

3.4 VEGETATION AND WILDLIFE

Vegetation and wildlife habitat at the proposed power plant site and along the alignments of the natural gas, raw water and reclaimed water pipelines and the electrical transmission lines could potentially be affected by the proposed project. For the purpose of analysis, vegetation and wildlife habitat at and within 152 meters (500 feet) of the proposed power plant site and within a 305-meter (1,000-foot) wide corridor centered on the pipelines and transmission lines was surveyed. Potential effects on vegetation from construction or operation of the proposed project are expected to stay within or close to the proposed power plant site and within a 31-meter (100-foot) wide corridor centered on proposed pipelines and transmission lines. The corridor needed for construction of pipelines and transmission lines and reconductoring of existing transmission lines would include the footprint of the pipeline or transmission line and a temporary access road for construction equipment.

3.4.1 Affected Environment

Vegetation in the vicinity of the proposed Umatilla Generating Project has been extensively altered by human activities. Much of the land around the proposed power plant site is used for highways, industrial facilities, agriculture and rural residences. Native plant species have been largely replaced by crops and invasive and/or introduced plants except on the U.S. Army's Umatilla Chemical Depot just west of the proposed power plant site. The elimination of the native shrub-steppe vegetative community throughout much of the area has resulted in a decline or loss of wildlife species that depend on it.

Vegetation, Wildlife and Wildlife Habitat

The proposed project lies within the shrub-steppe region of the Columbia Basin Province (Franklin and Dyrness, 1973). Prior to introduction of grazing and agriculture this part of the Columbia Basin was dominated by bunch grasses, including bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*) and shrubs such as big sage brush (*Artemisia tridentata*) and bitterbrush (*Purshia tridentata*). One of the few remaining large remnants of native shrub-steppe in eastern Oregon is located within the Umatilla Chemical Depot, where lands have been protected from grazing. Shrub-steppe habitat is expected to be listed shortly as a threatened habitat type in Oregon.

Cultivation and urban/rural development have eliminated most of the native shrub-steppe communities from the areas affected by the proposed project. Undeveloped sites typically have a history of disturbance by grazing or cultivation and are generally dominated by cheatgrass (*Bromus tectorum*) and other weedy herbs and shrubs. Heavy grazing tends to eliminate larger bunchgrasses such as bluebunch wheatgrass and results in the establishment of cheatgrass and other annual grasses. Abandoned fields are usually dominated by

cheatgrass (Franklin and Dyrness, 1973). A stand of cheatgrass apparently can maintain itself indefinitely, even if disturbance is eliminated (Daubenmire, 1975).

The elimination and modification of the native shrub-steppe vegetative community has resulted in a decline or loss of wildlife species that depend on it. Native habitat destruction and fragmentation favors generalist wildlife species that can use a variety of disturbed habitats and are tolerant of human activity. Field surveys indicate that wide-ranging wildlife species such as coyote (*Canis latrans*), badger (*Taxidea taxus*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*) and black-billed magpie (*Pica pica*) occur in nearly all habitats in the area.

Rather than simply mapping vegetation types, the biological surveyors mapped and categorized potentially affected wildlife habitat using rules recently adopted by the Oregon Department of Fish and Wildlife for mitigation of wildlife habitat losses (OAR 635-415-0000 through -0025). The rules define a series of wildlife habitat categories. Most categories are associated with a particular assemblage of plant species but take account not only of the vegetation type but also of its condition and value as wildlife habitat. Habitats fall within six major categories. Category 1 habitats have the highest value and Category 6 habitats have the least. There are a number of subcategories within each major category. Wildlife habitat categories that occur within the study area are described briefly below. The acreage of each category within the study area is shown in Table 3.4.1, and its occurrence in the study area is shown in Figures 3.4.1, 3.4.2, 3.4.3 and 3.4.4.

Category 1 – Mainstem perennial stream provides irreplaceable and essential habitat for threatened or endangered species (WMI)

The Umatilla River is defined as a Category 1 stream, because it provides critical habitat for the Middle Columbia steelhead Evolutionarily Significant Unit (ESU) (*Oncorhynchus mykiss*), both as a migration corridor and juvenile rearing habitat. This habitat is considered irreplaceable and essential to this species. The existing transmission line, which would be reconducted for the proposed project, crosses the Umatilla River just south of the city of Umatilla.

Category 2 – Shrub-steppe, high quality and large patch size may support rare species (SS2)

Category 2 shrub-steppe supports at least two state sensitive species, the western burrowing owl (*Athene cunicularia*) and grasshopper sparrow (*Ammodramus savannarum*), both of which were observed in this habitat during field surveys. Shrub-steppe habitat is expected to be soon listed as a threatened habitat type by the Oregon Department of Fish and Wildlife. Other species commonly observed in this habitat are ground-nesting birds such as the western meadowlark (*Sturnella neglecta*), ring-necked pheasant (*Phasianus colchicus*) and horned lark (*Eremophila alpestris*). Dominant vegetation may include big sagebrush,

bitterbrush, bluebunch wheatgrass, Sandberg's bluegrass (*Poa sandbergi*), and needle and thread grass (*Stipa comata*). More disturbed sites generally contain increased populations of gray and green rabbitbrush (*Chrysothamnus nauseosus* and *C. humilis*) and an assortment of non-native weedy species that may include: cheatgrass, tarweed fiddleneck (*Amsinckia* sp.), tumbled mustard (*Sisymbrium loeselii*), Russian starthistle (*Salsola kali*), hairy goldaster (*Chrysopsis villosa*) and filaree (*Erodium cicutarium*). This habitat occurs along the existing transmission line corridor and along one of the irrigation pipeline corridors at Madison Farms.

Category 2 – Grassland Steppe, high quality, large patch size may support sensitive species (SG2)

Typical vegetation in this community is a mixture of native bunchgrasses such as bluebunch wheatgrass and Sandberg's bluegrass with relatively sparse cover of invasive species such as cheatgrass, fiddleneck tarweed, and/or tumbled mustard. This habitat category occurs within the existing transmission line corridor and at the proposed power plant site.

Category 3 – Developed, nesting habitat for bank swallows (DE3)

Bank swallows (*Riparia riparia*) nest and roost in vertical sandy banks. Two bank swallow colonies exist in active quarries within the existing transmission line corridor.

Category 3 – Permanent ponds (WP3)

Category 3 permanent ponds are rare in this bioregion. The few permanent ponds that exist within the project area have been defined as important habitat, limited physiographically, for sensitive species. Examples of this habitat occur near the Umatilla Chemical Depot along the transmission line corridor. No rare species were observed in this habitat during the investigation, but long-billed curlews are considered very likely to forage in this habitat, as they were observed foraging in other parts of the project area where shallow waters existed.

Category 4 – Grassland-steppe, severely grazed/weedy (SG4)

Typical vegetation in this community is a mixture of native bunchgrasses such as bluebunch wheatgrass and Sandberg's bluegrass with a prevalence of weedy species such as fiddleneck tarweed, tumbled mustard, and Russian starthistle. Although degraded, this vegetative community is important for the shrub-steppe species capable of surviving in fragmented habitats. Rare species that are known to occasionally occur in this habitat include the grasshopper sparrow, loggerhead shrike (*Lanius ludovicianus*), Swainson's hawk (*Buteo Swainsoni*, foraging) and western burrowing owl. This habitat is common in the project area and occurs within the existing and new transmission line corridors, the natural gas pipeline corridors, the irrigation pipeline corridors and at the proposed power plant site.

Category 4 – Non-irrigated agricultural land, may support common wildlife (AD4)

Typical vegetation at these sites consists of a variety of introduced, weedy grasses such as pasture grasses and forbs such as crested wheat grass, cheatgrass, tumble mustard, and tarweed fiddleneck. Two rare species, the long-billed curlew (*Numenius borealis*) and grasshopper sparrow, were observed on a few occasions during the surveys in this habitat type. It is not known if these birds were nesting in this habitat, but they were observed foraging. This habitat type occurs within one of the alternative gas pipeline corridors.

Category 4 – Irrigated pasture and row crops (AW4)

Irrigated pastures and row crops are importance to some wildlife species. Long-billed curlews, a state sensitive species, have been observed foraging in irrigated pasture containing standing water south of Interstate 84 along Jordan Road and also in row crops (Kronner, pers. comm. 2000b). Dominant vegetation in pastures may include non-native grasses and a variety of weedy species such as cheatgrass, tarweed fiddleneck, tumbledustard, and woolly sunflower (*Eriophyllum lanatum*). Typical row crops grown in the area include soybeans, safflower, mustard, corn, and potatoes. This habitat is common in the project area and occurs within the existing and new transmission line corridors, the natural gas pipeline corridors, the irrigation pipeline corridors and at the proposed power plant site.

Category 4 – Shrub-steppe, moderately grazed or weedy (SS4)

Dominant vegetation in this habitat category is similar to that described for Habitat SS2, but there are generally more weeds present, such as tumbledustard and fiddleneck tarweed, due to effects of grazing or agricultural disturbance. Patch size is typically much smaller than for habitat SS2, more isolated from other patches and thus not as valuable as habitat. Rare species observed or otherwise documented in this habitat include long-billed curlew, grasshopper sparrow and western burrowing owl. This habitat is common in the project area and occurs within the existing and new transmission line corridors, the natural gas pipeline corridors, the irrigation pipeline corridors and at the proposed power plant site.

Category 4 – Dirt-lined irrigation canal (WS4)

Dirt-lined irrigation canals often support emergent vegetation that may be important to some wildlife species. Two dirt-lined irrigation canals, the Westland Canal and the High Line Canal and a similar modified natural channel, Butter Creek, are classified as Habitat WS4. The natural gas pipeline corridors cross the two canals, and the Westland canal passes through the power plant site.

Category 6 – Developed, residential lots/ industrial/commercial buildings/barren (DE6)

Vegetation (if present) in this habitat category is usually dominated by non-native horticultural or sparse weedy plants. Residential areas are included and are often dominated by lawns with small numbers of trees and shrubs. This habitat is not important for wildlife. It is common in the vicinity of the proposed project and occurs within the existing and new transmission line corridors, the natural gas pipeline corridors and at the proposed power plant site.

Category 6 – Concrete-lined canal (WS6)

This habitat type is of little importance to wildlife. Two concrete-lined canals occur in the vicinity of the proposed project, the Brownell Ditch that crosses the existing transmission line corridor just south of McNary Substation and north of SR 730 and the West Extension Irrigation Canal that crosses the existing transmission line west of the Umatilla River.

Sensitive Species

Sensitive species are species that are listed or being considered for listing as threatened or endangered, pursuant to the federal Endangered Species Act or the Oregon Endangered Species Act, or are considered State Sensitive by Oregon Department of Fish and Wildlife. Sensitive species that occur or may occur in the vicinity of the proposed project are shown in Table 3.4.2. Their status under the Oregon Natural Heritage Program and the Nature Conservancy Natural Heritage Network are also shown in the table. The only sensitive species observed in the field or known to occur at or near the proposed power plant site or along the pipeline and transmission line corridors are the bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk, long-billed curlew, western burrowing owl, bank swallow and grasshopper sparrow. No special-status plant species were found.

Bald eagles are known to winter along the Umatilla River in the vicinity of the project site (both at the transmission line crossing and near the Hermiston Generating Plant), and a pair attempted but failed to nest several miles to the east near Stanfield. Swainson's hawks forage in the vicinity of the proposed project and may nest in the riparian areas along the Umatilla River. The long-billed curlew is fairly common in the project area. Curlews typically nest in grasslands, particularly those dominated by cheatgrass and forage on invertebrates in nearby irrigated croplands. Surveys in 1993 indicated that grasshopper sparrows were nesting in the vicinity of the natural gas pipeline corridors. They were observed in 2000 in the portion of the transmission line corridor that is in the Umatilla Chemical Depot. Western burrowing owls were observed in the same location. Two bank swallow colonies were observed at two active quarries within the transmission line corridor. Only one colony was present when surveys were made in 1993.

Wetlands

Seven wetland sites were investigated (Figure 3.4.5) within the project area. Two of the wetlands located within the project area (sites 2 and 4) are included on the National Wetland Inventory map (and, therefore, the Statewide Wetland Inventory of the Division of State Lands [DSL]). The other five wetland sites (1, 3, 5, 6 and 7) appear to be potentially jurisdictional wetlands and were not included on the NWI map. Four of the wetland sites are located along the existing electrical power transmission line, two wetland sites are located along the proposed gas pipeline corridor and one wetland site (a canal) passes by but not through the power plant site. The identified wetland features include a portion of the riparian corridor along the Umatilla River, a pond that has been constructed and used for storage of potato processing reuse water, an intermittent tributary to the Umatilla River, and irrigation canals. No wetlands are located within the area that would be permanently disturbed at the proposed power plant site.

3.4.2 Environmental Consequences and Mitigation Measures

The proposed project could result in a temporary or permanent loss of vegetation and wildlife habitat, vegetation could be injured by cooling tower drift and wildlife could be disturbed by noise and human activity associated with the proposed project. Birds could also be injured or killed in collision with transmission lines or stacks.

Impact 3.4.1 Construction and operation of the proposed project could cause a temporary or permanent loss of vegetation and wildlife habitat

Assessment of Impact The only element of the proposed project which would permanently alter vegetation and wildlife habitat is the proposed power plant. The proposed power plant would occupy about 6 hectares (15 acres) of a 31 hectare (77-acre parcel). The site is sparsely covered with mostly non-native weedy plants. It is classified as Category 6 (DE6) habitat according to Oregon Department of Fish and Wildlife Habitat Mitigation Policy. Category 6 habitat has a low potential to become essential or important habitat for fish and wildlife. Thus, construction of the proposed power plant would not have a significant adverse effect on wildlife habitat.

Construction of several project elements would have a temporary adverse effect on vegetation and wildlife habitat. They include the natural gas pipeline, the raw and reclaimed water pipelines, and the new and reconducted transmission lines.

The natural gas and raw and reclaimed water lines would be installed underground. A swath of vegetation 15 to 30 meters (50 to 100 feet) wide would be cleared during pipeline installation. The wildlife habitats that would be disturbed are classified as Categories 4 and 6. Affected habitats include irrigated pasture and row crops (AW4), grassland-steppe,

severely grazed (SG4), non-irrigated agricultural land (AD4), shrub-steppe, moderately grazed (SS4) and developed, residential lots/industrial/commercial/barren (DE6). Category 4 habitat is important but not essential habitat for fish and wildlife.

Once construction of the pipelines is completed, the disturbed area would be restored. Topsoil removed during construction would be replaced and disturbed areas would be reseeded with a seed mix recommended by the Natural Resource Conservation District in Pendleton for restoration of native range.

The reconductoring of the transmission line would occur within the existing transmission line right-of-way. No vegetation removal or excavation would be necessary, but vehicles and other construction equipment operating in the right-of-way could damage vegetation. Habitat affected by reconductoring would primarily be classified in Categories 4 and 6. Category 3 habitat for one of the bank swallow colonies is located about 23 meters (75 feet) from the existing transmission line, and the other is located about 137 meters (450 feet). Neither colony would be directly affected by construction. The indirect effects of construction on bank swallows are described under Impact 3.4.3. Once reconductoring was completed, the disturbed area would be reseeded with a seed mix recommended by the Natural Resource Conservation District in Pendleton for restoration of native range.

Two short sections of new transmission line would be built in areas with relatively low wildlife habitat value at the power plant site and near the McNary Substation. The effects of construction of the new line on vegetation would be similar to those of reconductoring but would include vegetation removal at up to ten power pole sites. Once construction was completed, disturbed areas would be restored as described above.

The proposed water lines would cross the Westland Canal (Wetland Site 5, Figure 3.4.5) on the power plant site before crossing the road to enter the Hermiston Generating Plant. This crossing would be constructed at a time when the canal was dry, and since there is no emergent vegetation lining this canal, there would be no impacts to wetlands from this crossing.

Recommended Mitigation Measures No mitigation measures beyond those included in the proposed project are recommended.

Impact 3.4.2 Drift from the cooling towers could harm vegetation

Assessment of Impact Cooling tower drift is the term used to describe the plume of water droplets and vapor that emanates from evaporative cooling towers. Minerals and other substances that would be contained in the water circulating in the power plant's cooling system would also be contained in cooling tower drift. If these substances were deposited on the land surface they could be harmful to vegetation and soils.

Water used in the cooling system at the proposed project would be obtained from the Columbia River. Columbia River water is of very high quality and typically has a total dissolved solids content of about 100 mg/L (835 lb/million gallons). Water would be continuously added to the cooling system to compensate for evaporative losses and blowdown. Blowdown is the water bled from the cooling system to limit the build-up of salts. Because water would recirculate in the cooling system ten or twelve times, the total dissolved solids content of the water in the system and in the water droplets and vapor emitted from the towers would be about 1,200 mg/L.

The Seasonal and Annual Cooling Tower Impacts (SACTI) model was used to predict the likely deposition rate of salts from the cooling tower. Meteorological data from three years (1995, 1996 and 1997) were used in the model to make predictions of the solids deposition rate. The highest estimated solids deposition rate outside the approximately 6 hectare (15-acre) project site was 17.58 kg/km² (100.38 lb/mi²) per month. This would occur at the eastern end of the 31 hectare (77-acre) parcel that contains the project site.

The effects of deposition of cooling tower drift on vegetation depend on the types of plants that are exposed to it. Some of the lands surrounding the proposed project are zoned for agriculture and may be used to grow crops. Some of the chemical components of the solids deposited by cooling tower drift are known to be beneficial to crops and others are known to be harmful. Five chemical components (calcium, magnesium, potassium, sulfates and phosphates) are macronutrients and are used by crops in relatively large quantities. However, the quantities of these essential nutrients that would be deposited by cooling tower drift would be much less than typical fertilizer applications for crops. Thus, cooling tower drift would have a very minor beneficial effect on crops.

Saline drift from cooling towers can be harmful to crops. Studies have shown that yields of cantaloupe, alfalfa and cotton grown in an arid environment are not reduced by salt deposition rates of 6908 kg/km² (39,444 lb/mi²) per month (Hoffman et al, 1987). The highest salt deposition rates associated with the proposed project are about 300 times lower than this, so the proposed project would not be expected to have any adverse effects on crops.

Less is known about the effects of saline drift from cooling towers on native vegetation. Both the salts and the nutrients in the drift could have an adverse effect on native vegetation. The area subject to the most intense deposition from the cooling towers is located just east of the power plant site and supports one of the few stands of only slightly degraded native vegetation in the vicinity of the proposed project. However, because predicted salt deposition rates are low compared to rates known to affect crop yields it is unlikely that native vegetation would be adversely affected.

The following measures would be included in the proposed project to minimize the effects of drift:

- The cooling towers would be designed to limit drift to one-thousandth of 1 percent of the circulating water.
- The cooling tower circulating water system, the cooling towers, and the circulating water cleanup systems would be operated to maintain the total dissolved solids in the circulating water at less than 1,500 ppm.
- Tests would be performed during the initial operational period to ensure that the actual drift rate does not exceed the manufacturer's guaranteed drift rate.
- Periodic sampling would be performed to ensure that the total dissolved solids in the circulating water is maintained within the design parameters.

Recommended Mitigation Measures No mitigation measures beyond those included in the proposed project are recommended.

Impact 3.4.3 Construction and operation of the proposed project would cause noise and human activity that could disturb wildlife

Assessment of Impact Noise and human activity associated with construction and operation of the Umatilla Generating Project would result in increased disturbance to wildlife in the project vicinity. General disturbance would be greatest during the construction period due to heavy equipment use, traffic, and increased human activity over a relatively wide area. Noise-related disturbances would be greatest during power plant operation but would be limited to the area in the vicinity of the power plant.

Wide-ranging species would be expected to avoid areas disturbed by construction activities. Consequently, their use of habitats adjacent to the power plant site, transmission line right-of-way, and gas pipeline right-of-way would probably decline temporarily during the construction period. A number of bird species, some of special concern, are known to nest in the vicinity of the proposed project and could be adversely affected by construction activities during the nesting season. They include the bald eagle, Swainson's hawk, bank swallow and various ground-nesting birds.

The use by bald eagles of the vicinity is focused along the Umatilla River, mostly outside of the project area, except at the crossing site of the transmission line. Since reconductoring would not physically change the power line, no adverse impact to eagles is expected. The eagles inhabiting this vicinity seem tolerant of human disturbance, and their focus on the Umatilla River indicates that project construction would not have any adverse effects on them.

Surveys of nesting Swainson's hawks in the project area were conducted by URS (and Woodward-Clyde) in 1995, 1997, and 2000. Swainson's hawk nest sites and the years they were occupied are shown in Figure 3.4.6. Most of the nesting sites were located south of I-84 and in the general vicinity of the proposed gas pipeline alternatives. Several nests were active during construction of the natural gas pipeline for the Hermiston Generating Project and did not appear to be adversely affected by construction-related noise. These locally nesting birds may have a relatively high tolerance for disturbance, because they have continued to nest in this rural residential and industrial area as it has developed. However, if new nest sites are established closer to the gas pipeline construction area, Swainson's hawks could be adversely impacted by construction occurring during the critical breeding and nesting period for this species (approximately May through August).

A new Swainson's hawk nest site was discovered very close to the existing Hermiston Generating Plant in 2000. The proposed reconductoring of the electric transmission line would occur within about 152 meters (500 feet) of the nest site. If this nest site is active during the construction period, construction activities could have an adverse effect on the birds, although they appear to be very tolerant of human activity at the nearby Hermiston Generating Plant and the Lamb-Weston potato processing facility.

Reconductoring of an existing transmission line would occur within about 23 meters (75 feet) and 137 meters (450 feet), respectively, of two bank swallow colonies. The bank swallow colony located approximately 23 meters (75 feet) west of the transmission line was present at the time the transmission line was built for the Hermiston Generating Project. It is still present, indicating that construction activities had no lasting adverse effect. The other bank swallow colony did not exist when the transmission line was built. It is located within an active gravel quarry, suggesting that these birds are also tolerant of human activities.

It is possible that bank swallows could be adversely affected by construction activities associated with reconductoring the transmission line if such activity occurs during the critical breeding and rearing period for this species (April to July). However, because reconductoring activities involve relatively few people and machines and would take only a few days at a particular site, the possibility of lasting adverse effects is low, especially since the birds appear to be accustomed to human activity.

There is a low to moderate likelihood that sensitive ground-nesting species, including grasshopper sparrows, western burrowing owls, and long-billed curlews, could be adversely affected by construction activities, if a nest is located within disturbance distance (estimated to be 152 meters [500 feet]), and construction takes place during critical breeding and rearing periods (grasshopper sparrow: March to July; burrowing owl: late March to June; curlew: April to June). Known burrowing owl nest sites from previous years are shown in Figures 3.4.6 and 3.4.7. Potentially suitable nest habitat for these species exists in a few scattered

areas located near some of the proposed facilities. No long-term adverse impacts to populations of ground-nesting birds are expected, however, because all of these species were present in the area during the Hermiston Generating Plant construction period, and they remain in the area today. Short-term adverse impacts to ground-nesting birds could occur near the segment of new transmission line that would be constructed just north of the proposed power plant.

Noise and human activities associated with operation of the proposed project are not expected to have an adverse effect on wildlife. Because the proposed power plant would be located near an existing power plant, several highways, railroad tracks and other industrial development, wildlife use of the vicinity is low. Most of the area nearby consists of croplands and disturbed grasslands, which also receive relatively low use. Although impulse noise, such as blasting and sonic booms, has been shown to disturb some wildlife species (Institute for Raptor Studies 1981), the typical response to constant noise is either habituation or avoidance.

The Umatilla Generating Company, L.P. would attempt to avoid all adverse impacts on nesting Swainson's hawks, bank swallows, long-billed curlews, burrowing owls and grasshopper sparrows by careful scheduling of potentially harmful construction activities outside the peak nesting season. If it were not possible to avoid construction in the vicinity of the bank swallow colonies during the nesting season, suitable nesting habitat would be created at a protected site. If it is not possible to avoid construction during the nesting seasons of the Swainson's hawks, long-billed curlews, burrowing owls and grasshopper sparrows, the Umatilla Generating Company, L.P. would make a contribution to the Oregon Wildlife Fund or a non-profit organization like the Nature Conservancy that purchases and manages native wildlife habitat within the same physiographic province as the proposed project.

Recommended Mitigation Measures No mitigation measures beyond those included in the proposed project are recommended.

Impact 3.4.4 Birds could be injured or killed by collisions with power lines

Assessment of Impacts Electrocutation is the primary hazard power lines pose to birds of prey, commonly referred to as raptors (Postovit and Postovit 1987). Electrocutation occurs when a bird simultaneously touches two power lines or a line and a grounded object. Raptors are particularly susceptible to electrocutation because of their size and wing span (Olendorff et al. 1981). In general, a 1.5-meter (5-foot) minimum separation of lines will prevent raptor electrocutation (Olendorff et al. 1981). Consequently, most raptor electrocutations involve distribution lines, particularly those carrying less than 69 kV (Olendorff et al. 1981). The spacing of larger transmission line conductors is usually wide enough to preclude simultaneous contact of two conductors by even the largest raptors (Olendorff et al. 1981).

Both the new and reconductored transmission lines that are a part of the proposed project would have relatively widely spaced conductors. Neither would increase the risk of electrocution of raptors.

Raptors do not appear to be susceptible to collisions with transmission lines, most likely because of their keen eyesight, nonflocking behavior, and flight maneuverability (Williams and Colson 1988). However, transmission lines do present a collision hazard to other birds, primarily waterfowl (Anderson 1978). BPA studies indicate that most collisions are with overhead ground wires (Beaulaurier 1981). Collision potential can be reduced by a variety of techniques, including locating transmission lines away from major flyways and water, orienting lines parallel to predominant flight paths and improving visibility by clustering lines or marking them with colored objects (Williams and Colson 1988).

The proposed project involves the reconductoring of about 18 kilometers (11 miles) of existing transmission line and construction of up to 0.8 kilometer (0.5 mile) of new transmission line. Because reconductoring of the existing line would simply involve replacing one conductor with another, it would not increase the potential for collisions with birds. The proposed few hundred feet of new transmission line adjacent to the proposed power plant site would be close to an existing transmission line and the power plant stacks. While the new line could represent a collision hazard for birds, it would be expected that most waterfowl would avoid the immediate area because of the concentration of industrial facilities. The other section of new transmission line would be located close to the existing McNary Substation in an area where many transmission lines converge. Again, the risk of bird strikes would be reduced by the density of industrial structures in the area.

All new transmission towers would be designed in accordance with accepted standards for avoidance of electrocution of raptors.

Recommended Mitigation Measures No mitigation measures beyond those included in the proposed project are recommended.

3.4.3 Cumulative Impacts

In the project area, much of the native shrub-grassland and grassland has been replaced by irrigated agriculture, industrial and commercial facilities, highways and residences. The only element of the proposed project that would permanently alter vegetative cover is the proposed power plant. The power plant would occupy about 20 acres of land that currently fall within Habitat Category 6, as established by the Oregon Department of Fish and Wildlife. Category 6 is the lowest habitat category and includes severely degraded areas of shrub-steppe and shrub-grass and developed or barren lands. Structures, roads and graveled

areas at the power plant would replace the existing weedy or barren lands. Habitat at the site would continue to be classified as Category 6.

The natural gas, water and reclaimed water pipelines would be built primarily in areas with low habitat value. Short sections of the natural gas and reclaimed water pipelines pass through moderate quality shrub-steppe and shrub-grass. In these areas, topsoil would be retained and replaced, and the disturbed area would be reseeded with native vegetation.

Because the proposed project would not result in a loss of high value habitat, it would not contribute to the cumulative loss of native vegetation and high value habitat associated with agricultural and urban development. If temporary disturbance of wildlife habitat during the construction period cannot be avoided, the project proponent would make a donation to The Nature Conservancy and Boise State University as mitigation for the impact. The donation to The Nature Conservancy would fund acquisition and protection of high quality wildlife habitat, and the donation to Boise State University would support continuing research on the Swainson's hawk, one of the potentially affected wildlife species.

Because the proposed project would not result in a loss of high value habitat, it would not have an adverse impact on wildlife. Consequently, it would not contribute to the cumulative loss of wildlife habitat and wildlife associated with agricultural and urban development.

Insert Excel Table 3.4.1

**Table 3.4.2:
Sensitive Plant and Animal Species that Occur or May Occur
within the Analysis Area**

Common and Scientific Name	Status				Observed?
	Federal	State	ONHP	TNC	
Birds					
American white pelican (<i>Pelecanus erythrorhynchos</i>)	N/A	SV	2	G3 S1	N
Northern goshawk (<i>Accipiter gentilis</i>)	SOC	SC	3	G5 S3	N
Swainson's hawk (<i>Buteo swainsoni</i>)	N/A	SV	3	G5 S3B	Y
Ferruginous hawk (<i>Buteo regalis</i>)	SOC	SC	3	G4 S3B	N
Greater sandhill crane (<i>Grus canadensis tabida</i>)	N/A	SV	4	G5T4 S3B	N
Long-billed curlew (<i>Numenius americanus</i>)	N/A	SV	4	G5 S3S4	Y
Northern pygmy owl (<i>Glaucidium gnoma</i>)	N/A	SC	4	G5 S4?	N
Western burrowing owl (<i>Athene cunicularia hypugea</i>)	SOC	SC	3	G4TU S2?B	Y
Willow flycatcher (<i>Empidonax trailii brewersti</i>)	N/A	SU	4	G5TU SUB	N
Loggerhead shrike (<i>Lanius ludovicianus</i>)	N/A	SV	4	G5 S4B,S2N	N
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	N/A			G5 S1B	N

Common and Scientific Name	Status				Observed?
	Federal	State	ONHP	TNC	
Bank swallow (<i>Riparia riparia</i>)	N/A	SU	4	G5 S4B	Y
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	N/A	SV/SP	3	G5 S2?B	Y
Mammals					
White-tailed jackrabbit (<i>Lepus townsendii</i>)	N/A	SU	3	G5 S4?	N
Pale western big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	SOC	SC	3	G4T4 S3	N
Pacific western big-eared bat (<i>Plecotus townsendii townsendii</i>)	SOC	SC	3	G4T4 S3?	N
Small-footed myotis (<i>Myotis ciliolabrum</i>)	SOC	SU	3	G5 S3	N
Long-eared myotis (<i>Myotis evotis</i>)	SOC	SU	4	G5 S3	N
Fringed myotis (<i>Myotis thysanodes</i>)	SOC	SV	3	G5 S3	N
Long-legged myotis (<i>Myotis volans</i>)	SOC	SU	3	G5 S3	N
Yuma myotis (<i>Myotis yumanensis</i>)	SOC	N/A	4	G5 S3	N
Amphibians & Reptiles					
Western toad (<i>Bufo boreas</i>)	N/A	SV	3	G4 S4	N
Woodhouse's toad (<i>Bufo woodhousei</i>)	N/A	SP	3	G5 S2	N

Common and Scientific Name	Status				Observed?
	Federal	State	ONHP	TNC	
Columbia spotted frog (<i>Rana luteiventris</i>)	SOC	SC	2	G3T3 S2	N
Northern leopard frog (<i>Rana pipiens</i>)	N/A	SC	2	G5 S2?B	N
Painted turtle (<i>Chrysemys picta</i>)	N/A	SC	2	G5 S2	N
Northern sagebrush lizard (<i>Sceloporus graciosus graciosus</i>)	SOC	SV	4	G5T5 S5?	N
Fish					
Margined sculpin (<i>Cottus marginatus</i>)	SOC	SV	3	G3 S3	N
Interior redband trout (<i>Oncorhynchus mykiss gibbsi</i>)	SOC	SV	3		N
Pacific lamprey (<i>Lamprera tridentata</i>)	SOC	SV	3	G5 S3	N
Middle Columbia steelhead (<i>Oncorhynchus mykiss</i>)	T	SV	3	G5T3Q S3?	Y
Plants					
Rosy balsamroot (<i>Balsamorhiza rosea</i>)	N/A	N/A	2-EX	G4 SH	N
Laurence's milk-vetch (<i>Astragalus collinus var. laurentii</i>)	SOC	LT	1	G5T1 S1	N
Gray cryptantha (<i>Cryptantha leucphaea</i>)	N/A	N/A	2-EX	G4G5 SH	N
Watson's desert-parsley (<i>Lomatium watsonii</i>)	N/A	N/A	2	G4 S1	N

Common and Scientific Name	Status				Observed?
	Federal	State	ONHP	TNC	
Hepatic monkeyflower (<i>Mimulus jungermanniodes</i>)	SOC	C	1	G2 S2	N
Columbia yellow-crest (<i>Rorippa columbiae</i>)	SOC	C	1	G3 S3	N
Thompson's sandwort (<i>Arenaria franklinii</i> var. <i>thompsonii</i>)	N/A	C	1-X	G3TH SH	N
Retrorsed sedge (<i>Carex retrorsa</i>)	N/A	N/A	2	G5 S1	N
Robinson's onion (<i>Allium robinsonii</i>)	N/A	N/A	2-EX	G3 SH	N

State and Federal Status Definitions

LE – Listed Endangered. Taxa listed by the USFWS or NMFS as Endangered under the Endangered Species Act (ESA), or by the Departments of Agriculture (ODA) and Fish and Wildlife (ODFW) of the state of Oregon under the Oregon Endangered Species Act of 1987 (OESA). Endangered taxa are those which are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range.

LT – Listed Threatened. Taxa listed by the above agencies as Threatened; defined as those taxa likely to become endangered within the foreseeable future.

PE – Proposed Endangered. Taxa proposed by the above agencies to be listed as endangered.

PT – Proposed Threatened. Taxa proposed by the above agencies to be listed as threatened.

C – Candidate. Candidate taxa for which NMFS or USFWS have sufficient information to support a proposal to list under the ESA, or which is a candidate for listing by the ODA under the OESA.

SoC – Species of Concern. Former Category 2 candidates for which additional information is needed in order to propose as threatened or endangered under the ESA; these species are under review for consideration as Candidates for listing under the ESA.

ONHP Definitions

List 1 - taxa that are threatened with extinction or presumed to be extinct throughout their entire range.

List 2 – taxa threatened with extirpation or presumed extirpated from Oregon; often peripheral or disjunct species which are of concern considering species diversity within Oregon; can be very significant in protecting the genetic diversity of the taxon; ONHP regards extreme rarity as a significant threat and has included species which are very rare in Oregon on this list.

List 3 – taxa for which more information is needed before status can be determined, but which may be threatened or endangered in Oregon or throughout their range.

List 4 – taxa which are of conservation concern but not currently threatened or endangered; including taxa that are very rare but considered secure as well as those declining in numbers or habitat but still too common to be proposed as threatened or endangered; these taxa require continued monitoring.

TNC Natural Heritage Network Ranks

The Natural Heritage Network ranks are part of a national system of ranking species throughout the world and is used throughout the U.S., Canada, and 13 Latin American countries. Both global and state ranks are provided in ONHP (1998), abbreviated as “G” and “S”.

1 – Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.

2 – Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.

3 – Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences.

4 – Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences.

5 – Demonstrably widespread, abundant, and secure.

H – Historical occurrence, formerly part of native biota with the implied expectation that it may be rediscovered.

X – Presumed extirpated or extinct.

U – Unknown rank.

ODFW Ranks

SC – State Critical. Species for which listing is pending; or those for which listing may be appropriate if immediate conservation activities are not taken. Also considered critical are some peripheral species which are at risk throughout their range, and some disjunct populations.

SV – State Vulnerable. Species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring. In some cases the population is sustainable, and protective measures are being implemented; in others, the population may be declining and improved protective measures are needed to maintain sustainable populations over time.

SP – Peripheral or Naturally Rare. Peripheral species refer to those whose Oregon populations are on the edge of their range. Naturally rare species are those which had low population numbers historically in Oregon because of natural limiting factors. Maintaining the status quo for the habitats and populations of these species is a minimum requirement. Disjunct populations of several species which occur in Oregon should not be confused with peripheral.

SU – Undetermined Status. Animals in this category are species whose status is unclear. They may be susceptible to population decline of sufficient magnitude that they could qualify for endangered, threatened, critical or vulnerable status, but scientific study would be required before a judgment can be made.