common Name ¹	Scientific Name ¹	Rating
Russian knapweed	<i>Acroptilon repens</i>	B
Whitetop	<i>Cardaria draba</i>	B
Musk thistle	<i>Carduus nutans</i>	B
Spotted knapweed	<i>Centaurea biebersteinii</i>	B
Diffuse knapweed	<i>Centaurea diffusa</i>	B
Yellow starthistle	<i>Centaurea solstitialis</i>	B
Rush skeleton weed	<i>Chondrilla juncea</i>	B, I
Canada thistle	<i>Cirsium arvense</i>	B
Bull thistle	<i>Cirsium vulgare</i>	B
Field bindweed (morning glory)	<i>Convolvulus arvensis</i>	B, I
Leafy spurge	<i>Euphorbia esula</i>	B, I
Halogeton	<i>Halogeton glomeratus</i>	B
St John's wort	<i>Hypericum perforatum</i>	B
Perennial pepperweed	<i>Lepidium latifolium</i>	B, I
Dalmatian toadflax	<i>Linaria dalmatica</i>	B, I
Purple loosestrife	<i>Lythrum salicaria</i>	B
Scotch thistle	<i>Onopordum acanthium</i>	B
Mediterranean sage	<i>Salvia aethiops</i>	B
Tansy ragwort	<i>Senecio jacobaea</i>	B, I
Medusahead rye	<i>Taeniatherum caput-medusae</i>	B
Puncturevine	<i>Tribulus terrestris</i>	B

¹ A list of synonyms is provided in Appendix B.

3.3.3 Environmental Consequences and Mitigation

Vegetation and noxious weeds could be affected by construction and operation of the access roads, transmission lines, wind turbines, and associated structures. For all of the alternatives, the permanent ROW width would be 150 feet. In certain areas, an additional 10 feet of temporary construction easement would be required on each side of the ROW to allow for equipment operation during installation of poles, conductors, and any required guy wires. Additional acreage would be required for new permanent and temporary access roads and for improvements to existing access roads (Table 3.3-4).

The potential effects upon vegetation, special status plants, and noxious weeds during the short-term construction phase and the long-term operational phase of the Project are described below. It should be noted that a variety of Project design features and best management practices would be implemented to reduce the effects upon vegetation, special status plants, and noxious weeds from both the Echanis Project and the selected transmission line alternative. These measures are not repeated in the mitigation sections below, but are summarized in Section 2 and are listed in Appendix A (A.1.3, A.1.6, and A.3.3).

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Table 3.3-4 Summary of Vegetation Types (acres)

Component	Total ¹	Agriculture	Alpine and Subalpine	Big Sagebrush Steppe	Deserts, Playas and Ash Beds	Disturbed /Developed	Dwarf Shrub-Steppe	Escarpment /Talus	Exotic Annual Grassland	Juniper Woodland	Lake/Pond	Lava Flows	Marshes, Bogs and Emergent Wetlands	Native Grassland	Quaking Aspen	Riparian Meadow	Riparian Shrub-Woodland	Salt Desert Shrub
Echanis Project Site	12,715.20			8,472.10			51.70	0.90		2,079.60				74.60	2,017.30	16.30	2.70	
Tower sites (for 69 towers) ²	2.41									2.27					0.14			
Improvements to existing access roads and construction of new permanent access roads	54.04	1.71		21.59						20.03			0.21	2.19	4.22		2.66	
String roads (permanent)	33.03			29.72											3.31			
Overland access roads (permanent)	1.18			0.79											0.39			
String roads (temporary)	45.69			41.12											4.58			
Alternative B - West Route																		
ROW	525.10	8.10		174.60		4.10	1.50	2.60	12.50	95.70	0.60			206.30		17.20	1.90	
Construction of new permanent access roads	<u>0.37</u>			<u>0.27</u>		<u>0.04</u>				<u>0.25</u>				<u>0.10</u>				
Overland access roads	25.30	2.42		9.37		0.06	0.01		0.51	5.77	0.01			6.41		0.61	0.13	
Tensioning sites	4.75			1.75					0.50	0.75				1.50		0.25		
Temporary storage yards (laydown)	40.00	5.00		15.00			5.00		5.00					10.00				
Alternative B - S. Diamond Lane Route Option																		
ROW	514.35	36.70	0.07	171.60	0.08	17.30	1.50	1.50	12.20	95.70	0.70	0.30	8.60	152.40		12.40	1.90	1.40
Construction of new permanent access roads	<u>0.37</u>			<u>0.27</u>		<u>0.04</u>				<u>0.25</u>				<u>0.10</u>				
Overland access roads	21.04	1.52		8.39		0.06	0.01		0.42	5.77				4.13		0.61	0.13	
Tensioning sites	4.50	0.50		1.50						0.75				1.25		0.25		0.25
Temporary storage yards (laydown)	35.00	5.00		15.00			5.00		5.00					5.00				
Alternative B - Hog Wallow Route Option																		
ROW	528.60	13.60		202.50		4.60	1.50	2.00	12.80	95.70	0.80			178.80		12.30	1.90	2.10
Construction of new permanent access roads	<u>0.37</u>			<u>0.27</u>		<u>0.04</u>				<u>0.25</u>				<u>0.10</u>				
Overland access roads	25.61	2.68		10.98		0.06	0.01		0.51	5.77	0.01			4.83		0.61	0.13	
Tensioning sites	4.50	0.25		2.00					0.25	0.75				1.00		0.25		
Temporary storage yards (laydown)	40.00	5.00		15.00			5.00		5.00					10.00				
Alternative C - North Route																		
ROW	<u>835.80</u>	<u>38.74</u>		<u>401.66</u>	<u>0.59³</u>	<u>39.38</u>	<u>48.79</u>	<u>0.61</u>	<u>176.11</u>	<u>98.68</u>			0.81	<u>24.65</u>		<u>3.11</u>	<u>2.71</u>	
Construction of new permanent access roads	<u>9.79</u>			<u>1.95</u>			<u>3.77</u>		<u>3.54</u>	<u>0.51</u>							<u>0.03</u>	
Overland access roads	<u>24.30</u>	<u>0.001</u>		<u>15.42</u>		<u>0.02</u>	<u>0.72</u>		<u>4.27</u>	<u>2.57</u>			0.24	0.76		0.16	0.09	<u>0.05</u>
Tensioning sites	<u>9.00</u>			<u>4.75</u>	<u>0.25</u>	<u>0.25</u>	<u>0.75</u>		<u>2.00</u>	<u>0.25</u>				<u>0.50</u>				<u>0.25</u>
Temporary storage yards (laydown)	<u>45.00</u>	<u>10.00</u>		<u>20.00</u>			<u>5.00</u>							<u>5.00</u>				<u>5.00</u>

¹ Additional acres that will be affected, but for which the vegetation types are currently unknown include permanent effects at the Echanis site for a substation, O&M building, and overhead collection line poles (2.00 acres), temporary effects at the Echanis site for overhead collection line poles and an underground collection system (13.10 acres), permanent effects on each transmission line alternative for an interconnect station (0.69 acre), permanent effects on transmission line alternatives for pole placement (Alt B West Route = 1.87 acres, Hog Wallow = 1.89 acres, South Diamond Lane = 1.83 acres, Alt C = 2.98 acres, temporary effects on all Alt B options for distribution line relocation (2.45 acres, and temporary effects on each transmission line alternative for pole placement (Alt B West = 2.39 acres, Hog Wallow = 2.40 acres, South Diamond Lane = 2.34 acres, and Alt C = 3.80 acres)).

² This is an approximation. Currently 46 tower sites have been identified. The acreages associated with the 46 locations have been scaled up for 69 towers.

³ For Alternative C, acres for "Deserts, Playas, and Ash Beds" are all alkali playa.

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3.3.3.1 Alternative A – No Action

Under the No Action Alternative, no new transmission lines, substations, interconnection stations, related wind energy facilities, or new or improved access roads would be constructed. Vegetation in the area would continue to be subject to the effects of agricultural practices, particularly cattle grazing. In addition, the introduction of noxious weed species to the region by agriculture, recreation, and development would continue. No other environmental effects would occur to vegetation from the No Action Alternative.

3.3.3.2 Echanis Project Effects Common to All Action Alternatives

The permanent and temporary effects to vegetation from construction and operation of the Echanis Project would be the same for all action alternatives (i.e., Alternative B, the Alternative B route options, and Alternative C). Because the Echanis Project is a common element to all transmission line alternatives (i.e., a connected non-federal action), the effects from the Echanis Project are described separately from the effects of the transmission line alternatives. The effects associated with each transmission line alternative are described separately below. The combined effects of the Echanis Project and each transmission line alternative upon vegetation are summarized in Section 3.3.3.5.

Effects upon vegetation from the Echanis Project would result from a variety of ground disturbing activities, including construction of the turbine towers, the Echanis substation, the operations and maintenance (O&M) building, the underground power collection system, onsite access roads (i.e., string roads), and the main access road to the Echanis Project site. The amounts of permanent and temporary ground disturbance (in acres) from these Project components are shown in Table 3.3-5. The effects to vegetation types at the Echanis Project site and within the ROWs for the transmission line alternatives would be only a portion of the acreages presented in Table 3.3-4.

Table 3.3-5 Disturbances from the Echanis Project Site (acres)

Components	40 Towers	69 Towers
Permanent Effects		
Surface disturbance for towers	1.40	2.41
Improvements to existing access roads	7.44	7.44
New access roads	46.58	46.58
New string roads	<u>33.18</u>	<u>33.18</u>
Substation surface disturbance	1.84	1.84
O&M building	0.03	0.03
Surface disturbance for overhead collection line (18 poles)	0.13	0.13
Surface disturbance from overland access to OCL	1.14	1.14
Total	<u>91.74</u>	<u>92.75</u>
Temporary Effects		
Surface disturbance for towers	13.11	22.61
New string roads	45.60	45.60
Surface disturbance for overhead collection line (18 poles)	0.16	0.16
Surface disturbance for underground collection system	13.10	13.10
Total	72.00	81.50

PERMANENT EFFECTS

Construction of the Echanis Project would result in the permanent removal of vegetation at Project facilities. The substation site consists of approximately 1.84 acres that would be cleared and covered with gravel and concrete foundations for electrical equipment. The adjacent maintenance building would add another 0.03 acre of impervious surfaces. An overhead collection line would be installed with 18 towers, resulting in 1.27 acres of disturbance for the pole sites and overland access. Turbine tower sites would each sustain a small, permanent loss of vegetation. The total acreage would be dependent upon the number and location of turbine towers (approximately 40 to 69 poles), but is estimated to be a maximum of 2.41 acres (Table 3.3-5).

Approximately 12.81 miles of new access road construction, approximately 6.14 miles of existing road improvements, and approximately 17.11 miles of new string roads are planned. Road maintenance would include vegetation clearing; however, grasses and small vegetation would be left on the road bed if it did not obstruct access. These actions would result in the loss of 54.04 acres of vegetation for the new or improved access roads. While no plant species defined as special status species for this analysis were found during surveys of the turbine strings, such species could occur on access road routes that were not yet surveyed.

Permanent effects to vegetation from construction of the Echanis Project would occur primarily in big sagebrush steppe and juniper woodland (Table 3.3-4), although effects would also occur to smaller areas of other habitat types. Approximately 52.10 acres of big sagebrush steppe and 22.30 acres of juniper woodland would be affected. Smaller affected areas would include 8.06 acres of quaking aspen woodland, 2.66 acres of riparian shrub-woodland, 0.21 acre of marshes/emergent wetlands, and 3.90 acres of other upland vegetation types. An additional 2.00 acres of permanent effects could occur to habitat with undetermined vegetation types, but are likely to be primarily big sagebrush steppe or juniper woodland.

In summary, the permanent effects for the Echanis Project would include:

- Loss of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads, improvement of existing access roads, and construction of string roads.
- Direct or indirect impacts to special status plant species if any are present in the Project Area, including the use of herbicides to control noxious weeds.
- Introduction and spread of noxious weeds.

The total acres of permanent impact to vegetation are relatively small compared to the total acres at the Echanis Project site and would not require mitigation.

The Project includes protection measures for special status plants to reduce the potential for impacts to such species. Protection measures are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

TEMPORARY EFFECTS

The Echanis Project would involve deployment and operation of 40 to 69 wind turbines on the 12,795-acre site. A temporary effect upon soil erosion would occur in areas where vegetation was cleared. The areas proposed for the wind turbines and structures would be cleared of vegetation. Trampled vegetation and surface disturbance would be restored when construction was complete. Temporary disturbance would affect 72.00 to 81.50 acres. Construction activities could result in the establishment and expansion of populations of noxious weeds. If herbicides were used to control noxious weeds, adjacent native vegetation, particularly any adjacent sensitive plant species or vegetation communities, could be adversely affected by overspray.

Temporary effects to vegetation from construction of the Echanis Project would occur primarily in big sagebrush steppe and juniper woodland (Table 3.3-4), although effects would also occur to smaller areas of other habitat types. Approximately 41.12 acres of big sagebrush steppe and 4.58 acres of quaking aspen woodland would be affected. An additional 13.10 acres of temporary effects to vegetation types are undetermined, but would likely be primarily big sagebrush steppe.

As described above, the potential temporary effects during construction would include:

- Loss of vegetation during Project construction.
- Trampling of vegetation during Project construction.
- Direct or indirect impacts to special status plant species, if any are present in the Project Area, including the use of herbicides to control noxious weeds.
- Introduction and spread of noxious weeds.

Trampled vegetation and surface disturbance would be restored when construction was completed. Revegetation measures for areas with temporary disturbance are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Revegetation Plan (Appendix F) in consultation with the BLM and Harney County.

Protection measures for special status plant populations that could sustain permanent impacts from construction and operation of the Echanis Project are presented in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

The Project would implement a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). If herbicides were used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying. The noxious weed control measures are provided in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Noxious Weed Management Plan (Appendix F) in consultation with the BLM and Harney County.

MITIGATION

The Best Management Practices (BMPs) and Project Design Features (PDFs) described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3) were incorporated into the action alternatives and were designed to reduce the impacts to the Project site. In addition, the Applicant is working with BLM and Harney County to develop Noxious Weed Management and Revegetation Plans (Appendix F).

The Noxious Weed Management Plan includes measures to prevent and control the spread of noxious weeds during and subsequent to maintenance and construction activities associated with the Echanis Project site, transmission line, associated facilities, and any other disturbances connected with the Project into the future. Before construction, problem areas will be identified, and workers will be trained on noxious weed identification and prevention of spread into uninfested areas. During construction, areas of concern will be flagged by the Applicant's staff or the project biologist to alert construction workers that weeds are present.

To further prevent the spread of noxious weeds, the following mitigation measures will be implemented:

- Before ground-disturbing activities begin, the project biologist will review the Weed Risk Assessment Form and prepare a Weed Management Plan that will inventory and prioritize weed infestations for treatment within the Project footprint. If weed infestations spread beyond the Project footprint, then these weeds will be treated as a part of the Project, including access roads into the Project site.

- The Applicant and/or project biologist will locate relatively weed-free areas for temporary equipment storage, machine and vehicle parking, and other areas needed for the storage of people, machinery, and supplies.
- All contractor vehicles and equipment will be cleaned prior to arrival at the work site using compressed air or high-pressure water spraying equipment. The wash/blow down will concentrate upon tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frames, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. The contractor, with Environmental Inspector (E.I.) oversight, will ensure that vehicles and equipment are free of soil and debris capable of transporting noxious weed seeds, roots, or rhizomes before the vehicles and equipment are allowed use of access roads. Seeds and plant parts will be collected, bagged, and deposited in dumpsters destined for local landfills, when practical.
- When vehicles and equipment are washed/blown down, a log will be kept stating the location, date and time, types of equipment, and methods used. The crewmember that washed the vehicle will sign the log. Written logs will be included in the monitoring reports.
- Project workers will inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment. The product will be bagged and disposed of in a dumpster for deposit in local landfills or other locations deemed acceptable by the BLM.
- The Applicant and its contractors will avoid or minimize all types of travel through weed infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely. The contractor will begin Project operations in weed free areas whenever feasible before operating in weed-infested areas.
- The contractor will limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. The contractor will also avoid creating unnecessary soil conditions that promote weed germination and establishment.
- The contractor, in conjunction with the project biologist, will evaluate weed management options, including area closures, to regulate the flow of traffic on sites where native vegetation needs to be established.
- In areas where infestations are identified or noted in the field, the contractor will stockpile cleared vegetation and salvaged topsoil adjacent to the area from which they are stripped to eliminate the transport of soil-borne noxious weed seeds, roots, or rhizomes. During reclamation, the contractor will return topsoil and vegetative material from infestation sites to the areas from which they were stripped.
- The contractor will ensure that straw or hay bales used for sediment barrier installations or mulch distribution are certified weed-free, as required by the Oregon Department of Agriculture's certification program.
- The contractor will implement the reclamation of disturbed lands immediately following construction, as outlined in the Restoration and Revegetation Plan; continuing seeding efforts with certified weed-free seed will ensure adequate vegetative cover to prevent the invasion of noxious weeds, if necessary.
- The contractor will apply fertilizer to reclaimed areas only according to the Restoration and Revegetation Plan and as directed by the jurisdictional land management agency or property owner.

Additionally, the Applicant will implement noxious weed control measures that will be in accordance with existing regulations and jurisdictional land management agency or landowner agreements. Before construction, only herbicides that are approved by the State of Oregon and the BLM will be applied to any identified weed infestations on public lands to reduce the spread or proliferation of weeds. Post-construction control measures might include one or more of the following methods:

- Mechanical methods rely upon equipment that is used to mow or disc weed populations. If such a method is used, subsequent seeding will be conducted to re-establish a desirable vegetative cover that

will stabilize the soils and slow the potential re-invasion of noxious weeds. Seed selection will be based upon site-specific conditions and the appropriate seed mix identified for those conditions, as presented in the Restoration and Revegetation Plan.

- Disking or other mechanical treatments that would disturb the soil surface within native habitats will be avoided.
- Herbicide application is an effective means of reducing the size of noxious weed populations.
- Treatment methods will be based upon species-specific and area-specific conditions (e.g., proximity to water or riparian areas, or agricultural areas, and time of year) and will be coordinated with the local regulatory offices.
- If areas are not seeded until the following spring because of weather or scheduling constraints, all annuals and undesirable vegetation that have become established will be treated before seeding.

The Revegetation Plan outlines methods to restore vegetation in all areas of temporary ground and/or vegetation disturbance in the upland areas throughout the Project Area. The choice of broadcast, hydroseed, or drill methods for revegetation would be based upon site-specific factors. After revegetation, monitoring on at least 20 percent of the revegetated areas would be carried out annually for the first five years, then every five years for the life of the Project, to ensure that these areas remained revegetated.

Additionally, according to the Revegetation Plan, to mitigate for permanent loss of habitat from placement of facilities (e.g., turbines and permanent access roads), an equivalent number of acres as those that were impacted would be rehabilitated. Actions taken in the habitat improvement area would include fencing, preparation of habitat, revegetation, shrub plantings, maintenance, and monitoring. Monitoring on at least 10 percent of the revegetated areas would be carried out annually for the first five years, then every five years for the life of the Project, to ensure that these areas remained revegetated.

3.3.3.3 Alternative B – West Route (Proposed Action)

In addition to the permanent and temporary effects to vegetation resulting from construction and operation of the Echanis Project, the various components of Alternative B would also have permanent and temporary effects upon vegetation. The 28.87 miles of transmission line of Alternative B – West Route would require a total of 525.31 acres of ROW.

PERMANENT EFFECTS

Construction of Alternative B would result in the permanent removal of vegetation at Project facilities. During construction of the Interconnection Station (ICS), vegetation would be cleared and replaced with a gravel surface and impervious concrete pads for equipment. The ICS would require 0.69 acre of land. Transmission pole sites would each result in a small, permanent loss of vegetation. The transmission line poles would be located approximately 600 to 1,000 feet apart, requiring up to 260 poles for Alternative B. The total acreage would depend upon the number and locations of poles, but was estimated to be a maximum of 1.87 acres (Table 3.3-6).

Table 3.3-6 Disturbances from the Transmission Line Alternatives (acres, except where indicated)

Components	No Action – No Action	Alternative B			Alternative C – North Route (Preferred Alternative)
		West Route (Proposed Action)	S. Diamond Lane Route Option	Hog Wallow Route Option	
Number of poles	-	260	254	262	414
Permanent Effects					
Surface disturbance for poles	-	1.87	1.83	1.89	2.98
Interconnection station	-	0.69	0.69	0.69	0.69

Table 3.3-6 Disturbances from the Transmission Line Alternatives (acres, except where indicated)

Components	No Action – No Action	Alternative B			Alternative C – North Route (Preferred Alternative)
		West Route (Proposed Action)	S. Diamond Lane Route Option	Hog Wallow Route Option	
Improvements to existing access roads	-	3.88	3.88	3.88	-
New access roads	-	0.37	0.37	0.37	9.79
Overland vehicle access	-	25.28	21.02	25.58	24.29
Total	-	28.21	23.91	28.53	37.75
Temporary Effects					
Laydown areas	-	40.00	35.00	40.00	45.00
Tensioning sites	-	4.75	4.50	4.50	9.00
Distribution line relocation	-	2.45	2.45	2.45	-
Total¹	-	47.20	41.95	46.95	54.00

¹ Acres in table may not add to totals due to rounding differences

Approximately 0.19 mile of new access road construction and approximately 2.00 miles of existing road improvements (i.e., grading existing road beds) are planned. Road maintenance would include periodic grading to maintain an even roadway surface. ~~vegetation clearing; however, grasses and small vegetation would be left on the road bed if it does not obstruct access.~~ New access road construction would result in the loss of 0.37 acre of vegetation. Overland vehicle access would result in disturbance of up to 25.28 acres. Operation and maintenance activities for Alternative B would include selective clearing of vegetation, primarily juniper trees, only when necessary to provide for surveying, electrical clearance, line reliability, and construction and maintenance activities. The ROW would not be chemically treated to control vegetation, unless it was necessary to comply with the requirements of a permitting agency.

The permanent effects to vegetation from construction of Alternative B would occur primarily in big sagebrush steppe and native grassland (Table 3.3-4), although effects to smaller areas of other vegetation types would also occur. Approximately 9.64 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 6.51 acres of native grassland would be affected. Smaller areas of effect would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, 0.01 acre of pond, and 3.00 acres of other upland vegetation types. An additional 2.54 acres of permanent effects would occur to undetermined vegetation types, but would likely be primarily big sagebrush steppe, juniper woodland, or native grassland.

In summary, the permanent effects of Alternative B would include:

- Loss of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

The total acres of permanent impact to vegetation are relatively small (approximately 5 percent) compared to the approximately 525 acres in the ROW.

TEMPORARY EFFECTS

The areas proposed for the transmission poles and structures would be cleared of vegetation. However vegetation at tensioning sites, laydown sites, and downguys would be trampled, not cleared. Construction of

this alternative would also require relocation of a distribution line. Temporary disturbance would affect a combined area of up to 47.14 acres, depending upon the number of transmission line poles actually installed. Construction activities could result in the establishment and expansion of noxious weed populations. Temporary construction effects to vegetation from the Alternative B would occur primarily in big sagebrush steppe and native grassland habitat (Table 3.3-4), although the effects would also occur to smaller areas of other vegetation types. Approximately 16.75 acres of big sagebrush steppe and 11.5 acres of native grassland would be affected. Smaller areas of potential effect would include 0.25 acre of riparian meadow, 0.1 acre of riparian woodland, and 16.20 acres of other upland vegetation types. An additional 4.84 acres of temporary effects would occur to undetermined vegetation types, but would likely be primarily big sagebrush steppe or native grassland.

As described above, the potential temporary effects during construction would include:

- Loss of vegetation during Project construction.
- Trampling of vegetation during Project construction.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

Trampled vegetation and surface disturbance would be restored when construction was completed. Revegetation measures for areas with temporary disturbance are described in the POD for the transmission line (CEP 2009), and the revegetation measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Revegetation Plan (Appendix F) in consultation with the BLM and Harney County.

The Project would implement a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). On BLM-administered lands, mitigation measures are in place to avoid impacts to special status plants. Communities, populations, and habitats would not be impacted by herbicide use on BLM lands, because CEP would have BMPs in place to avoid impacts. However, if herbicides were used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying. The noxious weed control measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Noxious Weed Management Plan (Appendix F) in consultation with the BLM and Harney County.

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-kV

The upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was required on the transmission line. The second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most of the effects from installation of the second circuit would be temporary and similar to those described above. There could be minor differences in acres affected. Temporary effects upon vegetation would be associated primarily with the use of temporary laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for impacts to riparian meadows and riparian shrub woodland that would be trampled or otherwise disturbed during construction is provided in Section 3.4.

Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3) describe the Project BMPs and PDFs that were incorporated into the action alternatives and would be implemented during construction to reduce the effects to vegetation. In addition, the same mitigation described above for the effects common to all action alternatives would be applied to Alternative B.

South Diamond Lane Route Option

The 28.26 miles of transmission line for the South Diamond Lane Route Option of Alternative B would require a total of 514.1 acres of ROW. This route option differs from Alternative B only with the approximately 5 miles of transmission line before the tie-in and in the up to 254 poles needed for this route option. The South Diamond Lane Route Option would follow low, flat marshland, compared to the other alignment options that would be located over rock buttes. The potential impacts to marshland are discussed in Section 3.4. Special status plant surveys were not completed for this route option.

PERMANENT EFFECTS

Construction of the South Diamond Lane Route Option of Alternative B would result in the permanent removal of vegetation for Project facilities. During construction of the ICS, vegetation would be cleared and replaced with a gravel surface and impervious concrete pads for equipment. The ICS would require 0.69 acre of land. Transmission pole sites would each result in a small, permanent loss of vegetation. The total acreage would depend upon the number and locations of poles, but was estimated to be a maximum of 1.83 acres (Table 3.3-6). Because special status plant surveys were not completed for this route option, impacts could occur to special status plant species.

Approximately 0.19 mile of new access road construction and approximately 2 miles of existing road improvements (i.e., grading existing roadbed) are planned. Road maintenance would include periodic grading to maintain an even roadway surface. ~~include vegetation clearing; however, grasses and small vegetation would be left on the road bed if it does not obstruct access.~~ Operation and maintenance activities for the South Diamond Lane Route Option would include selective clearing of vegetation, primarily juniper trees, only when necessary to provide for surveying, electrical clearance, line reliability, and construction and maintenance activities. The ROW would not be chemically treated to control vegetation unless necessary to comply with the requirements of a permitting agency. These actions would result in the loss of 0.37 acre of vegetation. Overland vehicle access would result in the disturbance of up to 21.02 acres.

Permanent effects to vegetation from construction of the South Diamond Lane Route Option would occur primarily in big sagebrush steppe, juniper woodland, and native grassland (Table 3.3-4), although effects would also occur to smaller areas of other vegetation types. Approximately 8.66 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 4.23 acres of native grassland would be affected. Smaller areas of effect would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, and 2.01 acres of other upland vegetation types. An additional 2.50 acres of permanent effects would occur to undetermined vegetation types, but would likely be primarily big sagebrush steppe, juniper woodland, or native grassland.

In summary, the permanent effects of the South Diamond Lane Route Option of Alternative B would include:

- Loss of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Direct or indirect impacts to special status plant species, if any are present in the Project Area.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

The total acres of permanent impacts to vegetation would be relatively small (approximately 4 percent) compared to the approximately 514 acres in the ROW.

The Project would include protection measures to reduce the potential impacts to special status plants. Protection measures are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

TEMPORARY EFFECTS

The areas proposed for the transmission poles and structures would be cleared of vegetation, however vegetation at tensioning sites, laydown sites, and downguys would be trampled, not cleared. Construction of this route option would require the relocation of a distribution line. Temporary disturbance would affect up to 41.95 acres, depending upon the number of transmission line poles actually installed (Table 3.3-6). Construction activities could result in the establishment and expansion of noxious weed populations. The temporary construction effects to vegetation from the South Diamond Lane Route Option would occur primarily in big sagebrush steppe and native grassland (Table 3.3-4), although effects to smaller areas of other vegetation types would also occur. Approximately 16.5 acres of big sagebrush steppe, 6.25 acres of native grassland, and 5.50 acres of agricultural land would be affected. Smaller areas of potential effect would include 0.25 acre of riparian meadow and 11.00 acres of other upland vegetation types. An additional 4.79 acres of temporary effects would occur to habitat with undetermined vegetation types, but would likely be primarily big sagebrush steppe, native grassland, or agricultural lands.

In summary, the temporary effects for the South Diamond Lane Route Option of Alternative B would include:

- Loss and trampling of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Direct or indirect impacts to special status plant species, if any are present in the Project Area.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

Revegetation measures for areas with temporary disturbance are described in the POD for the transmission line (CEP 2009). The revegetation measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Revegetation Plan (Appendix F) in consultation with the BLM and Harney County.

Protection measures for special status plant populations that could be temporarily impacted by construction of the South Diamond Lane Route Option of Alternative B are presented in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

Construction activities could result in the establishment and expansion of noxious weed populations. However, the Project includes a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). On BLM-administered lands, mitigation measures would be implemented to avoid impacts to special status plants. Communities, populations, and habitats would not be impacted by herbicide use on BLM lands because BMPs would be in place to avoid impacts. However, if herbicides were used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying. The noxious weed control measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Noxious Weed Management Plan (Appendix F) in consultation with the BLM and Harney County.

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-kV

As described for Alternative B, the upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was required on the transmission line. The second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most of the effects from installation of the second circuit would be temporary and similar to those described above. There could be minor differences in acres affected. Temporary effects upon vegetation would be associated primarily with the use of temporary laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for impacts to riparian meadows and riparian shrub woodland that would be trampled or otherwise disturbed during construction is provided in Section 3.4.

Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3) describe the Project BMPs and PDFs that were incorporated into the action alternatives and would be implemented to reduce the effects to vegetation during construction. In addition, the same mitigation described above for the effects common to all action alternatives would apply to the Alternative B – South Diamond Lane Route Option.

Hog Wallow Route Option

The 29.06 miles of transmission line for the Hog Wallow Route Option of Alternative B would require a total of 528.77 acres of ROW. Because the route option differs only in the approximately 5 miles of transmission line before the tie-in, the effects to vegetation would be similar to those discussed for the South Diamond Lane Route Option. However, the Hog Wallow Route Option would be located over rock buttes, compared to the South Diamond Lane Route Option that would follow the low, flat marshland. The effects to vegetation would differ in that the Hog Wallow Route Option would require a total of 29.06 miles of ROW, from the Echanis substation to the tie-in with the HEC 115-kV line. In addition, up to 262 poles would be required for this route option. The effects and mitigation for general vegetation on the distribution line are similar to those described for the Alternative B – West Route and South Diamond Lane Route Option, differing only in the acres affected. Special status plant surveys were not completed for this route option.

PERMANENT EFFECTS

Construction of the Hog Wallow Route Option of Alternative B would result in the permanent removal of vegetation for Project facilities. During construction of the ICS, vegetation would be cleared and replaced with a gravel surface and impervious concrete pads for equipment. The ICS would require 0.69 acre of land. Transmission pole sites would each result in a small, permanent loss of vegetation. The total acreage would depend upon the number and locations of poles, but was estimated to be a maximum of 1.89 acres (Table 3.3-6). Because special status plant surveys were not completed for this option, there would be a potential for impacts to special status plant species.

Approximately 0.19 mile of new access road construction and approximately 2.00 miles of existing road improvements (i.e., grading existing roadbed) are planned. These actions would result in the loss of 0.37 acre of vegetation. Overland vehicle access would result in the disturbance of up to 25.58 acres. Road maintenance would include periodic grading to maintain an even roadway surface. ~~vegetation clearing; however, grasses and small vegetation would be left on the road bed if it does not obstruct access.~~ Operation and maintenance activities for the Hog Wallow Route Option would include selective clearing of vegetation, primarily juniper trees, only when necessary to provide for surveying, electrical clearance, line reliability, and construction and maintenance activities. The ROW would not be chemically treated to control vegetation, unless it was necessary to comply with the requirements of a permitting agency.

Permanent effects to vegetation from construction of the Hog Wallow Route Option would occur primarily in big sagebrush steppe, juniper woodland, and native grassland (Table 3.3-4), although effects would also occur

to smaller areas of other vegetation types. Approximately 11.25 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 4.93 acres of native grassland would be affected. Smaller areas of effect would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, and 3.26 acres of other upland vegetation types. An additional 2.55 acres of permanent effects would occur to undetermined vegetation types, but would likely be primarily big sagebrush steppe, juniper woodland, or native grassland.

In summary, the permanent effects of the Hog Wallow Route Option of Alternative B would include:

- Loss of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Direct or indirect impacts to special status plant species, if any are present in the Project Area.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

The total acres of permanent impacts to vegetation would be relatively small (approximately 5 percent) compared to the approximately 529 acres in the ROW.

The Project would implement protection measures to reduce the potential impacts to special status plants. Protection measures are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

TEMPORARY EFFECTS

The areas proposed for the transmission poles and structures would be cleared of vegetation, however vegetation at tensioning sites, laydown sites, and downguys would be trampled, not cleared. Construction of this route option would require the relocation of a distribution line. Temporary disturbance would affect up to 46.95 acres, depending upon the number of transmission line poles actually installed (Table 3.3-6). Construction activities could result in the establishment and expansion of noxious weed populations.

Temporary construction effects to vegetation from the Hog Wallow Route Option would occur primarily in big sagebrush steppe and native grassland (Table 3.3-4), although the effects would also occur to smaller areas of other habitat types. Approximately 17.00 acres of big sagebrush steppe, 5.25 acres of exotic annual grassland, and 11.00 acres of native grassland would be affected. Smaller areas of potential effect would include 0.25 acre of riparian meadow and 3.31 acres of other upland vegetation types. An additional 4.84 acres of temporary effects would occur to habitat with undetermined vegetation types, but would likely be primarily big sagebrush steppe or native grassland.

In summary, the temporary effects of the Hog Wallow Route Option of Alternative B would include:

- Loss and trampling of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Direct or indirect impacts to special status plant species, if any are present in the Project Area.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

Revegetation measures for areas with temporary disturbance are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Revegetation Plan (Appendix F) in consultation with the BLM and Harney County.

Protection measures for special status plant populations that could result in temporary impacts from construction of the Hog Wallow Route Option of Alternative B are presented in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3).

Construction activities could result in the establishment and expansion of noxious weed populations. However, the Project would implement a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). On BLM-administered lands, mitigation measures are in place to avoid impacts to special status plants. Communities, populations, and habitats would not be impacted by herbicide use on BLM lands, because BLM has BMPs in place to avoid impacts. However, if herbicides were used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying. The noxious weed control measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Noxious Weed Management Plan (Appendix F) in consultation with the BLM and Harney County.

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-kV

As described for Alternative B and the South Diamond Lane Route Option, the upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was required on the transmission line. The second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most effects from installation of the second circuit would be temporary and similar to those described above. There could be minor differences in acres affected. Temporary effects upon vegetation would be associated primarily with the use of temporary laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for impacts to riparian meadows and riparian shrub woodland that would be trampled or otherwise disturbed during construction is provided in Section 3.4.

Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3) describe the Project BMPs and PDFs that were incorporated into the action alternatives and would be implemented during construction to reduce effects to vegetation. In addition, the same mitigation described above for the effects common to all action alternatives would apply to the Hog Wallow Route Option.

115-kV Transmission Line Option

PERMANENT AND TEMPORARY EFFECTS

The 115-kV Transmission Line Option would be a reduced capacity design configuration constructed along the same transmission line alignments as described above for Alternative B – West Route and the South Diamond Lane and Hog Wallow Route Options. The 115-kV Transmission Line Option would include a single three-phase (i.e., three-conductor) 115-kV circuit. The alignment of the transmission line, pole heights and spacing, ROW width, construction methods, interconnection points, and access requirements would be the same as those described for Alternative B and the two route options, described above, except that there would not be temporary impacts from the phased construction of adding a future circuit.

MITIGATION

No additional mitigation measures for vegetation are proposed beyond the revegetation, special status plant protection, and noxious weed control measures described above for Alternative B.

3.3.3.4 Alternative C – North Route (Preferred Alternative)

In addition to the permanent and temporary effects to vegetation resulting from construction and operation of the Echanis Project, the various components of Alternative C would also have permanent and temporary effects upon vegetation. The 45.95 miles of the transmission line for Alternative C would require a total of 835.84 acres of ROW. Alternative C would incorporate the same procedures for turbine, transmission line, and access road construction as those described for Alternative B – West Route. The revegetation, protection, and weed control measures utilized would be the same for both alternatives. This alternative would be longer than any of the options for Alternative B and would require up to 414 poles. The effects and mitigation for general vegetation on this ROW would be similar to those described for the Alternative B – West Route and South Diamond Lane Route Option, differing only in the acres affected.

PERMANENT EFFECTS

Construction of Alternative C would result in the permanent removal of vegetation for Project facilities. During construction of the ICS, vegetation would be cleared and replaced with a gravel surface and impervious concrete pads for equipment. The ICS would require 0.69 acre of land. Transmission pole sites would each result in a small, permanent loss of vegetation. The total acreage would depend upon the number and locations of poles, but was estimated to be a maximum of 2.98 acres (Table 3.3-6). No plant species defined as special status species were found during the surveys that were conducted (NWC 2010o).

Approximately 5.03 miles of new access road construction is planned. This action would result in the loss of 9.79 acres of vegetation ~~for the new or improved access roads~~. Overland vehicle access roads would result in the disturbance of up to 24.29 acres. Road maintenance would include vegetation clearing; however, grasses and small vegetation would be left on the road bed if it did not obstruct access. Operation and maintenance activities for Alternative C would include selective clearing of vegetation, primarily juniper trees, only when necessary to provide for surveying, electrical clearance, line reliability, and construction and maintenance activities. The ROW would not be chemically treated to control vegetation, unless necessary to comply with the requirements of a permitting agency.

Permanent effects to vegetation from construction of Alternative C would occur primarily in big sagebrush steppe, dwarf sagebrush steppe, and juniper woodland (Table 3.3-4), although effects to smaller areas of other vegetation types would also occur. Approximately 17.37 acres of big sagebrush steppe, 4.49 acres of dwarf shrub-steppe, and 3.08 acres of juniper woodland would be affected. Smaller affected areas would include 0.24 acre of marsh/emergent wetland, 0.16 acre of riparian meadow, 0.76 acre of native grassland, 0.12 acre of riparian shrub-woodland, and 7.90 acres of other upland vegetation types, primarily exotic grassland. An additional 3.71 acres of permanent effects would occur to undetermined vegetation types. These acres would likely be primarily big sagebrush steppe or dwarf shrub-steppe.

In summary, the permanent effects of Alternative C would include:

- Loss of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads and improvement of existing access roads.
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

The total acres of permanent impact to vegetation would be relatively small (approximately 6 percent) compared to the approximately 836 acres in the ROW.

TEMPORARY EFFECTS

The areas proposed for the transmission poles and structures would be cleared of vegetation, however vegetation at tensioning sites, laydown sites, and downguys would be trampled, not cleared. Trampled

vegetation and surface disturbance would be restored when construction was completed. The transmission line poles would be located approximately 600 to 1,000 feet apart, requiring approximately 414 poles for Alternative C.

Temporary effects to vegetation from construction of Alternative C would occur primarily in big sagebrush steppe and native grassland (Table 3.3-4), although effects to smaller areas of other habitat types would also occur. Approximately 24.75 acres of big sagebrush steppe, 10.00 acres of agricultural land, 5.75 acres of dwarf sagebrush steppe, 5.50 acres of native grassland, and 5.25 acres of salt desert shrub, and 2.75 acres of other upland vegetation types would be affected, including exotic grassland and small amounts of alkali playa and juniper woodland. ~~An additional 6.25 acres of temporary effects to habitat are undetermined as to vegetation type. These acres are likely to be primarily big sagebrush steppe or juniper woodland.~~

In summary, the temporary effects for Alternative C would include:

- Loss and trampling of vegetation from the construction of Project facilities.
- Loss of vegetation from the construction of new access roads ~~and improvement of existing access roads.~~
- Introduction and spread of noxious weeds.
- Use of herbicides to control noxious weeds.

Revegetation measures for areas with temporary disturbance are described in the POD for the transmission line (CEP 2009), and are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Revegetation Plan (Appendix F) in consultation with the BLM and Harney County.

Construction activities could result in the establishment and expansion of noxious weed populations. However, the Project would implement a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). On BLM-administered lands, mitigation measures are in place to avoid impacts to special status plants. Communities, populations, and habitats would not be impacted by herbicide use on BLM lands, because BLM has BMPs in place to avoid impacts. However, if herbicides are used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying. The noxious weed control measures are described in Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3). In addition, the Applicant is developing a Noxious Weed Management Plan (Appendix F) in consultation with the BLM and Harney County.

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-kV

As described for Alternative C, the upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was required on the transmission line. The second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most of the effects from installation of the second circuit would be temporary and similar to those described above. There could be minor differences in acres affected. Temporary effects upon vegetation would be associated primarily with the use of temporary laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for impacts to riparian meadows and riparian shrub woodland that would be trampled or otherwise disturbed during construction is provided in Section 3.4.

Section 2 and Appendix A (A.1.3, A.1.6, and A.3.3) describe Project BMPs and PDFs that were incorporated into the action alternatives and would be implemented during construction to reduce the effects to vegetation. In addition, the same mitigation described above for the effects common to all action alternatives would apply to Alternative C.

115-kV Transmission Line Option

PERMANENT AND TEMPORARY EFFECTS

The 115-kV Transmission Line Option would be a reduced capacity design configuration constructed along the same transmission line alignments as described above for Alternative C. The 115-kV Transmission Line Option would include a single three-phase (i.e., three-conductor) 115-kV circuit. The alignment of the transmission line, pole heights and spacing, ROW width, construction methods, interconnection points, and access requirements would be the same as those described above for Alternative C, except that there would not be the temporary impacts from the phased construction of adding a future circuit.

MITIGATION

No additional mitigation measures for vegetation are proposed beyond the revegetation and noxious weed control measures described above for Alternative C.

3.3.3.5 Residual Effects after Mitigation

The residual effects of the Proposed Action that would last during construction would include vegetation degradation. Residual effects that would last at least as long as the life of the Project (an expected 40 years) and would include removal of trees and other vegetation.

3.3.3.6 Summary Comparison of Alternatives

A comparison of the potential effects of the various alternatives is provided in Table 3.3-7 and a summary of the effects for vegetation is presented in Table 3.3-8.

Table 3.3-7 Comparison of Effects to Vegetation (acres)

	Alternative A – No Action	Echanis Wind Energy Project	Alternative B			Alternative B—115- kV Transmission Line Option	Alternative C – North Route (Preferred Alternative)
			West Route (Proposed Action)	S. Diamond Lane Route Option	Hog Wallow Route Option		
Permanent Effects							
Upland	-	86.36	<u>24.92</u>	<u>20.67</u>	<u>25.21</u>	28.21	<u>33.58</u>
Riparian/Wetland/Water	-	2.87	0.75	0.74	0.75	0.75	0.49
<u>Undetermined</u>	-	2.00	<u>2.54</u>	<u>2.50</u>	<u>2.55</u>	1.58	<u>3.71</u>
Temporary Effects							
Upland	-	45.70	<u>44.50</u>	<u>39.25</u>	<u>44.25</u>	44.50	54.00
Riparian/Wetland/Water	-	0.00	<u>0.25</u>	<u>0.25</u>	0.25	0.25	0.00
<u>Undetermined</u>	-	13.10	4.84	4.79	4.84	4.84	<u>0.00</u>

Table 3.3-8 Summary of Effects to Vegetation

Alternative A - No Action	Echanis Wind Energy Project	Alternative B			Alternative C - North Route (Preferred Alternative)
		West Route (Proposed Action)	S. Diamond Lane Route Option	Hog Wallow Route Option	
<p>Under the No Action Alternative, no new transmission lines, substations, interconnection stations, or related wind energy facilities would be constructed and new or improved access roads would not be required.</p> <p>Vegetation in the area would continue to be subject to the effects of agricultural practices, particularly cattle grazing.</p> <p>In addition, the introduction of noxious weed species to the region by agriculture, recreation, and development would continue.</p>	<p>Approximately 1.84 acres would be cleared and covered with gravel and concrete foundations for the substation site.</p> <p>An overhead collection line would be installed with 18 towers, resulting in 1.27 acres of disturbance for the pole sites and overland access.</p> <p>The total acreage from turbine tower sites is dependent on the number and location of turbine towers (approximately 40 to 69 poles), but is estimated to be a maximum of 2.41 acres.</p> <p>The new or improved access roads would result in loss of 54.04 acres of vegetation.</p> <p>While no plant species defined as special status species for this analysis have been reported from surveys of the turbine strings, such species could occur on access road routes that have not yet been surveyed.</p> <p>Approximately 52.10 acres of big sagebrush steppe and 22.30 acres of juniper woodland would be affected.</p> <p>Smaller affected areas would include 8.06 acres of quaking aspen woodland, 2.66 acres of riparian shrub-woodland, 0.21 acre of marshes and emergent wetlands, and 3.90 acres of other upland vegetation types.</p> <p>An additional 2.00 acres of permanent effects would occur to undetermined vegetation types.</p> <p>Possible introduction and spread of noxious weeds and use of herbicides to control noxious weeds</p> <p>Temporary disturbance would affect 72.00 to 81.50 acres. Trampled vegetation and surface disturbance would be restored when construction was completed.</p> <p>Approximately 41.12 acres of big sagebrush steppe and 4.58 acres of quaking aspen woodland would be affected.</p>	<p>Approximately 0.69 acres would be cleared and replaced with a gravel surface and concrete pads for the ICS substation site.</p> <p>Transmission pole disturbance estimated to be a maximum of 1.87 acres.</p> <p>The new or improved access roads would result in loss of 4.25 acres of vegetation. Overland vehicle access would result in disturbance to up to 25.28 acres.</p> <p>In the ROW, there would be selective clearing of vegetation, primarily juniper trees when necessary.</p> <p>The ROW would not be chemically treated to control vegetation unless necessary to comply with requirements of a permitting agency.</p> <p>Approximately 9.64 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 6.51 acres of native grassland would be affected.</p> <p>Smaller areas of effect would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, 0.01 acre of pond, and 3.00 acres of other upland vegetation types.</p> <p>An additional 2.54 acres of permanent effects would occur to undetermined vegetation types.</p> <p>Direct or indirect impacts to special status plant species, if any are present in the Project Area.</p> <p>Possible introduction</p>	<p>Effects not listed below would be the same as in Alternative B-West Route.</p> <p>Transmission pole disturbance estimated to be a maximum of 1.87 acres.</p> <p>The new or improved access roads would result in loss of 3.13 acres of vegetation. Overland vehicle access would result in disturbance of up to 21.04 acres.</p> <p>Approximately 8.66 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 4.23 acres of native grassland would be affected.</p> <p>Smaller areas of effect would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, and 2.01 acres of other upland vegetation types.</p> <p>An additional 2.50 acres of permanent effects would occur to undetermined vegetation types.</p> <p><u>Direct or indirect impacts to special status plant species, if any are present in the Project Area.</u></p> <p><u>Possible introduction and spread of noxious weeds, and use of herbicides to control noxious weeds.</u></p> <p>Temporary disturbance would affect up to 41.95 acres.</p> <p>Approximately 16.5 acres of big sagebrush steppe, 6.25 acres of native grassland, and 5.50</p>	<p>Effects not listed below would be the same as in Alternative B-West Route.</p> <p>Transmission pole disturbance estimated to be a maximum of 1.89 acres.</p> <p>The new or improved access roads would result in loss of 3.13 acres of vegetation. Overland vehicle access would result in disturbance of up to 25.61 acres.</p> <p>Approximately 11.25 acres of big sagebrush steppe, 5.77 acres of juniper woodland, and 4.93 acres of native grassland would be affected.</p> <p>Smaller areas of effects would include 0.61 acre of riparian meadow, 0.13 acre of riparian shrub-woodland, and 3.26 acres of other upland vegetation types.</p> <p>An additional 2.55 acres of permanent effects would occur to undetermined vegetation types.</p> <p><u>Direct or indirect impacts to special status plant species, if any are present in the Project Area.</u></p> <p><u>Possible introduction and spread of noxious weeds, and use of herbicides to control noxious weeds.</u></p> <p>Temporary disturbance would affect up to 46.95 acres.</p>	<p>Effects not listed below would be the same as in Alternative B-West Route.</p> <p>Transmission pole disturbance estimated to be a maximum of 2.98 acres.</p> <p>The new or improved access roads would result in loss of 9.76 acres of vegetation. Overland vehicle access would result in disturbance of up to 24.29 acres.</p> <p>Approximately 17.37 acres of big sagebrush steppe, 4.49 acres of dwarf shrub-steppe, and 3.08 acres of juniper woodland would be affected.</p> <p>Smaller affected areas would include 0.24 acre of marsh/emergent wetland, 0.16 acre of riparian meadow, 0.76 acre of native grassland, 0.12 acre of riparian shrub-woodland, and 7.90 acres of other upland vegetation types.</p> <p>An additional 3.71 acres of permanent effects would occur to undetermined vegetation types.</p> <p><u>Direct or indirect impacts to special status plant species, if any are present in the Project Area.</u></p> <p><u>Possible introduction and spread of noxious weeds, and use of herbicides to control noxious weeds.</u></p> <p>Temporary disturbance would affect up to 54 acres</p> <p>Approximately 24.75 acres of big sagebrush steppe, 10.00 acres of agricultural land, 5.75 acres of dwarf sagebrush steppe, 5.50 acres of native grassland, 5.25 acres of salt desert shrub, and 2.75 acres of other upland vegetation types would be temporarily affected during construction.</p> <p>An additional 6.25 acres of temporary effects to habitat are undetermined as to vegetation type.</p>

	<p>An additional 13.10 acres of temporary effects would occur to undetermined vegetation types.</p> <p><u>The Project includes a noxious weed control strategy to reduce the potential for weeds to invade new areas and to minimize the spread of weeds within the Project Area. Noxious weed control measures would be used to minimize the spread of noxious weeds during Project construction. Noxious weed control measures are described in the POD for the transmission line (CEP 2009). If herbicides were used to control noxious weeds on private (or non-BLM) lands, impacts to adjacent special status plant populations or sensitive habitats could occur from overspraying.</u></p>	<p>and spread of noxious weeds and use of herbicides to control noxious weeds.</p> <p>Temporary disturbance would affect up to 47.20 acres.</p> <p>Approximately 16.75 acres of big sagebrush steppe and 11.5 acres of native grassland would be temporarily affected during construction.</p> <p>Smaller areas of potential effects during construction would include 0.25 acre of riparian meadow, 0.1 acre of riparian woodland, and 16.20 acres of other upland vegetation types. An additional 4.84 acres of temporary effects would occur to undetermined vegetation types.</p>	<p>acres of agricultural land would be temporarily affected during construction.</p> <p>Smaller areas of potential effects during construction would include 0.25 acre of riparian meadow and 11.00 acres of other upland vegetation types. An additional 4.79 acres of temporary effects would occur to undetermined vegetation types.</p>	<p>Approximately 17.00 acres of big sagebrush steppe, 5.25 acres of exotic annual grassland, and 11.00 acres of native grassland would be temporarily affected during construction.</p> <p>Smaller areas of potential effects during construction would include 0.25 acre of riparian meadow and 3.31 acres of other upland vegetation types.</p> <p>An additional 4.84 acres of temporary effects would occur to undetermined vegetation types.</p>	
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