

# Vegetation

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## Affected Environment

The vegetation in the proposed project area is influenced by the topography, climate, soils, and current and past human activities. The proposed transmission line project corridor lies within the Columbia River basin region province of eastern Oregon and Washington. The topography is gently undulating to moderately hilly with elevations ranging from 985 to 1,970 ft above sea level. Climatically, the region can be characterized as arid to semiarid with low precipitation, hot, dry summers, and relatively cold winters (Franklin and Dyrness 1988).

The plant communities that dominated the Columbia River basin landscape prior to European settlement have been influenced by human activities. Most of the vegetation in the vicinity of the proposed project has been disturbed to varying degrees by the introduction of domestic livestock into the region in the 1830s, the conversion of some natural habitats to croplands in the 1900s and, more recently, by vegetation management activities within the transmission line corridor (Daubenmire 1970). As in other portions of the Columbia Basin, plant communities within the project area have been gradually invaded by invasive, nonnative species such as cheatgrass, bulbous bluegrass, diffuse knapweed, Dalmatian toadflax, and other weed species. Thus, while most of the portions of the project vicinity that are not in agricultural production are considered native communities, the species that comprise these communities have changed since their pristine, pre-European settlement condition.

The distribution of plant communities along the corridor, based on land use information, is shown in Figure 3-38. These vegetation communities include agricultural lands, grass/forb, shrub/steppe, lithosol, and forest/deciduous shrub and are described below. Relatively non-vegetated areas in the project area include some lithosol (areas with rocky soils), rock outcrops, open water, and disturbed areas such as gravel pits. The approximate acres of the major vegetation communities within the corridor are shown in Table 3-17. A list of plant species identified during field visits in June of 2002 is shown in Appendix C (Table C-2).

It should be noted that the Vegetation Map (Figure 3-38) is a general representation of the complexity of the distribution of plant communities. This generalization is necessary for a map of this scale because of the difficulties in representing locations where communities intergrade and where small pockets of community types occur within other community types. For example, lithosols occur scattered throughout all community types. Deciduous shrubs grow on north facing slopes within shrub/steppe, while areas dominated by sagebrush occur on south-facing slopes and hilltops.

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**Table 3-17. Vegetation Communities Within the Corridor.**

<b>Vegetation Community</b>	<b>Approximate Acres</b>	<b>Percentage of corridor</b>	<b>Proposed Activity</b>	<b>Potential Impacts</b>
Grass/Forb and Lithosol	46	3	Tower construction, road widening, road rebuild, and new road construction	Temporary and permanent vegetation removal
Shrub/steppe	306	20	Tower construction, road widening, road rebuild, and new road construction	Temporary and permanent vegetation removal
Forest/Deciduous Shrub	382	25	Tower construction, road widening, road rebuild, and new road construction	Temporary and permanent vegetation removal
Agricultural	764	50	Tower construction and temporary road construction	Temporary vegetation removal
Other (e.g. commercial development, landfills)	30	2		

#### **Agricultural Lands**

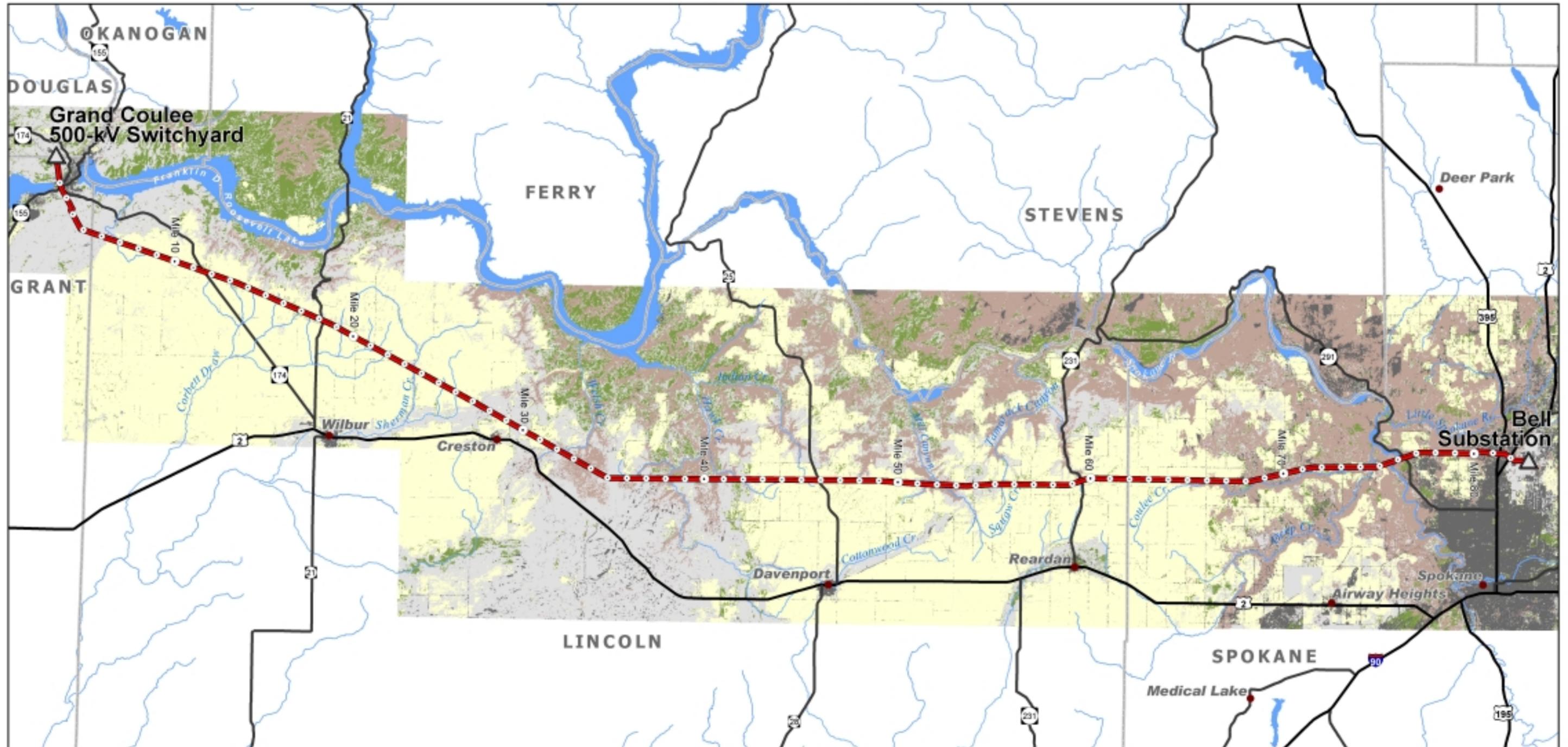
Approximately one-half of the corridor is in agricultural production. Dryland wheat farms, fallow fields, and pasturelands compose the vegetation type from corridor miles 6/4 to 28/1, 43/4 to 52/1, and 54/9 to 66/4. Most unplowed areas adjacent to agricultural fields are vegetated primarily with non-native species. These large tracts of cultivated land contain small remnants of shrub/steppe and forest/shrub vegetation that provide important connections for plants and wildlife to native habitats outside the corridor.

#### **Grass/Forbs**

There are few areas without many woody species within the corridor. Because ponderosa pine were cut within the corridor, some grass and forb dominated areas within the corridor have woodlands on either side of the corridor and, therefore, are not true grasslands, i.e., areas that could not support the growth of tree species. Grass/forb communities grow mainly within channelized scablands, where the topography is characterized by a series of small mounds, usually less than 50 feet in diameter, with intervening low lying areas, often lithosols. The grass/forb community comprises about 121 acres (2 percent) of the corridor vegetation.

# GRAND COULEE - BELL 500kV TRANSMISSION LINE PROJECT

## VEGETATION



Area of Interest



Data Source: U.S.G.S Digital Line Graphs, Washington Dept. of Fish and Wildlife, USGS Landuse, Bonneville Power Administration Regional GIS Database. All data is best AVAILABLE. 5/13/02

- |              |                            |
|--------------|----------------------------|
| Other        | Mile Marker                |
| Forested     | Substation or Switchyard   |
| Shrub/Steppe | Major Road                 |
| Agriculture  | Grand Coulee-Bell Corridor |
| Grassland    | COUNTY BOUNDARY            |



SCALE 1:325,000

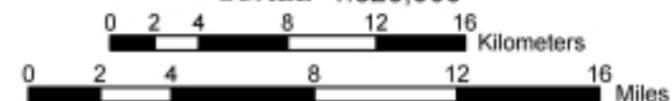


FIGURE3-38



Dominant species within this vegetation type include cheatgrass and other weedy forbs. Other non-native species include brome, crested wheatgrass, knapweed, Russian thistle, Dalmatian toadflax, and common tumbled mustard. Native species present in this community include giant wildrye, various buckwheat species, and occasional shrubs including sagebrush and wax current. The scientific name of all species mentioned in the text can be found in Table C-2 in Appendix C.

### **Lithosols**

Lithosol communities occur in areas with rocky soil, usually in areas underlain with basalt. A distinctive plant community develops with few shrubs and a wide diversity of forbs associated with only a few grass species, primarily bluegrass species. Stiff sagebrush is the dominant shrub in lithosol areas. Forbs include the species found in shrub/steppe but with more diversity and at a greater density so that these communities are very attractive during spring blooming period. Weed species are not very abundant in lithosols, with cheat grass as the most common species.

Other rocky areas within the corridor resemble basalt flows, because there is little to no topsoil over the basalt bedrock, which extends over the landscape. The only plant life in these areas survives in cracks in the rock. Very few plant species are able to survive in this harsh environment. Bitterroot is common in some areas. Stonecrop and fameflower were only observed within this plant community. It is difficult to calculate the area of the corridor covered by lithosol and other rocky areas due to their generally small sizes and patchy distribution. However, this community comprises only a small percentage of the proposed project corridor (Table 3-17).

### **Shrub/Steppe**

The shrub/steppe community covers about 807 acres (20 percent) of the of the project area. Shrub/steppe communities occur across the western portion of the corridor from the Grand Coulee Switchyard to the corridor section near the town of Creston. This vegetation community is found mainly on channelized scablands and is dominated by shrubs, primarily sagebrush, with a grass and forb understory. Channelized scablands, as described under Soils and Geology, are a unique geologic feature in the Columbia River Basin that supports unique plant communities.

The dominant sage species along the corridor are stiff sagebrush, with lesser amounts of big sagebrush. Other shrubs are present in some areas, such as bitterbrush and a variety of deciduous shrubs, such as snowberry and wax currant. Within shrub/steppe, areas dominated by deciduous shrubs tend to occur in moister areas, such as along waterways, near wetlands, and on north-facing slopes.

A variety of grasses and forbs are found in shrub/steppe. Generally, the diversity of native species is high and the abundance of weed species is low. Native forbs include pucoon, wild onion, various buckwheat species, yarrow, phlox, flax, lupine, penstemon, arnica, various species

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of biscuit root, daisy, Oregon sunshine, and a variety of other species. Idaho fescue is the dominant native grass in this community although bluebunch wheatgrass and some bluegrass species are also found. Weedy forbs and grasses include diffuse knapweed, St. John's wort, cheat grass, and bulbous bluegrass.

This vegetation type has not been affected very much by corridor maintenance activities, evidenced by the fact the shrub/steppe community within the corridor is similar to that located outside the corridor. Some shrub/steppe areas have been converted to grasslands for grazing. Although cheat grass is fairly uniformly distributed throughout shrub/steppe, the other weedy species found in this community tend to occur more frequently along roadways.

#### **Forest and Deciduous Shrub**

The forest and deciduous shrub community covers about 1009 acres (25 percent) of the of the project area, although most trees have been removed within the corridor. In addition to long stretches of forested areas, this vegetation type also occurs as scattered patches within agricultural areas, along drainages and in canyons. Although this vegetation type is referred to as "forest" it appears more as a woodland in the project area, with scattered clumps of trees with intervening open areas, rather than the dense tree cover characteristic of a forest. Areas of shrub/steppe and lithosols occur within forested areas.

In most areas, ponderosa pine is the most abundant tree species. In other areas, some Douglas-fir and aspen trees are associated with ponderosa pine. Although snowberry is the most common shrub species, a large diversity of native shrubs occur within this vegetation type, including rose, red-stem ceanothus, elderberry, wax and golden currant, serviceberry, thimbleberry, chokecherry, and oceanspray. Native forbs in this plant community include sticky geranium, old man's beard, cinquefoil species, pussytoes, desert paintbrush and a diversity of other species. Some open slopes covered with balsamroot and lupine occur within this vegetation type. Dalmatian toadflax and bulbous bluegrass are the main weedy species.

#### **Threatened and Endangered Species**

Federally-listed *threatened* and *endangered* plant species are native plants that have been given special protection status under the federal Endangered Species Act because of concern over their continued existence. Species in danger of extinction are classified as endangered, while species at risk of becoming endangered are classified as threatened. Although the Natural Heritage Database did not identify any federally-listed plant species as occurring within one-eighth mile of the corridor area, the USFWS has identified three federally-listed threatened species, Ute ladies'-tresses (*Spiranthes diluvialis*), Spalding's catchfly (*Silene spaldingii*), and Howellia (*Howellia aquatilis*) as having potential habitat present within the project corridor.

Ute ladies'-tresses is a federally-listed threatened species and a state threatened species. This species is known to occur in eight western states. There are several occurrences of this species in

Washington State, but this species is not known to occur in any of the counties within the project area. Ute ladies'-tresses is a perennial orchid that is generally found in low elevation wetlands in valleys. One of the known Washington State occurrences is within a periodically flooded alkaline, wet meadow that is adjacent to a sagebrush steppe community with big sagebrush, bitterbrush, and rabbitbrush. Ute ladies'-tresses is generally associated with spikerush, sedge species, grasses, and rushes.

Spalding's catchfly is a federally-listed threatened species and state threatened species that occurs with the snowberry/Idaho fescue dominated plant communities. Spalding's catchfly occurs in native grasslands that are in reasonably good ecological condition, although populations have persisted in areas that have had moderate grazing pressure. Populations tend to be quite small and are currently quite fragmented, raising questions about their long-term viability. The species begins to flower in mid- to late July, with some individuals still flowering by early September. Some of these sites occur in a mosaic of grassland and ponderosa pine forest.

Howellia is a federally-listed threatened species and state threatened species that is known to occur in Spokane County. Howellia occurs in small, vernal ponds within the forested portions of the channeled scablands. Howellia requires exposure to air to germinate and inundation for growth in the spring restricting the species to the zone within wetlands that is seasonally inundated, although some portion of the ponds may retain water throughout the year. Howellia is generally associated with aspen, water parsnip (*Sium suave*), bur-reed (*Sparganium* sp.), bladderwort (*Utricularia* sp.), pondweed (*Potamogeton* sp.), and reed canary grass.

During early June 2002, a survey of the corridor identified potential habitat for Ute ladies'-tresses, Howellia, and Spalding's catchfly. Some of the wetlands within the project area are potential habitat for Ute ladies'-tresses. Potential Spalding's catchfly habitat is present within some of the forest/deciduous shrub community, as evidenced by the presence of the species it is normally associated with.

A rare plant survey will be conducted in the summer of 2002 in areas identified as potential habitat in order to determine if these species are present in the corridor. If any waterways or wetlands would be impacted, those areas will be surveyed for Ute ladies'-tresses and Howellia.

### **Noxious Weeds**

Disturbed areas may become infested with noxious plant species without proper vegetation management.

Weeds are plant species designated as such by federal or state law. The detrimental effects of weed species are numerous and the invasion of public and private lands by weed species is a matter of great concern. Noxious weeds can threaten native plant communities by displacing native species, invading farmlands, and injuring humans and animals. Some weed species form

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monocultures, reducing biodiversity. Weeds reduce the quality of wildlife habitat when they replace native food source and cover species. Some weeds contribute to the rapid spread of fire by providing fuel. Most weeds are not as efficient at binding soil, contributing to soil erosion by water and wind. Washington State law designates some particularly troublesome weeds as “noxious weed” species (Washington’s Weed Law, Washington Administrative Code, Chapter 17-10 RCW). The Washington State Noxious Weed List is divided into three classes within each county, based on the state of invasion:

- **Class A Weeds** have a limited distribution in the state and state law requires eradication of these species.
- **Class B Weeds** are established in some regions of the state but are limited in their distribution. The type of control required varies in each region depending on the degree of establishment. When these species are either unrecorded in a region or limited in distribution, they are considered a “Class B Designate” species, which means they are designated for control by state law.
- **Class C Weeds** are widely established and of interest to the agricultural industry. Some of these weeds are controlled on a local basis depending on local threats and the feasibility of control.

County Noxious Weed Control Boards coordinate weed detection and control activities, emphasizing prevention of invasion by noxious weeds, eradication when possible, and containment of established species on state owned and private lands. To accomplish this, counties adopt a county-weed list each year, also divided into Classes A-C, based on the degree of threat they pose to that county. Counties also maintain Education Lists, which include weeds that are not included in Class A-C but that the Weed Board will assist landowners in control efforts.

Not all undesirable plant species are officially designated as state weeds. For example, although land managers are concerned about the spread of non-native grass species such as medusa head and cheatgrass, these species are not on state weed lists. These weedy grass species are fairly widespread and have undesirable effects on plant communities, particularly shrub/steppe.

Some weeds were noted in the project area during the summer of 2002 and a comprehensive weed survey will be conducted prior to construction. The following weeds occur within the transmission line corridor:

**Table 3-18. Weeds of Concern in Project Area\***

Common Name	County Class		
	Spokane County	Lincoln County	Grant County
Canada thistle	C	C	C
Common tansy		C	
Dalmatian toadflax	B	B	B
Diffuse knapweed	B	B	B
Perennial sowthistle		B	
St. John's wort		C	C

\*Species provided by County Weed Boards (NWCB of Grant County, 2002, NWCB of Spokane County 2002, and NWCB of Lincoln County 2002)

## Environmental Consequences

The proposed transmission line project would result in both permanent and temporary impacts to vegetation within the project corridor. Permanent impacts occur from actions that would result in the removal and loss of vegetation in such a way that the reestablishment of the preconstruction vegetation community is very unlikely. Four project actions would result in permanent impacts to vegetation within the construction footprint: construction of new towers, new access and spur road construction, widening of existing roads, and the expansion of the Bell Substation.

Temporary impacts occur from actions that would disturb vegetation, but would not permanently prevent the reestablishment of the preconstruction vegetation cover type. Project actions that would result in temporary impacts to vegetation include construction work areas around the tower sites, conductor tensioning, and staging areas sites. With proper best management practices and possible mitigation, some impacts, such as those that occur only during construction, are short term or temporary because over time native revegetation may occur if weed species are controlled. Shrub/steppe is very slow to recover and may never fully recover. Areas dominated by deciduous shrubs are likely to recover more quickly but still take a considerable time to return to pre-disturbance conditions.

Impacts from ongoing disturbances, such as corridor maintenance, could have a long-term effect on plant species composition and plant communities through removal of tall-growing vegetation. These areas would be typically limited to areas that are forested, because corridor maintenance would remove trees and a grass/forb or shrub dominated plant community would dominate.

Impacts can also be categorized as direct or indirect. Direct impacts, such as vegetation clearing and soil compaction, are generally immediate and confined to the project area. This would occur around tower sites, conductor tensioning sites, staging areas, and where access road improvement would occur. Indirect impacts, such as vegetation crushing, sedimentation, and the

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introduction of weedy plant species, can occur outside the direct impact area and may take a longer period of time before effects become apparent.

#### **Impact Definitions**

A **high** impact would occur under the following circumstances:

- Native vegetation with little to no exotic species would be significantly reduced or damaged by altering substrate (soil compaction or rocking), reducing native plant diversity and mitigation cannot provide full compensation.
- Activities would result in impacts to federally-listed species and mitigation cannot provide full compensation.
- Noxious weeds would be introduced into a high quality native plant community and mitigation cannot provide full compensation.

A **moderate** impact would occur under the following circumstances:

- Native plant communities are disturbed by altering substrate, reducing native plant diversity and mitigation might not provide full compensation.
- Activities would result in impacts to federally-listed species and mitigation might not provide full compensation.
- Activities would result in increasing noxious weeds into the area and mitigation might not provide full compensation.

A **low** impact would occur under the following circumstances:

- Plant species or communities affected would be temporarily disturbed but natural recovery to pre-disturbance conditions would be likely and mitigation would provide nearly full compensation.
- Activities would result in impacts to federally listed species and mitigation would provide nearly full compensation.
- Activities resulted in areas where noxious weed densities do not increase substantially within areas where they already exist; mitigation would provide nearly full compensation.

#### **Impacts**

##### **Towers and Related Construction**

Removal of existing wood pole structures would result in direct and indirect impacts to vegetation. Direct impacts could result from crushing vegetation or soil compaction during accessing the old structures. Approximately 756 existing wood pole structures would be excavated or cut off 2 feet below ground level and holes backfilled with native material. Typically, a 6-foot radius area is excavated around each wood pole structure for removal. The

total area that would be disturbed by removal of existing wood pole structures would be approximately 17.4 acres, with about 8.7 acres of this in agricultural fields, 4.4 acres in forested habitat, and 3.5 acres in shrub/steppe habitat. Indirect impacts could occur if vegetation was crushed to the extent that noxious weeds could become introduced. The impact level would be low to moderate.

Construction areas around towers would result in direct and indirect impacts to vegetation. Typically a 0.5-acre radius around each tower would be disturbed for tower installation. About five structures would be constructed within each mile of corridor. The total area disturbed by tower construction would be about 210 acres out of 1,528 acres, with about 52 acres of this in forested habitat and 42 acres in shrub/steppe habitat. Direct impacts would result from temporary removal of vegetation (including roots), excavating and grading, and installing footings. Plants could be broken, uprooted, or trampled by construction vehicles. Indirect impacts could occur if vegetation was crushed to the extent that noxious weeds could become introduced. Where appropriate, topsoil and the seed bank the soil contains would be stockpiled and replaced after construction is completed. Revegetation of the plant community from the seed bank and natural recruitment, or mitigation, if required, along with noxious weed control, would recolonize the disturbed areas. The impact level would be moderate.

Construction of new towers would result in direct and indirect impacts to vegetation. Direct impacts would result from the permanent removal of vegetation in a 2,500 square foot area for footing placements. Installation of 420 towers would result in permanent removal of 24 acres of vegetation, with about 6 acres of this in forested habitat and 5 acres in shrub/steppe habitat. Indirect impacts could occur if noxious weeds could become introduced. The impact level would be low to moderate.

Conductor tensioning sites and staging areas would result in direct and indirect impacts to 42 acres of vegetation. Although the exact locations are unknown, it is assumed that approximately 11 acres of this would be in forested habitat and 8 acres in shrub/steppe habitat. Depending on the location chosen for these sites, direct impacts could result from vegetation being broken, uprooted, or trampled. Indirect impacts could result from noxious weeds becoming established before native species have recovered. With proper mitigation, the impact level would be low to moderate.

### Road Construction

Construction of new access roads would have direct and indirect impacts to vegetation. Direct impacts would result from removal of vegetation (including roots) during grading and rock and soil compaction. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas, smothering vegetation. The total area disturbed as a result of construction of approximately 4.9 miles of new access roads would be 15.6 acres, with about 7.8 acres in forested habitat and 6.2 acres in shrub/steppe habitat.

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Short segments of the access roads would need to be realigned, as new tower placements are too close to the existing road to allow the passage of construction equipment. Proposed realignment of access roads include moving the road to the south of its current location near corridor miles 35/3, 35/5, 35/7, 36/1, and 36/3 and moving the road to the north of its current location near corridor miles 35/9, 37/6, 38/6, and 40/1. In addition, there are a few locations where the access road goes under existing steel towers and there is not enough clearance for construction equipment (e.g., corridor mile 36/3 and 38/3). Short segments of new access roads would need to be constructed around the existing towers to allow for the passage of construction equipment. Although the vegetative communities within the proposed new road segments would be impacted due to the removal of vegetation and soil compaction, these impacts could be mitigated by revegetation and eventual natural recolonization of the abandoned segments by plant species. Therefore, low to moderate impacts could be expected from the realignment of access roads within the corridor, unless a federally-listed species is present.

A temporary short road may be constructed just west of Lincoln County Road 913. Most land in this area is agricultural land. Impacts to agricultural lands due to the proposed project are not expected to be substantially affected by a new access road because with proper weed control, pre-disturbance conditions would occur shortly after construction is completed. Therefore, impacts would be low.

Within a portion of corridor mile 36, a new access road is proposed within the corridor. Native forb and shrub vegetation within the proposed new road segments would be impacted through vegetation removal and soil compaction. Revegetating the abandoned segments would partially mitigate these impacts. Moderate to high impacts would be expected from the construction of the realignment of access roads within the corridor because this is an area vegetated primarily with native species, with few weed species, and has been identified as potential habitat for a federally-listed plant species.

Construction of spur roads would have direct and indirect impacts to vegetation. Direct and indirect impacts are similar to those described above for compaction. The total area disturbed as a result of construction of approximately 2 miles permanent spur roads would be about 6.3 acres, with about 3.2 acres in forested habitat and 2.5 acres in shrub/steppe habitat. The impact level would be moderate to high because this is an area vegetated primarily with native species, with few weed species.

Improvements to existing access roads would have direct and indirect impacts to vegetation. Direct impacts would result from vegetation removal and/or burying from grading and rocking within the existing road footprint, widening existing roads, and vegetation crushing from vehicle use. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas, smothering vegetation. The total area disturbed as a result of 16.6 miles of road improvements would be approximately 52.5 acres, with about 26.3 acres in forested habitat and 21 acres in shrub/steppe habitat. Most road improvements would occur within the existing footprint of the road in shrub/steppe or forested communities that have already been disturbed by

vehicle use. Based on observation and preliminary information, the impact level would be low to moderate, unless a federally-listed species is present.

There are a few areas where the existing access road would need to be widened to accommodate the large construction equipment needed for construction activities, including some sections of access road outside of the corridor. Widening existing access roads would have direct and indirect impacts similar to those described above. Most of the access roads pass through forest/shrub vegetation that could potentially be cleared to allow widening (i.e., near corridor miles 39/2, 41/5, 52/2, 53/1, 53/4, 73/1, 79/2, and 80/4). Some widening could occur in riparian forest communities (e.g., near corridor mile 41/2 and 43/2). Forest communities are scattered in the project vicinity and impacts to forests can be mitigated. Based on observation and preliminary information on the extent of the areas that would need to be widened, the impact level would be low to moderate unless federally-listed species are present.

Widening the corridor across ravines and canyons, if required, could cause direct and indirect impacts. Direct impacts would result from the removal of tall trees and shrubs that could potentially interfere with transmission lines. However, low-growing vegetation would not be affected. Most of the removal of tall growing vegetation along the corridor would be in the canyons of Hawk Creek, an area east of Welsh Creek Canyon, and the area between Saben and Squaw Creek canyons. Indirect impacts could result from the introduction of plant species, both native and non-native, currently not present. With the removal of tall plants, the canopy would be opened up, allowing more sunlight into the area. Plant species adapted to less shade could out-compete those species that prefer shady areas. It is currently unknown how much, if any, tall growing vegetation would need to be removed to allow for transmission line clearance. Depending upon the amount of land affected, the impact level to ponderosa pine-dominated forests could be low to moderate because most of the habitat losses would occur in this one plant community.

Installing/replacing culverts could result in direct or indirect impacts to vegetation. Direct impacts would result from vegetation removal during installation. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas, smothering vegetation or if vegetation was crushed to the extent that noxious weeds could become introduced. Most of the area disturbed by installing or replacing culverts would occur within the existing footprint of the road. Based on observation and preliminary information, the impact level would be low to moderate, unless a federally-listed species is present.

### Operation and Maintenance

Operation of the new transmission line would not have direct and indirect impacts to vegetation. Therefore, the impact level would be no impact.

Maintenance of the new transmission line would have direct and indirect impacts to vegetation. Direct impacts would result from vegetation that would be periodically cut and maintained to

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allow access to transmission facilities as well as tall growing vegetation that could interfere with lines. Indirect impacts would result from the continued use of access roads damaging root structures, dust clogging leaf surfaces, and the spread of weed species. Vegetation management would be carried out in accordance with BPA's Vegetation Management Program. Because the maintenance activities would be almost entirely within an existing corridor that has been maintained for nearly 50 years, continued maintenance would have a low impact level.

#### **Noxious Weed Species**

All activities associated with the construction and maintenance of the transmission line could have direct impacts to vegetation as a result of noxious weeds. Direct impacts would result from noxious weeds being inadvertently spread when vehicles travel between infested and non-infested areas during construction and maintenance. Indirect impacts to native vegetation can result if noxious weeds take advantage of disturbed soils and lack of competing vegetation to invade areas recently cleared. The impact level would be low to moderate.

BPA would conduct a weed survey prior to construction to determine the occurrence, extent and species of noxious weeds within the project area. BPA would take measures to lessen the spread or introduction of noxious plants during construction including developing a Weed Control Plan and consulting County Weed Control Boards for recommendations (see **Mitigation**).

#### **Threatened and Endangered Species**

A survey of potential habitat for listed species identified during the June surveys will be conducted in late July or early August 2002 to determine if these species occur within the corridor. Preliminary assessment of corridor vegetation indicates that although areas have been disturbed, suitable habitat for listed species exists within the corridor.

Although full impacts cannot be addressed until a survey is done of all potential habitat areas that would be impacted by project activities, a Biological Assessment analyzing the effects of the project on federally-listed threatened and endangered species will be conducted pursuant to Section 7 of the Endangered Species Act.

#### **Environmental Consequences of the Alternative Action**

Vegetation impacts would be the same for the alternative that would have more double-circuit line.

#### **Cumulative Impacts**

Plant species and communities are interdependent parts of a complex system of soil, water, human and animal life, and many other biological resources. The system is weakened when plant communities are destroyed, become fragmented, or when important native habitats are

invaded by non-native weeds. During the last century, agricultural development in the project area has had a significant impact on the amount of native plant communities within the landscape and on native plant *biodiversity*. Due to the high value of some agricultural lands within the Columbia River Basin, the loss of shrub/steppe has accelerated. Within the area, the Department of Natural Resources continues to offer leases to state-owned lands for agricultural uses. In Washington, the continued loss of shrub/steppe in the next 50 years is projected to be high (BPA 2002).

Impacts to rare plant species could occur due to land use such as grazing, but it is likely that federal agencies will prioritize the protection of rare species habitats. Federal agencies are addressing the needs of rare plant species and staff members are assigned to deal with rare plant issues on federal lands. However, rare plant species in private areas receive little to no protection under federal and state rare and endangered species legislation. Rare species would be continued to be impacted by a variety of land uses typical of private lands, including farming, ranching and development.

Many people believe that the invasion by weed species represents the most significant threat to biodiversity within the western United States. Native steppe and shrub/steppe communities have declined substantially in recent years, and such undisturbed plant communities are essentially absent from the corridor. The evidence supporting this conclusion is the presence of a diversity of native species that have persisted in the corridor despite the operation and maintenance of four transmission lines. Therefore, new transmission facilities within an already disturbed existing corridor would affect some habitat, but is not expected to have a substantial impact on plant biodiversity.

## **Mitigation**

Efforts to avoid and minimize impacts to vegetation include the following:

- Locating the proposed project within the existing corridor, where possible.
- Using the existing access road system, with minimal development of new roads.
- Locating staging areas and conduction tensioning sites outside of good quality native habitat areas, where possible.
- Restricting travel to one area where spur roads would traverse lithosols to prevent damage to sensitive plant communities.
- Keeping vegetation clearing to the minimum needed to access construction areas and maintain safety and operational standards.
- Reseeding or revegetating disturbed areas following construction with native vegetation.

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- Controlling noxious weed infestations by cleaning equipment traveling in and out of noxious weed-infested areas, using herbicide or biocontrol treatments, and reseeding disturbed areas with native species.
- Conducting a pre-construction noxious weed inventory to gather baseline information and develop a noxious weed control plan.
- BPA would assist and cooperate with concerned landowners and county weed boards, to implement noxious weed control procedures.
- If federally-listed plant species are identified during the plant survey, these areas would be avoided, if possible. A Biological Assessment, as required under the Endangered Species Act, would be prepared that provides detailed actions to reduce or eliminate impacts on listed species, and BPA would implement any reasonable measures recommended the U.S. Fish and Wildlife Service to reduce or avoid impacts.

#### **Environmental Consequences of the No Action Alternative**

Current levels of disturbance to vegetation associated with ongoing maintenance activities for the existing transmission line, substations, and right-of-way would continue under the No Action Alternative. This would include breaking, uprooting, trampling and removing vegetation; localized soil disturbance; and potential sedimentation due to vehicular traffic, transmission structure replacement, vegetation management activities, and access road improvements. No new impacts to vegetation are expected under this alternative.