

### **3.7 UPLAND VEGETATION, WILDLIFE AND HABITAT, FISHERIES, AND THREATENED AND ENDANGERED SPECIES**

This section discusses four elements: upland vegetation, wildlife and habitat, fisheries, and threatened and endangered species within the project site and surrounding area. It discusses existing conditions, addresses potential impacts on these elements associated with the proposed project, and identifies mitigation measures designed to limit those impacts. The analysis of existing conditions and potential effects resulting from the construction and operation of the proposed project is based on literature review, agency information, and onsite surveys conducted in 2001, 2002, and 2003. Where sources of information have been used to evaluate the potential impacts associated with the proposed project, those sources have been cited. Wildlife and habitat of the project site are discussed together because of the close interaction between these two resources. The fisheries section discusses the freshwater and marine habitat near the project site, and the threatened and endangered species section discusses species that are regulated under the Endangered Species Act (ESA). Wetland communities are discussed in Section 3.5.

Existing documentation and information from the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries (previously known as National Marine Fisheries Service) were used to identify threatened and endangered species that may occur within the proposed project site. Existing documentation and information from the Washington Department of Fish and Wildlife (WDFW), including the WDFW Priority Habitats and Species database, also was reviewed regarding federal and state protected species that may use the proposed project site and to identify the presence of priority habitats near the proposed project site. The Washington Department of Natural Resources (WDNR) Natural Heritage Program was reviewed regarding priority habitats and sensitive plant and wildlife species that may be near the project site. A Biological Evaluation (BE) prepared by the Applicant for the project was reviewed to provide information on threatened and endangered species (BP 2002, Appendix H5).

The technical report *Environmental Resources Report: BPA Transmission Line Brown Road to Custer Substation* was reviewed to provide information on potential fish habitat within the transmission line corridor. This document is included as Appendix B.

#### **3.7.1 Existing Conditions**

##### **Upland Vegetation**

The proposed project site is located within the Fraser lowland ecological zone and lies within the western hemlock zone, which is characterized by a wet, mild, maritime climate (Franklin and Dyrness 1988).

Five types of upland vegetation communities are located within the proposed project site: grassland; shrubland; mixed coniferous/deciduous forest; coniferous forest; and deciduous forest

(Figure 3.5-2). Most or all of these five upland vegetation communities are present within each of the five project components discussed below. Plant species observed in the proposed project area are presented in Table 3.5-2.

Dominant habitats within the proposed project site are grassland and wetland communities. When the refinery acquired the property more than 30 years ago, grassland and wetland areas were associated with agricultural uses. Wetlands are described in Section 3.5. Vegetation within the grassland habitat includes a mixture of native and non-native upland and wetland species such as bentgrass, reed canarygrass, Canada thistle, velvetgrass, bird's foot trefoil, bull thistle, and horsetail.

Shrubland habitats are dominated by Himalayan blackberry, a non-native invasive plant species. Himalayan blackberry is located adjacent to the wetland and grassland communities. Additional species within the shrubland community include evergreen blackberry and stinging nettle. Shrub communities in the project site with vegetation such as salmonberry, red-osier dogwood, and willow, are associated with scrub-shrub wetland systems.

Forested communities include mixed coniferous/deciduous forest, coniferous forest, and deciduous forest. Coniferous forest habitat is characterized by patches of even-aged Douglas fir trees, typically 10 to 20 feet tall, within a shrub community dominated by Himalayan blackberry. Himalayan blackberry is also the dominant understory vegetation associated with Douglas fir.

Deciduous forest habitat is dominated by even-aged stands of hybrid poplars planted for harvesting. The hybrid poplar stands are typically 30 to 40 feet tall, with a dbh ranging from approximately 6 to 10 inches. Dominant understory species include creeping buttercup and reed canarygrass. An approximately 0.6-acre area of immature hybrid poplars (average dbh of 2 to 3 inches) is located within the northwestern portion of Wetland F.

Mixed coniferous/deciduous forest includes species such as Douglas fir, black cottonwood, western red cedar, quaking aspen, oceanspray, snowberry, and willow. Large areas of mixed coniferous/deciduous forest and deciduous forest habitats are located near the project site. Only a small amount of mixed coniferous/deciduous forest and deciduous forest habitat is located within the footprint of the proposed project site (Figure 3.5-2). Species of western red cedar and quaking aspen occur within the transmission system and transmission line corridors, but are not present within the footprints of the cogeneration facility, refinery interface, and other project components.

### Cogeneration Facility

Upland vegetation communities associated with the cogeneration facility include grassland, shrubland, coniferous forest, and deciduous forest (Figure 3.5-2).

Grassland habitat within the cogeneration facility site is a mosaic of upland and wetland systems with a mixture of native and non-native upland and wetland species.

Coniferous forest habitat is limited to patches of young, even-aged Douglas fir trees within a shrub community dominated by Himalayan blackberry.

Planted hybrid poplars within the cogeneration facility site exhibit poor growth characteristics and inconsistent spacing. These are generally concentrated west of proposed Access Road 1 and east of the refinery boundary. These trees are generally less than 40 feet tall with a similar diameter as those farther east of the proposed cogeneration facility. Several of the trees in this area exhibit split or forked trunks. Hybrid poplar density in the eastern portion of the cogeneration facility footprint is approximately 4 trees per 100 square feet. Hybrid poplar in the western portion, immediately east of Blaine Road, typically occurs in patches with a density of 3 trees per 100 square feet.

### Refinery Interface

Upland vegetation communities associated with the refinery interface include grassland, shrubland, and deciduous forest, similar to the discussion above for the cogeneration facility. These upland vegetation communities typically occur in patches surrounded by wetland systems (Figure 3.5-1). An approximately 0.6-acre area of immature hybrid poplar (average dbh of 2 to 3 inches) is located in the northwestern portion of Wetland F, within Laydown Area 2.

### Transmission System

Upland vegetation communities associated with the transmission system corridor include deciduous forest and mixed coniferous/deciduous forest (Figure 3.5-2). A narrow band of black cottonwood is located along the perimeter of the mixed coniferous/deciduous forest habitat. These forested systems located east of the cogeneration facility footprint are generally more mature, less fragmented, and include fewer nonnative invasive species than the forested communities within the footprints of the cogeneration facility, refinery interface, and other project components.

### Custer/Intalco Transmission Line No. 2

Upland vegetation communities associated with the transmission line corridor include grassland and shrubland habitat (Appendix B). An unpaved road is located along most of the corridor to provide access for maintenance. The majority of vegetation communities associated with the transmission line corridor is grassland habitat, which is disturbed due to mowing and livestock grazing. Shrubland habitats are dominated by Himalayan blackberry. Mixed coniferous/deciduous forest is located adjacent to the transmission line corridor in several areas but is not located within the corridor.

## Other Project Components

Upland vegetation communities associated with the other project components (Access Road 3, Laydown Area 4, and CMA 1 and CMA 2) include grassland, shrubland, deciduous forest, and mixed coniferous/deciduous forest (Figure 3.5-2). Grassland, shrubland, and deciduous forest are described above. A small amount of mixed coniferous/deciduous forest is located in the northeast portion of Laydown Area 4 (Figure 3.5-3). Most of the vegetation associated with Access Road 3 is wetland systems.

## Threatened and Endangered Plant Species

The WDNR Natural Heritage Program was reviewed regarding priority habitats; high quality ecosystems; and endangered, threatened, and sensitive plant species that may be near the project site. Information from WDNR indicates that there are no known occurrences of rare plants, priority habitats, or high-quality ecosystems near the proposed project site (WDNR 2001).

## Noxious Weeds

Vegetation surveys conducted in the spring and summer of 2001 determined the presence and abundance of weed species considered Class C noxious weeds by Whatcom County (BP 2002, Section 3.4). These include reed canarygrass, bull thistle, and Canada thistle. Class C weeds are non-native weeds considered widespread in the state. Although not required, control of Class C weeds, particularly reed canarygrass, is encouraged.

## **Wildlife and Habitat**

The majority of wildlife habitat associated with the proposed project site is a mosaic of upland grassland and wetland communities. Additional habitats include shrubland, mixed coniferous/deciduous forest, coniferous forest, and deciduous forest. These vegetation communities are described above in the upland vegetation section and in Section 3.5. Most of the upland habitat within the project site is in fragmented patches within the wetland systems. More than 4 acres of impervious surface is also located within the area of the refinery interface components. A variety of paved and unpaved roads are located within the transmission system corridor and the transmission line corridor.

The majority of wetlands within the proposed project site are emergent herbaceous and palustrine emergent systems with some patches of scrub-shrub habitat (Section 3.5). Grass and herbaceous species within these habitats include a mixture of upland and wetland species as described in Section 3.5. Reed canarygrass, a non-native invasive plant species, dominates a majority of the wetland habitat. Himalayan blackberry is frequently the dominant wetland buffer vegetation.

Proposed wetland mitigation sites CMA 1 and CMA 2 are composed primarily of emergent vegetation with scattered upland patches characterized by plant species similar to those described above in the vegetation section for the project site. Proposed wetland mitigation sites CMA 1 and CMA 2 are described in Section 3.5.

Riparian habitat is not located within approximately 0.5 mile of the cogeneration facility, refinery interface area, or the transmission system corridor. Riparian habitat is located adjacent to other project components (CMA 1 and CMA 2). Seven riparian corridors are located within the transmission line corridor. Riparian habitat is described below in the individual discussion of these project elements.

A moderate variety of native birds, mammals, reptiles, and amphibians are expected to inhabit grassland, shrubland, forested, and wetland habitats in the general project vicinity. Wildlife diversity is generally related to the structure and plant species composition within these vegetative communities. Wetlands and forested areas with well-developed vegetation layers are likely to support the greatest number of species and populations of wildlife (Brown 1985). Even-aged forest stands generally provide less diversity than mature mixed-aged forested areas.

Wetlands, grassland, shrubland, and forested habitat within the project site generally have low species diversity of vegetation and a dominant presence of nonnative invasive species. Himalayan blackberry and reed canarygrass provide dominant cover or understory cover in the majority of habitats within the project site. Forested communities of black cottonwood and Douglas fir within the project site are even-aged stands and often occur in fragmented patches. While wildlife habitat in the project site likely provides cover, foraging, and breeding habitat for a variety of wildlife species, wildlife habitat characteristics associated with the project site does not provide conditions typically associated with high-quality habitat for wildlife. Mixed deciduous/coniferous forest stands located near the project site generally provide higher quality habitat than the available habitats within the project site. Table 3.7-1 lists wildlife species that have been observed in the project vicinity or that occupy and breed in similar habitats in western Washington.

**Table 3.7-1: Wildlife Species Observed in the Project Vicinity or Known to Occur in Similar Habitats in Western Washington**

Common Name	Scientific Name
<b>Amphibians</b>	
northwestern salamander	<i>Ambystoma gracile</i>
Pacific chorus frog	<i>Pseudacris regilla</i>
red-legged frog	<i>Rana aurora</i>
rough-skinned newt	<i>Taricha granulosa</i>
western red-backed salamander	<i>Plethodon vehiculum</i>

**Table 3.7-1: Continued**

Common Name	Scientific Name
<b>Reptiles</b>	
northern alligator lizard	<i>Gerrhonotus coeruleus</i>
western fence lizard	<i>Sceloporus occidentalis</i>
western garter snake	<i>Thamnophis elegans</i>
<b>Mammals</b>	
bat	<i>Myotis</i> sp.
black bear	<i>Ursus americanus</i>
black-tailed deer	<i>Odocoileus hemionus columbianus</i>
coyote	<i>Canis latrans</i>
deer mouse	<i>Peromyscus maniculatus</i>
Douglas' squirrel	<i>Tamiasciurus douglasii</i>
eastern gray squirrel	<i>Sciurus carolinensis</i>
European rabbit	<i>Oryctolagus cuniculus</i>
least chipmunk	<i>Tamias minimus</i>
long-tailed weasel	<i>Mustela frenata</i>
norway rat	<i>Rattus norvegicus</i>
raccoon	<i>Procyon lotor</i>
shrew	<i>Sorex</i> sp.
striped skunk	<i>Mephitis mephitis</i>
Townsend's mole	<i>Scapanus townsendii</i>
Virginia opossum	<i>Didelphis virginiana</i>
vole	<i>Microtus</i> sp.
<b>Birds</b>	
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American robin	<i>Turdus migratorius</i>
black-capped chickadee	<i>Parus articapillus</i>
black-throated gray warbler	<i>Dendroica nigrescens</i>
bushtit	<i>Psaltriparus minimus</i>
California quail	<i>Callipepla californica</i>
chestnut-backed chickadee	<i>Parus rufescens</i>
common yellowthroat	<i>Geothlypis trichas</i>
dark-eyed junco	<i>Junco hyemalis</i>
downy woodpecker	<i>Picoides pubescens</i>
European starling	<i>Sturnus vulgaris</i>
hairy woodpecker	<i>Picoides villosus</i>
house finch	<i>Carpodacus mexicanus</i>
house sparrow	<i>Passer domesticus</i>
house wren	<i>Troglodytes aedon</i>
northern flicker	<i>Colaptes auratus</i>
northern harrier	<i>Circus cyaneus</i>
red-breasted nuthatch	<i>Sitta canadensis</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>
rock dove	<i>Columba livia</i>
ruby-crowned kinglet	<i>Regulus calendula</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
song sparrow	<i>Melospiza melodia</i>
spotted towhee	<i>Pipilo erythrophthalmus</i>
Steller's jay	<i>Cyanocitta stelleri</i>
varied thrush	<i>Ixoreus naevius</i>
yellow warbler	<i>Dendroica petechia</i>

Note: Table 3.7-1 is not a comprehensive list of all wildlife species that could occur on the project site, but a general summary of the variety of wildlife species known to occupy and breed in similar habitats in western Washington.

Wetlands provide habitat for amphibian, mammal, and bird species that depend on water for foraging and breeding. A wetland assessment prepared for the project concluded that wetlands within the project site function on a very low level for wetland-dependent wildlife species (Section 3.5).

Mammals likely to occur regularly in the forested habitat include species such as raccoon, eastern gray squirrel, striped skunk, coyote, and Virginia opossum. Black-tailed deer and black bear are known to occupy the forested habitat near the proposed project site (BP 2002, Section 3.6). Raptors such as red-tailed hawks and northern harrier likely use grassland habitat for foraging. A variety of resident and migratory bird species likely occupy the edge habitat associated with the forest and grassland habitats.

The WDFW Priority Habitats and Species database identifies wetlands within the proposed project site as priority habitats. Information from the WDNR Natural Heritage Program indicates that there are no known high-quality ecosystems located in the vicinity of the project site (WDNR 2001).

Habitats associated with specific project components are discussed below.

#### Cogeneration Facility

A mosaic of upland and wetland grassland communities is the dominant wildlife habitat within the cogeneration facility footprint. Patches of Himalayan blackberry and even-aged forest stands of black cottonwood and Douglas fir also are present. Overall, the fragmented nature and dominant presence of nonnative invasive plant species associated with these habitats reduces their effectiveness as quality habitat for wildlife.

#### Refinery Interface

Most of the wildlife habitat associated with the components of the refinery interface (Laydown Areas 1, 2, and 3, and Access Road 2) includes wetland systems with relatively small, isolated patches of upland grassland, Himalayan blackberry, small Douglas fir, and black cottonwood. Impervious surfaces, buildings, and other structures are also located within the components of the refinery interface.

#### Transmission System

The proposed transmission system corridor passes through an emergent wetland system, a narrow band of black cottonwood, and mixed coniferous/deciduous forest habitat. The black cottonwood and mixed deciduous/coniferous forest stands, located east of the cogeneration facility, generally provide higher quality habitat than the available habitats within the cogeneration facility, refinery interface, and the other project components. A diverse assemblage

of birds, amphibians, reptiles, and mammals likely occupy the forested habitats associated with the transmission system corridor.

Custer/Intalco Transmission Line No. 2

The transmission line corridor passes through a combination of grassland and shrubland wetland and upland wildlife habitat, with grassland as the dominant habitat (Appendix B). Upland and wetland grassland habitat are disturbed due to mowing and livestock grazing. Shrubland habitats are dominated by Himalayan blackberry. Mixed coniferous/deciduous forest habitat is located adjacent to the transmission line corridor in several areas but is not located within the corridor. An unpaved road is located along most of the corridor to provide access for maintenance. The corridor also passes over at least seven paved, public roads.

Four PSS and one PFO wetland are located within the transmission line corridor. Shrubs and trees associated with PSS and PFO wetlands are removed or topped by Bonneville to maintain a safe distance between the trees and the electrical lines, typically about 25 feet.

Seven riparian corridors are located within the transmission line corridor (Appendix B). Dominant riparian vegetation associated with each stream system within the transmission line corridor is presented on Table 3.7-2. As with other habitats associated with the project site, the dominance of nonnative invasive plant species associated with the riparian corridors reduces the potential quality of habitat for wildlife compared to habitats with diverse native vegetation.

**Table 3.7-2: Dominant Riparian Vegetation of Stream Channels within the Transmission Line Corridor**

Stream Name	Dominant Riparian Vegetation
California Creek	reed canarygrass
Tributary 1	Himalayan blackberry
Tributary 2	Himalayan blackberry
Tributary 3	spirea
Tributary 4	Himalayan blackberry, spirea, vine maple, red-osier dogwood, reed canarygrass
Fingalson Creek	Himalayan blackberry, red alder saplings
Terrell Creek	Himalayan blackberry

Source: Appendix E

Wetlands associated with the transmission line corridor are summarized in Table 3.5-3. Table 3.5-3 identifies wetlands within each 1-mile segment of the approximately 5-mile transmission line corridor from east to west and the span of each wetland in linear feet within the transmission line corridor. Based on this information, the linear feet of wetland habitat and non-wetland habitat (upland vegetation communities, unpaved roads, paved roads, and stream corridors not identified as wetlands) within the transmission line corridor was estimated and is provided below in Table

3.7-3. Based on these calculations, 33% of the transmission line corridor is comprised of wetland habitat and 67% is comprised of upland habitat.

**Table 3.7-3: Summary of Wetland and Upland Habitat Associated with the Transmission Line Corridor**

Corridor Mile	Approximate Length of Wetland Habitat in Corridor (feet)	Approximate Length of Upland Habitat in Corridor (feet)
Mile 1	2,675	2,605
Mile 2	1,385	3,895
Mile 3	640	4,640
Mile 4	1,905	3,375
Mile 5	2,050	3,230
Total	8,655	17,745

Based on the 5-mile transmission corridor length

### Other Project Components

The majority of wildlife habitat associated with the other project components (Access Road 3, Laydown Area 4, and CMA 1 and CMA 2) include a mosaic of upland and wetland grassland communities with patches of Himalayan blackberry, black cottonwood, and Douglas fir. A small amount of mixed coniferous/deciduous forest is located in the northeast portion of Laydown Area 4 (Figure 3.5-2). The location of Access Road 3 is dominated by emergent wetland systems. Overall, the fragmented nature and dominant presence of nonnative invasive plant species associated with these habitats reduces their effectiveness as quality habitat for wildlife.

Forested riparian habitat associated with Terrell Creek is located adjacent to the north sides of CMA 1 and CMA 2. The WDFW Priority Habitat and Species database identifies the riparian habitat of Terrell Creek as priority habitat.

### **Fisheries**

Based on the literature review and information in the WDFW Priority Habitat and Species database, fish-bearing aquatic resources in the project site vicinity include Terrell Creek, Fingalson Creek, California Creek, four unnamed tributaries to California Creek, Lake Terrell, and Puget Sound (see Figure 2-2).

Drainage ditches that traverse components of the project site and the surrounding area were originally created to drain wetlands for agricultural use. They are no longer maintained and many are partially vegetated. These drainages lack organic debris, pools, and natural meanders. Wetlands and surface water runoff are the apparent source of these drainages. The drainages are seasonally inundated and do not provide habitat for resident or anadromous fish (Williams et. al. 1975; WDFW 2001). The drainage system eventually connects with Terrell Creek outside of the

project site boundary. The marine waters that receive the treated wastewater from the BP Cherry Point Refinery would also receive the combined treated wastewater associated with the proposed project. The refinery discharges industrial wastewater in the area of Cherry Point (Figure 2-2).

Terrell Creek is an 8.7-mile-long stream that flows from Lake Terrell and discharges to the marine waters of Birch Bay in Puget Sound. Terrell Creek flows east and north of the proposed project site (Figure 3.7-1). Birch Bay is approximately 1.5 miles northwest of the proposed project site (Figure 2-2). The WDFW Priority Habitat and Species database identifies the riparian habitat of Terrell Creek as priority habitat.

According to WDFW, anadromous and resident fish species occurring in Terrell Creek include coho salmon (*Oncorhynchus kisutch*), sea-run cutthroat (*O. clarki*), resident cutthroat (*O. clarki*), and winter steelhead (*O. mykiss*). WDFW regional habitat biologists have documented coho, resident cutthroat juveniles, and largemouth bass (*Micropterus salmoides*) in the creek (Huddle, pers. comm., 2002; Warinner, pers. comm., 2002).

Lake Terrell is approximately 1 mile southeast of the proposed project site. The WDFW Priority Habitat and Species database identifies wetlands associated with Lake Terrell as priority habitat (WDFW 2001).

Fingalson Creek flows into Terrell Creek east of the proposed project site. Sea-run cutthroat and winter steelhead are documented in Fingalson Creek (Huddle, pers. comm., 2002; Warinner, pers. comm., 2002). The WDFW Priority Habitat and Species database identifies the riparian habitat of Fingalson Creek as priority habitat (WDFW 2001).

California Creek is a 7.25-mile-long stream that discharges to the marine waters of Drayton Harbor (Strait of Georgia). California Creek flows north of the proposed project site (Figure 3.7-1). Drayton Harbor is approximately 3 miles northwest of the proposed project site (Figure 2-2). Anadromous fish species occurring in California Creek include coho and chum salmon (*O. keta*) (Williams et. al 1975, WDFW 2001). The WDFW Priority Habitat and Species database identifies the riparian habitat of California Creek as priority habitat.

Four unnamed tributaries to California Creek are located within the project site. These tributaries are not identified in the WDFW Priority Habitat and Species database. Fish use of these systems is unknown (Williams et. al 1975).

The marine environment of Puget Sound provides habitat for a variety of shellfish, anadromous salmon, and other marine fish species. Nearshore habitats and characteristic species near the wastewater discharge at Cherry Point are typical of those found along the Cherry Point shoreline. The seafloor habitat within the industrial wastewater chronic dilution zone is silty gravelly sand sediment with relatively strong tidal currents (1 or more knots during maximum ebbs and floods). This habitat is characterized by a sparse epifauna.

Figure 3.7-1

A variety of salmonids are known to occur along the Cherry Point shoreline. Large numbers of pink (*O. gorbuscha*), chum, coho, and chinook (*O. tshawytscha*) salmon have been found in the cobble habitats of the Cherry Point shoreline and in the protected eelgrass beds of Birch Bay. Juvenile sockeye salmon (*O. nerka*) were also found in Birch Bay, but were generally less abundant than other species (BP 2002, Section 3.7). These species can be expected to migrate and feed along the Cherry Point shoreline. Pacific herring (*Clupea pallasii*) and surf smelt (*Hypomesus pretiosus*) use beaches north and south of the wastewater discharge location for spawning from June through August.

Aquatic resources with potential fish habitat are not located within about 0.5 mile of the cogeneration facility footprint, refinery interface footprint, or the transmission system corridor. Aquatic resources associated with other project components (CMA 1 and CMA 2) and the transmission line corridor are discussed below.

Custer/Intalco Transmission Line No. 2

Seven stream channels, Terrell Creek, Fingalson Creek, California Creek, and four unnamed tributaries to California Creek, flow within the proposed transmission line corridor (Appendix B). Ditches and swales present within the transmission line corridor are isolated systems associated with wetland habitat. Characteristics of stream channels associated with the transmission line corridor are described in Table 3.7-4 in the order they occur from east to west.

**Table 3.7-4: Characteristics of Stream Channels within the Transmission Line Corridor**

Corridor Mile	Stream Name	Location	Size and Shape	Comments
Mile 1	California Creek	southwest of Custer substation	straightened channel, 2 to 3 feet deep, 2 feet wide	flow 5 to 7 cfs, water very silty
Mile 2	Tributary 1	east of Elk Road	bottom of 50-foot-wide and 30-foot-deep gully, 10 to 15 feet wide	flows through 24-inch culvert beneath unpaved road, flow 0.25 cfs
Mile 2	Tributary 2	joins Tributary 1 from the southeast within corridor	larger stream than Tributary 1	flows through 24-inch culvert beneath unpaved road prior to joining with Tributary 1
Mile 2	Tributary 3	west of Elk Road	30-foot-wide, V-shaped channel, steep-banked gully 10 feet deep downstream of confluence	flows west within north part of corridor for about 300 feet before joining Tributary 4 within corridor, flow 0.3 cfs, continues offsite for more than 2 miles before joining California Creek
Mile 2	Tributary 4	west of Elk Road	smaller stream than Tributary 3	flows northwest across corridor before joining Tributary 3, flow 0.15 cfs

**Table 3.7-4: Continued**

Corridor Mile	Stream Name	Location	Size and Shape	Comments
Mile 4	Fingalson Creek	about 2,500 feet east of Kickerville Road	6 to 10 feet wide, steep-banked gully 40 feet deep	flows west within south part of corridor for about 500 feet before flowing out of the corridor to the south, flow 0.25 cfs
Mile 4	Fingalson Creek	about 1,500 feet east of Kickerville Road	6 to 10 feet wide	crosses corridor from south about 1,000 feet west from where stream exited corridor, drains into Terrell Creek about 300 feet after crossing corridor
Mile 4	Terrell Creek	about 700 feet east of Kickerville Road	4 feet wide with steep banks	flows north across corridor, flow 10 cfs

Source: Appendix E

### Other Project Components

Aquatic resources with potential fish habitat are not located within about 0.5 mile of Access Road 3 or Laydown Area 4. Proposed wetland mitigation sites CMA 1 and CMA 2 are located adjacent to the forested riparian corridor of Terrell Creek (Figure 3.5-2).

### **Threatened and Endangered Species**

Section 7(c) of the ESA of 1973 requires an analysis of the effects of construction projects with a federal nexus (permits, funds, land) on any federally listed or proposed threatened or endangered species that may use the project site. Consultation with USFWS and NOAA Fisheries is necessary if any threatened or endangered species would be adversely affected by the project. Applicable regulations are found in 50 CFR 17. The ESA does not protect candidate species or species of concern, but if a species were to be elevated to the proposed, endangered, or threatened category once the project had begun, additional analysis would be required to determine the project's potential effects on that species.

A BE prepared for the project in 2002 was reviewed to provide information on threatened and endangered species documented as potentially occurring near the proposed project site (BP 2003, Appendix H5). Wildlife and fish species identified by USFWS, NOAA Fisheries, and/or WDFW as likely to occur in the project vicinity are discussed below.

USFWS indicates that there are two federally listed threatened species under USFWS jurisdiction that are likely to occur in the project vicinity: the bald eagle (*Haliaeetus leucocephalus*) and the Coastal-Puget Sound population of bull trout (*Salvelinus confluentus*) (USFWS 2001) (Table 3.7-2).

NOAA Fisheries identifies two federally listed endangered species, two federally listed threatened species, and one species that is currently a candidate for listing, as potentially occurring near the project site. Humpback whale (*Megaptera novaeangliae*) and leatherback sea turtle (*Dermochelys coriacea*) are federally listed endangered species. Steller sea lion (*Eumetopias jubatus*) and Puget Sound chinook salmon (*Oncorhynchus tshawytscha*) are federally listed threatened species. Puget Sound/Strait of Georgia coho salmon (*Oncorhynchus kisutch*) is a candidate for listing (NOAA Fisheries 2003) (Table 3.7-2).

According to the WDFW Priority Habitats and Species database, no federal or state-listed sensitive, threatened, or endangered wildlife species regularly forage, breed, or occur within the proposed project site (WDFW 2001). Information from the WDNR Natural Heritage Program indicates that there are no known occurrences of priority habitats or high-quality ecosystems near the proposed project site (WDNR 2001) (Table 3.7-5).

**Table 3.7-5: Threatened, Endangered, Proposed, Candidate Species, and Species of Concern Potentially Occurring in the Project Vicinity**

Common Name	Scientific Name	Federal Status	State Status
<b>USFWS</b>			
bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Threatened
bull trout (Coastal-Puget Sound Distinct Population Segment)	<i>Salvelinus confluentus</i>	Threatened	Candidate
long-eared myotis	<i>Myotis evotis</i>	Species of Concern	None
long-legged myotis	<i>Myotis volans</i>	Species of Concern	None
olive-sided flycatcher	<i>Contopus cooperi</i>	Species of Concern	None
Pacific lamprey	<i>Entosphenus tridentatus</i>	Species of Concern	None
river lamprey	<i>Lampetra ayresi</i>	Species of Concern	Candidate
<b>NOAA Fisheries</b>			
humpback whale	<i>Megaptera novaeangliae</i>	Endangered	Endangered
leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Endangered
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened	Threatened
Chinook salmon (Puget Sound Evolutionarily Significant Unit)	<i>Oncorhynchus tshawytscha</i>	Threatened	Candidate
Coho salmon (Puget Sound/Strait of Georgia Evolutionarily Significant Unit)	<i>Oncorhynchus kisutch</i>	Candidate	None

Source: USFWS 2001; NOAA Fisheries 2003

### Federally Listed Endangered Species

Humpback whale sightings are a common occurrence along the Washington outer coast, with occasional sightings in the Strait of Juan de Fuca (Everitt et al. 1980). While humpback whales may wander into Puget Sound during migrations between summer breeding grounds in coastal Alaska and wintering grounds around subtropical coastal areas, their presence in Puget Sound is rare. There have been only two or three sightings in Washington inland waters in the last 10 years (Norberg, pers. comm., 2000).

The leatherback sea turtle may occasionally wander into Puget Sound from coastal Washington but is not known to breed in inland waters. These turtles breed in tropical and subtropical habitats. Sightings in Washington waters have been rare, with only one or two unconfirmed sightings off the outer coast of Washington in the last 10 years (Norberg, pers. comm., 2000).

### Federally Listed Threatened Species

Bald eagles typically nest in large trees within view of a foraging area. Bald eagles prefer foraging in or near open water. Fish is the major component of their diet, but waterfowl, seagulls, and carrion are also eaten (Federal Register 1999). Bald eagle breeding habitat typically requires an adequate supply of moderate- to large-sized fish, nearby nesting sites of large coniferous trees within 0.6 mile of water, and a reasonable degree of freedom from disturbance during the nesting period (Johnsgard 1990). Wintering populations of bald eagles use shoreline areas along Puget Sound for foraging and perch sites.

The WDFW Priority Habitats and Species database and WDFW personnel identify several bald eagle breeding sites within 2 miles of the proposed project site (WDFW 2001). The closest nest is approximately 1.2 miles northwest of the site near Birch Bay. Sixteen breeding occurrences associated with Lake Terrell have been documented, more than 1.5 miles southeast of the project site (WDFW 2001; Reed, pers. comm., 2001). Quality perching and foraging habitat typically associated with bald eagles is not located within the project site.

Bull trout live in cold mountain waters spanning from the northern United States into Canada. Terrell Creek does not provide suitable cold water habitat required by bull trout for spawning. The closest known stream that contains bull trout is the Nooksack River, which drains into Bellingham Bay. Bull trout associated with the Nooksack River could occur in the marine waters off Cherry Point. These adults could use nearshore waters and habitats for feeding. Adults or juveniles could incidentally use the lower reaches of Terrell Creek for feeding (Huddle, pers. comm., 2002).

Steller sea lions range from Southern California through coastal Oregon, Washington, British Columbia, and Alaska. These species are typically associated with coastal Washington and are not regularly observed in Puget Sound waters (NOAA Fisheries 2003). There are no known breeding or haulout sites for sea lions in the Cherry Point vicinity.

The Puget Sound chinook salmon Evolutionarily Significant Unit (ESU) includes all naturally spawning populations of chinook salmon from rivers and streams flowing into Puget Sound, including the Strait of Juan De Fuca from the Elwha River eastward, and the rivers and streams flowing into Hood Canal, South Sound, North Sound, and the Strait of Georgia in Washington (NOAA Fisheries 2003).

The nearest stream used by chinook salmon for spawning is the Nooksack River (Berger/ABAM 2000; Williams et al. 1975). Adult chinook salmon use offshore waters for feeding or during migration. Some adult fish could be found along Cherry Point and Birch Bay from March through October. Juveniles of chinook salmon would be expected to use nearshore marine habitats off Cherry Point for feeding and refuge during migration. Juveniles are likely to be found along Cherry Point and Birch Bay from March through August (Myers et al. 1998; Williams et al. 1975). Chinook salmon are not known to use Terrell Creek for spawning. WDFW has not observed use of Terrell Creek by chinook salmon adults or juveniles (WDFW 2001).

### Candidate Species

The Puget Sound/Strait of Georgia ESU includes all naturally spawning populations of coho salmon from drainages of Puget Sound and Hood Canal, the eastern Olympic Peninsula, and the Strait of Georgia from the eastern side of Vancouver Island and the British Columbia mainland (NOAA Fisheries 2003).

WDFW regional habitat biologists have documented coho salmon in Terrell Creek (Williams et al. 1975). Coho salmon may use Terrell Creek for spawning. However, no actual spawning has been documented by WDFW. If spawning occurred, adult fish would be expected in Terrell Creek from November through January. Juvenile coho salmon would be expected in the nearshore waters off Cherry Point from March through July (Huddle, pers. comm., 2002).

### Species of Concern

USFWS identified five species of concern that may occur in the project vicinity: long-eared myotis, long-legged myotis, olive-sided flycatcher, Pacific lamprey, and river lamprey (Table 3.7-5). Species of concern are not protected under the ESA, but if a species were to be elevated to the proposed category after the project had begun, additional analysis in the BE would be required to determine the project's potential effects on this species. Quality terrestrial habitat typically associated with these species (mature forests) do not occur within the proposed project site. Freshwater streams are located within the transmission line corridor, as described in the fisheries section above.

### State Priority Species

A review of the WDFW Priority Habitats and Species database revealed that no federal or state-listed sensitive, threatened, or endangered wildlife species regularly use or breed within the proposed project site (WDFW 2001). The WDFW Priority Habitats and Species database does identify habitat for several state priority species located more than 1 mile from the proposed project site.

Pacific herring Cherry Point stock (*Clupea pallasii*) is a state priority species. Herring stocks are defined by WDFW by spawning grounds, one of which is the Cherry Point shoreline from Birch

Bay to Sandy Point in the southeast Strait of Georgia. Most Washington state herring stocks spawn from late January through early April. The Cherry Point stock is an exception to this spawning time, spawning from early April through early June. Herring deposit their eggs on subtidal eelgrass and marine algae (WDFW 2003).

Sea-run cutthroat is a state priority species. According to the WDFW Priority Habitat Species database, this species is known to occur in Terrell Creek and Fingalson Creek. WDFW regional habitat biologists have documented cutthroat juveniles in Terrell Creek (Huddle, pers. comm., 2002; Warinner, pers. comm., 2002). Spawning activities have not been observed.

Surf smelt (*Hypomesus pretiosus*) are state forage fish. Surf smelt occur within the upper intertidal zone within gravel beaches. There are known spawning areas on beaches north of Cherry Point.

Common loon (*Gavia immer*), a state sensitive species, and trumpeter swan (*Cygnus buccinator*), a state priority species, are known to occur in habitat associated with Lake Terrell. Birch Bay is known to support relatively high concentrations of great blue heron (*Ardea herodias*) nests on land that was placed in a conservation trust by the Applicant. Great blue heron are a state monitor species. Birch Bay and Lake Terrell are approximately 1.5 miles and 1 mile, respectively, from the proposed project site

The WDFW Priority Habitats and Species Data System also indicates that two gray wolves (*Canis lupus*) were reported near the proposed project site in 1991. Gray wolves are a federally listed threatened species under USFWS jurisdiction. USFWS does not identify gray wolves as likely to occur in the project vicinity (USFWS 2001). Although there are occasional reports of wolf sightings in the state, there are no documented wolf breeding pairs or packs currently in the state. WDFW believes that sightings here involve lone wolves from Canada or wolf/dog hybrids that have been released into the wild (Leigh, pers. comm., 2001).

Based on the literature review and information from natural resource agencies, no federal or state protected species regularly forage, breed, or occur within the proposed cogeneration facility area, refinery interface footprint, transmission system corridor, or the other project components. Breeding or foraging habitat typically associated with federal or state protected species is not located within the footprint of these elements of the project.

#### Custer/Intalco Transmission Line No. 2

No federal or state protected terrestrial species regularly forage, breed, or occur within the transmission line corridor. Federal or state protected fish species may occur in the reaches of Terrell Creek, Fingalson Creek, and California Creek that flow through the transmission line corridor.

### **3.7.2 Impacts of the Proposed Action**

Potential impacts associated with the proposed project would be minimized and avoided through implementation of the BMPs described in the Mitigation Measures section below. The impacts described below assume implementation of all of the proposed BMPs.

#### **Construction**

This section describes potential impacts from associated construction activities and project design elements, including mitigation measures proposed by the Applicant to minimize or eliminate those potential impacts. Potential impacts and design elements applicable to all project components are discussed first, followed by discussions specific to individual project components. Detailed information associated with proposed mitigation measures is provided in the *Revised Cogeneration Project Compensatory Mitigation Plan* and the *May 22, 2003 Addendum: Changes to Revised Cogeneration Project Compensatory Mitigation Plan* (Appendix E).

#### Upland Vegetation

The primary impact construction of the proposed project would have on vegetation communities is the direct removal of vegetation, soil, and water. It is anticipated that the conversion of vegetation communities to impervious surfaces would be permanent. Therefore, vegetation would no longer occur in those areas of the proposed project site that would be converted to impervious surfaces during construction.

Vegetation communities in the project area contain a mixture of native and non-native plant species. Non-native vegetation is the dominant cover in the shrub habitat. Additionally, non-native vegetation is established throughout the grassland, coniferous forest, and deciduous forest habitats. Grading and clearing of the proposed project site would remove existing noxious weed species. This is not considered an adverse impact because eradication of Class C noxious weeds is strongly encouraged by both the state and local noxious weed control boards.

No federal or state endangered, threatened, or sensitive plant species occur within the proposed project site and therefore none would be affected by construction of the proposed project.

#### *Cogeneration Facility*

Upland vegetation community impacts associated with the cogeneration facility, the refinery interface site (Access Road 2 and Laydown Areas 1, 2, and 3), and elements of the other project components (Access Road 3 and Laydown Area 4) include the clearing and removal of grassland, shrubland, mixed coniferous/deciduous forest, coniferous forest, and deciduous forest (Table 3.7-6).

**Table 3.7-6: Summary of Vegetation Community Impacts Associated with the Cogeneration Facility, Refinery Interface, and Other Project Components (acres)**

Vegetation Community	Acres
Coniferous forest	7.3
Deciduous forest	1.5
Mixed coniferous/deciduous forest	0.2
Shrubland	1.2
Grassland	19.7
Wetland	35.37
Existing impervious surface	3.6
Total	68.9

Source: BP 2002, Section 3.4  
 Totals may not sum due to rounding.

Upland vegetation communities in the northern portion of the cogeneration facility near Grandview Road, west of Laydown Area 4, would not be disturbed or cleared as part of the project (Figure 3.7-1). A reed canarygrass control program has been developed to remove and control this invasive species within the project site. Zoning regulations, as defined in Title 20 of the Whatcom County Municipal Code, require minimum setbacks from public roads associated with heavy industrial development. The proposed project site was located as close to Grandview Road as possible (250 feet) to avoid upland and wetland communities south of the project site, under these setback requirements. BMPs would be implemented to avoid and reduce impacts resulting from construction.

*Refinery Interface*

Construction activity associated with the refinery interface site would disturb small upland patches of grassland, Himalayan blackberry, and black cottonwood surrounded by wetland systems (Table 3.7-6). As part of the restoration effort associated with Wetland F in the northern portion near Grandview Road, upland vegetation communities would be restored and enhanced following construction with native grass, shrub, and forested vegetation. Construction Laydown Areas 1, 2, and 3 would be maintained as impervious areas after construction is completed to accommodate necessary storing and holding areas associated with operation of the project.

*Transmission System*

This new 0.8-mile-long and 150-foot-wide electrical transmission system corridor has not yet been cleared of trees, although the access/maintenance roads leading to the transmission system line corridor have been constructed under previously approved permits (ARCO Products

Company 1999). Trees growing in the corridor would be removed or topped during construction to maintain a safe distance between the trees and the electrical lines. The transmission system line would require the construction of five towers. The gravel pads for the towers are approximately 50 feet by 50 feet, a total area of 12,500 square feet or 0.29 acre. Approximately 0.15 acre of PEM Category III wetland impacts have been identified associated with the tower pad construction (Section 3.5). Therefore, up to 0.14 acre of upland vegetation associated with the transmission system would be cleared. The tower pads are likely to be constructed in grassland and mixed coniferous/deciduous forest habitats. BMPs, including silt fences, straw bales, and mulch, would be used as necessary during clearing of the corridor and construction of tower pads to control erosion until the area can be stabilized with gravel or vegetation.

### *Custer/Intalco Transmission Line No. 2*

Existing access/maintenance roads are located within the approximately 5-mile transmission line corridor. No road construction would be associated with this component of the project.

Under Option 1, a RAS would install additional electrical equipment, such as new breakers and wiring, within the Custer and Intalco substations. This option would not require any changes to the existing lines or towers and no new towers would be constructed, but this would require agreement among the Applicant, Alcoa Intalco Works, and Bonneville. No impacts to upland vegetation associated with construction of the transmission line would occur under this option.

Under both Option 2a and Option 2b, a second transmission line would be installed inside the existing 125-foot right-of-way of the existing transmission line corridor. Under Option 2a, new lattice-style towers would be constructed. Under Option 2b, new monopole-style towers would be constructed. Some foundation work would be required to accommodate the new towers under either Option 2a or 2b. While the number of new towers required for either option has not been determined, more monopole-style towers than lattice towers would be required to accommodate a new electrical line because monopole-style towers require a shorter distance between towers. The location and amount of clearing that would be required to construct new towers has not been identified. The majority of upland vegetation communities associated with the transmission line corridor that would be disturbed during tower construction is grassland habitat that is disturbed due to mowing and livestock grazing (Appendix B). Himalayan blackberry shrub habitat would also be disturbed. Implementation of appropriate BMPs would protect against adverse impacts on upland vegetation communities.

### *Other Project Components*

Impacts associated with Laydown Area 4 and Access Road 3 are included in Table 3.7-6. A small amount of mixed coniferous/deciduous forest is located in the northeast portion of Laydown Area 4. Following construction, the entire 4.74-acre area of Laydown Area 4 would be restored. The restoration of Laydown Area 4 would include 2.9 acres of wetland (0.5 acre) and upland (2.4) restoration and creation within the cogeneration facility fenceline. The other 1.8 acres in the

eastern portion of Laydown Area 4 would include restoration of upland habitat outside the fenceline. Laydown Area 4 would be restored and enhanced with native grass, shrub, and forested vegetation. Most of the vegetation associated with Access Road 3 is associated with wetland systems.

As shown on Table 3.5-4 in Section 3.5, 12 acres (24%) of CMA 1 and 18.42 acres (30%) of CMA 2 is comprised of upland vegetation communities. Upland vegetation associated with CMA 1 and 2 would be enhanced by removing non-native invasive plant species. Some replanting of native species would also occur. These measures will improve the functional performance of upland areas as wetlands in this area are converted from low quality Category II wetlands into high quality Category II wetlands. The cogeneration project compensatory mitigation plan documents are included in Appendix E. Existing native trees and shrubs within upland areas in CMA 1 and 2 would not be disturbed. A reed canarygrass control program has been developed to remove and control this invasive species. Implementation of appropriate BMPs would protect against adverse impacts on upland vegetation communities.

#### Wildlife and Habitat

The primary effect from project construction would be removal and loss of habitat. In general, the severity of impact varies depending on the type and quantity of affected vegetation. Loss of plant communities that offer limited wildlife habitat, such as shrub communities dominated by Himalayan blackberry, would result in less of an adverse effect than loss of more complex vegetation associations, such as forested upland and wetland areas.

Grassland and wetland communities are the primary habitats that would be cleared under the proposed project. Other habitats that would be cleared include shrubland, mixed coniferous/deciduous forest, coniferous forest, and deciduous forest.

Clearing of vegetation during construction would eliminate and modify existing wildlife habitat. Such impacts to habitats would displace and/or eliminate wildlife that currently depend on this vegetation. Most wildlife species (such as birds, raccoons, or coyotes) would be able to move away from areas of disturbance. Wildlife populations are generally considered to be at or near carrying capacity in all habitat types (Krebs 1994; Morrison et. al. 1992; Miller 1990; Robinson and Bolen 1989; Wallace 1987). Once vegetation has been removed, wildlife displaced into adjacent habitats may be unsuccessful in colonizing nearby suitable habitats because these areas are usually already occupied. The increased stress of competition for limited resources and susceptibility to predation may cause displaced animals to perish or to displace other individuals that in turn may perish. Small mammals, amphibians, and reptiles would be directly affected by construction because of their limited mobility. Some individuals of such species would perish during construction operations.

Disturbances caused by construction may affect wildlife in adjacent habitats by disrupting feeding and nesting activities. Increased noise levels created by heavy machinery could cause

birds to abandon their nests and may displace wildlife during construction. Construction activities could result in avoidance behavior by some wildlife species. Wildlife would likely inhabit available habitat once construction is complete. Some wildlife species in the project vicinity are likely acclimated to human disturbance because human-related disturbance associated with the BP Cherry Point Refinery has been occurring in the project vicinity for more than 30 years.

### *Cogeneration Facility*

The cogeneration facility would occupy approximately 33.4 acres of the project site. Conversion of wildlife habitat to developed areas is described and quantified above in the upland vegetation discussion (Table 3.7-6). Permanent loss of habitat would occur in developing the cogeneration facility, which would lead to direct impacts on wildlife species using this area. Generally, the fragmented nature and dominant presence of nonnative invasive plant species associated with wildlife habitat within the cogeneration facility does not provide conditions typically associated with high quality habitat for native wildlife. BMPs would be implemented during construction to avoid and reduce impacts to wildlife habitat resulting from construction activities.

No critical or priority upland habitat is located within the proposed cogeneration facility footprint. Wetland systems within the cogeneration facility are identified by WDFW as priority habitat. As described in Section 3.5, wetlands within the project site function on a very low level for wildlife species, and proposed wetland mitigation would convert emergent wetlands with low functional performance into higher quality scrub-shrub and forested wetlands systems. Upland wetland buffers would also be restored and enhanced (Appendix E).

Overall, impacts on wildlife and habitat associated with the cogeneration facility, with implementation of the recommended mitigation measures, are expected to be small and are unlikely to result in a significant impact on native wildlife.

### *Refinery Interface*

Components of the refinery interface (Laydown Areas 1, 2, and 3) would occupy 31.46 acres of the project site. BMPs would be implemented during construction to avoid and reduce impacts on wildlife habitat resulting from construction activities. All of construction Laydown Areas 1 and 3, and portions of Laydown Area 2, would be maintained as impervious areas after construction is completed to accommodate necessary storing and holding areas associated with operation of the refinery. Wildlife habitat within the refinery interface is similar to habitat associated with the cogeneration facility. Overall, impacts on wildlife and habitat associated with construction of the refinery interface are consistent with those described for the cogeneration facility above.

As discussed in Section 3.5 (Table 3.5-5), 4.66 acres of wetland habitat and associated wetland buffer habitat within Laydown Area 2 would be restored and enhanced following construction with native grass, shrub, and forested vegetation (Appendix E).

No critical or priority upland habitat is located within the refinery interface area. Wetland systems within the refinery interface are identified by WDFW as priority habitat. As described above for the cogeneration facility, wetlands within the project site function on a very low level and proposed wetland mitigation would create higher quality wetlands systems.

Overall, impacts on wildlife and habitat associated with the refinery interface, with implementation of the recommended mitigation measures, are expected to be small and are unlikely to result in a significant impact on native wildlife.

### *Transmission System*

Installation of the transmission system requires a 150-foot-wide, 0.8-mile-long corridor consisting of five new towers. This transmission system corridor has not yet been cleared of trees, although the access/maintenance roads leading to the transmission system line corridor have been constructed under previously approved permits (ARCO Products Company 1999). Trees growing in the corridor would be removed or topped during construction to maintain a safe distance between them and the electrical lines. As described above in the upland vegetation section, the five tower pads would cover approximately 0.29 acre. The total area within the transmission system corridor is 14.6 acres. Estimated impacts on wildlife habitat associated with tower pad construction would include the clearing of 0.15 acre of PEM wetlands and up to 0.14 acre of upland grassland and mixed coniferous/deciduous forest habitats. Noise levels associated with construction of the towers may displace wildlife during construction. BMPs, including silt fences, straw bales, and mulch, will be used as necessary during clearing of the corridor and construction of the tower pads to control erosion until the area can be stabilized with gravel or vegetation.

No critical or priority upland habitat is located within the transmission system corridor. Wetland systems within the transmission system corridor are identified by WDFW as priority habitat. As described above in the cogeneration facility section, wetlands within the project site function on a very low level and proposed wetland mitigation would create higher quality wetlands systems.

Overall, with implementation of the recommended mitigation measures, impacts associated with the transmission system on wildlife would be temporary and habitat impacts would be small and not significantly affect most wildlife populations.

### *Custer/Intalco Transmission Line No. 2*

The transmission line corridor passes through a combination of grassland and shrub wetland, as well as upland wildlife habitat that is disturbed due to mowing and livestock grazing (Appendix

B). Mixed coniferous/deciduous forest habitats are located adjacent to the transmission line corridor in several areas but are not located within the corridor and would not be cleared during construction. Seven riparian corridors are located within the transmission line corridor. Riparian habitat within the transmission corridor is degraded due to steep banks and a dominant presence of nonnative invasive vegetation species (Table 3.7-2). An estimated 33% of the transmission line corridor is comprised of wetland habitat and 67% is comprised of upland habitat. Wetlands associated with the transmission line corridor are described in Section 3.5 and summarized in Table 3.5-3.

An unpaved road located along most of the corridor provides access for maintenance, and paved roads cross the corridor in several locations. No road construction would be associated with the transmission line corridor. Shrubs and trees within the corridor are currently removed or topped by Bonneville to maintain a safe distance between the trees and the electrical lines, typically about 25 feet.

As described above in the upland vegetation section, Option 1 would not require any changes to the existing lines or towers and no new towers would be constructed. No impacts on wildlife habitat associated with construction of the transmission line would occur under Option 1.

The other two transmission line options, replacing the existing tower structures with lattice towers (Option 2a) or monopole-style towers (Option 2b), are described above in the upland vegetation section. The location and amount of clearing that would be required to construct new towers has not yet been identified. The majority of habitat associated with the transmission line corridor that would be disturbed during tower construction is grassland that has been disturbed due to mowing and livestock grazing and Himalayan blackberry shrub habitat. Sensitive areas, wetland systems, stream channels, and associated wetland and stream buffers would be avoided, where possible, during construction of the transmission line tower pads. If wetland impacts cannot be avoided, wetland delineations would need to be performed where impacts are proposed before wetland impacts can be quantified and wetland permits can be issued. BMPs, including silt fences, straw bales, and mulch will be used as necessary during clearing of the corridor and construction of tower pads to control erosion until the area can be stabilized with gravel or vegetation.

WDFW priority habitat located within the transmission system corridor, stream channels, and wetlands would be avoided where possible. No tower pad construction would occur within stream channels or associated riparian buffers. Some PEM wetland systems may be disturbed during construction. As discussed above for the cogeneration facility, wetlands within the project site function on a very low level and proposed wetland mitigation would create higher quality wetlands systems.

Overall, tower pad construction would require the clearing of a relatively small area within the existing 70-acre transmission line corridor. With implementation of the recommended mitigation measures, impacts associated with the transmission line on wildlife would be temporary and

habitat impacts would be small. The proposed transmission line corridor would not significantly affect most wildlife populations.

### *Other Project Components*

Impacts associated with Laydown Area 4 and Access Road 3 would be the same as those described above for the cogeneration facility and the refinery interface. Most of the habitat that would be cleared is disturbed and is generally of low quality. A small amount of mixed coniferous/deciduous forest habitat, approximately 0.2 acre, in the northeast portion of Laydown Area 4 would be cleared. Vegetation communities in Laydown Area 4 would be restored and enhanced following construction with native grass, shrub, and forested vegetation (Appendix E). Implementation of appropriate BMPs would protect against adverse impacts on wildlife habitat.

As discussed in Section 3.5 under the proposed mitigation plan, in addition to the 0.2 acre of wetland restoration of Wetland B3, 0.3 acre of wetland creation would occur, for a total of 0.5 acre of wetland restoration and creation in Laydown Area 4 (Appendix E).

Existing native trees and shrubs within CMA 1 and CMA 2 would not be disturbed. A reed canarygrass control program has been developed to remove and control this invasive species within the mitigation areas.

Proposed wetland enhancement and the creation of new wetlands associated with proposed wetland mitigation sites CMA 1 and CMA 2 would result in an increase in habitat quality, would benefit wildlife species that currently use the area, and would likely attract a more diverse assortment of wildlife species. The riparian corridor of Terrell Creek is adjacent to CMA 1 and CMA 2. Wetland enhancement associated with CMA 1 and CMA 2 would provide a significant benefit to the overall quality of wildlife habitat of the Terrell Creek system.

No critical or priority upland habitat is located within the other project components. Wetland systems within CMA 1 and CMA 2 are identified by WDFW as priority habitat. As described previously, wetlands within the project site function on a very low level and proposed wetland mitigation would create higher quality wetlands systems.

Overall, with implementation of the recommended mitigation measures, impacts associated with Laydown Area 4 and Access Road 3 on wildlife would be temporary and habitat impacts would be small and would not significantly affect most wildlife populations. Wetland enhancement associated with CMA 1 and CMA 2 would provide a significant benefit to the overall quality of wildlife and habitat in the project vicinity.

### Fisheries

Potential impacts on fish or fish habitat associated with construction of the proposed project include impacts on water quality and changes in water quantity. No construction activity would

occur within 1.5 miles of the waters of Puget Sound. Wetlands within the project site are hydrologically isolated with no known fish use. General mitigation measures associated with potential water quality and quantity changes have been developed to minimize potential impacts on fish and fish habitat. In addition, mitigation measures and impacts would be further detailed and refined as the design phase proceeds prior to construction.

Water quality can be degraded by accidental spills of petroleum hydrocarbons from construction activities and exposure to construction waste, such as concrete wash water. Potential significant impacts due to erosion and sedimentation are not likely because stormwater detention ponds would trap and filter runoff associated with construction activities. Potential water quality impacts related to construction are expected to be short term and negligible with proper management. Section 3.4, Water Quality, contains more detailed information on water quality impacts. There are no aquatic resources with potential fish habitat located within or near (about 0.5 mile) the footprint of the cogeneration facility, components of the refinery interface, or the transmission system corridor. With implementation of the recommended mitigation measures, impacts on fish or fish habitat associated with construction of these components of the project would not occur.

#### *Custer/Intalco Transmission Line No. 2*

Seven stream channels, Terrell Creek, Fingalson Creek, California Creek, and four unnamed tributaries to California Creek, flow within the proposed transmission line corridor (Table 3.7-4). The WDFW Priority Habitats and Species database identifies the riparian corridors of Terrell Creek, Fingalson Creek, and California Creek within the transmission line corridor as priority habitats (WDFW 2001). Ditches and swales within the transmission line corridor associated with wetland habitat are seasonally inundated and are unlikely to provide habitat for fish.

An unpaved road is located along most of the corridor to provide access for maintenance, and paved roads cross the corridor in several locations. No road construction would be associated with the transmission line.

As described above in the upland vegetation section, Option 1 would not require any changes to the existing lines or towers and no new towers would be constructed. With implementation of the recommended mitigation measures, no impacts on fish or fish habitat associated with construction of the transmission line would occur under this option.

The other two transmission line options, replacing the existing tower structures with lattice towers (Option 2a) or monopole-style towers (Option 2b), are described above in the upland vegetation section. The number of new towers required for either option has not been determined. Even with construction of monopole-style towers or lattice towers, impacts on fish or fish habitat are unlikely because the towers would be placed outside of stream and associated riparian zone buffers. The existing maintenance road would be used, so no new roads, culverts, or stream crossings would be constructed. A SWPP plan and BMPs, including silt fences, straw bales, and

mulch, would be used as necessary during clearing of the corridor and construction of the tower pads to control erosion until the area can be stabilized with gravel or vegetation.

Overall, with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, impacts associated with the transmission line would not significantly affect fish or fish habitat.

### *Other Project Components*

Aquatic resources with potential fish habitat are not located within the footprint of the other project components. Potential fish habitat is not located within about 0.5 mile of Access Road 3 or Laydown Area 4. Proposed wetland mitigation sites CMA 1 and CMA 2 are located adjacent to the forested riparian corridor of Terrell Creek. The WDFW Priority Habitats and Species database identifies the riparian corridor of Terrell Creek as priority habitat.

Construction activity associated with wetland mitigation sites CMA 1 and CMA 2 would not disturb fish or fish habitat associated with Terrell Creek. BMPs would be implemented to avoid and reduce impacts on fish habitat resulting from construction of the wetland mitigation sites.

Wetland enhancement and the creation of new wetlands associated with the proposed wetland mitigation sites CMA 1 and CMA 2, located adjacent to the forested riparian corridor of Terrell Creek, would increase the quality of habitat in vegetation communities near the riparian corridor of Terrell Creek.

Overall, with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, impacts associated with the other project components would not significantly affect fish or fish habitat.

### Threatened and Endangered Species

As part of the project, several documents analyzed potential project impacts on federally listed threatened and endangered species. A BE was prepared, pursuant to the ESA, associated with the cogeneration facility, refinery interface area, and the other project components (BP 2003, Appendix H). A SEPA checklist and JARPA application was prepared for the transmission system corridor (ARCO Products Company 1999). An environmental resources report evaluated the transmission line component of the project (Appendix B).

Existing documentation and information from the USFWS, NOAA Fisheries, and WDFW were used to identify federal and state protected species that may use the proposed project site and to identify the presence of priority habitats near the proposed project site.

Based on an analysis and review of natural resource documents and information from natural resource agencies, no federal or state protected species regularly forage, breed, or occur within the

cogeneration facility, refinery interface area, transmission system corridor, or the other project components of the project site. Breeding or foraging habitat typically associated with federal or state protected species is not located within the area of these elements of the project. No breeding or foraging habitats associated with protected species would be affected by construction activities associated with these elements of the proposed project.

#### *Custer/Intalco Transmission Line No. 2*

No federal or state protected terrestrial species regularly forage, breed, or occur within the transmission line corridor. No breeding or foraging habitats associated with protected terrestrial species would be affected by construction activities associated with these elements of the proposed project.

Federal or state protected fish species may occur in the reaches of Terrell Creek, Fingalson Creek, and California Creek that flow through the transmission line corridor. As described above in the fisheries section, under the option to connect with the existing transmission line additional electrical equipment and wiring would be needed but new towers would not be constructed. No impacts on protected fish or fish habitat associated with construction of the transmission line would occur under this option. The existing maintenance road would be used, so no new roads, culverts, or stream crossings would be constructed.

The number of new towers required for either the monopole-style towers or lattice towers option has not been determined. Even with the construction of monopole-style towers or lattice towers, impacts on protected fish or fish habitat are unlikely because the towers would be placed outside of stream and associated riparian zone buffers. BMPs, including silt fences, straw bales, and mulch, will be used as necessary for clearing the corridor and construction of tower pads to control erosion until the area can be stabilized with gravel or vegetation.

Overall, with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, impacts associated with the transmission line would not significantly affect protected fish or fish habitat.

## **Operation**

### Upland Vegetation

Other than those communities affected by construction, operation of the project would not affect existing vegetation communities associated with the cogeneration facility, refinery interface, or the other project components. Long-term vegetation maintenance objectives would be implemented from guidance in a landscaping plan (Appendix E). A weed control program would be implemented during operation of the proposed facility (BP 2002, Section 3.6). Ornamental species or lawn may be planted near the facilities. Some areas currently dominated by noxious weed species may be converted to landscaped areas. These areas would require maintenance. The

establishment of noxious weed species may occur within the proposed site. These species would be controlled by procedures acceptable to the Whatcom County Noxious Weed Control Board.

### *Transmission System*

Operation and maintenance associated with the transmission system corridor would include removing or topping trees to maintain a safe distance between the trees beneath the electrical lines. Existing access and maintenance roads associated with the transmission system corridor would be maintained to prevent vegetation from growing in these areas. Vegetation that becomes established in disturbed areas such as unpaved roads are often nonnative invasive species.

### *Custer/Intalco Transmission Line No. 2*

Operation and maintenance measures associated with the transmission line corridor would be similar to those described above for the transmission system corridor. Since the transmission line is currently in operation, mowing, tree trimming, and road maintenance would be a continuation of current activity.

### Wildlife and Habitat

#### *Cogeneration Facility*

Other than wildlife habitat affected by construction, operation of the proposed project is not expected to affect existing wildlife habitats associated with the cogeneration facility. Under the proposed project, adverse operational impacts on wildlife would be minor. Wildlife has coexisted with the BP Cherry Point Refinery for over 30 years. Noise levels associated with operation of the proposed project are expected to be consistent with current ambient noise levels. The cogeneration facility would not block wildlife movement corridors, because areas to the east would remain available for species use.

#### *Refinery Interface*

Potential impacts associated with operation of the refinery interface would be the same as those described for the cogeneration facility.

### *Transmission System*

Transmission system operation and maintenance activities would include road grading and vegetation clearing, as described above for upland vegetation. Some wildlife habitat loss, noise, and disturbance could occur during maintenance activities. Impacts associated with maintenance would be similar to those associated with construction activities, but would not be as extensive.

## *Custer/Intalco Transmission Line No. 2*

Transmission line operation and maintenance activities would be the same as those described for the transmission system, except that operation and maintenance of the transmission line would be a continuation of current activity.

### *Other Project Components*

Potential impacts associated with operation of the other project components would be the same as those described for the cogeneration facility.

### Fisheries

Operation activities associated with the proposed project that could affect fish or fish habitat include stormwater, water use, and wastewater. Potential impacts resulting from operation of the proposed project are unlikely due to the absence of streams within about 0.5 mile of the cogeneration facility, components of the refinery interface, or the transmission system corridor. Water resources within the area of these project components are limited to wetland habitat with no known fish use. Operation of the project would have negligible impacts on fish and fish habitat if proper drainage, erosion-control plans, and stormwater management practices are implemented. The proposed design approach, operational procedures, mitigation measures, BMPs, and other pollution prevention measures described in detail in Sections 2.2 and 3.3 would protect water quality associated with the proposed project and freshwater habitat downstream of the proposed project site.

### *Cogeneration Facility*

The quantity and quality of stormwater runoff could be affected by operation of the cogeneration facility because of the increase in impervious surfaces, which could result in impacts on fisheries habitats downstream of the project site if not mitigated. Stormwater runoff associated with existing impervious surfaces within the BP Cherry Point Refinery are currently routed to treatment facilities and detention ponds prior to being discharged to mitigation wetlands north of Grandview Road. Drainage ditches associated with these wetlands eventually connect with Terrell Creek, about 0.5 mile from the project site. Stormwater from new impervious surfaces associated with the cogeneration facility would be collected and diverted into detention and treatment facilities. Treated stormwater would be discharged to the existing wetland drainage system as part of the wetland mitigation. No component of the proposed project would be built near Terrell Creek, and no storm or other surface water would be discharged directly to it.

A Construction SWPP plan would be developed in accordance with BMPs and would detail the sediment and erosion control measures and accidental spill prevention and control measures. The BMPs would be implemented, inspected, and maintained to minimize the potential for adversely affecting downstream water quality. These may include such things as silt fencing and hay bales,

and placement of polyethylene tarps to cover exposed surfaces. Control of fuel storage and equipment fueling operations for spill prevention and control would be detailed in the SWPP plan. Stormwater impacts and management are discussed in additional detail in Section 3.4, Water Quality.

Based on the mitigation methods that would be implemented and the distance between the proposed project and the stream, effects on fish or fish habitat associated with stormwater runoff are unlikely.

Contaminated industrial process wastewater associated with the proposed project would be discharged to the Strait of Georgia via the BP Cherry Point Refinery's wastewater treatment system. The Nooksack River is the source of industrial process water for the project. The Whatcom County PUD would pipe water from the Nooksack River to the site, either from once through non-contact cooling water from a jacketed air compressor at the Alcoa Intalco Works facility if that facility is operational, or directly from the river. Water quality parameters of once through non-contact cooling water are presented in Table 3.4-1. Cogeneration facility wastewater would be treated and combined with the refinery's wastewater and discharged through the NPDES-permitted (WA-002290-0) Outfall 001. Table 3.4-4 in Section 3.4 presents the flows and chemical composition of the project's wastewater, except for sanitary wastewater. Net process wastewater from the cogeneration facility to the refinery wastewater treatment plant would be approximately 190 gpm, assuming 15 cycles of concentration in the cooling tower. Table 3.4-5 presents a numerical analysis of the potential impact of the project wastewater on the refinery's wastewater stream. The impact analysis is based on the average discharge from the refinery over the months of July, August, and September 2001. Because the volume of wastewater is small and contains very low levels of contaminants, it would have little to no effect on the quality of water discharged.

Treated wastewater associated with the NPDES permitted outfall is not likely to significantly affect Puget Sound habitat that supports a variety of aquatic species such as salmon, other fish, shellfish, and other marine wildlife.

Sanitary waste from cogeneration facility employees would be collected and routed for treatment by the Birch Bay WWTP via the refinery's sanitary wastewater system. The estimated amount of sanitary waste generated by the cogeneration facility is between 1 and 5 gpm. The Birch Bay Water and Sewer District has confirmed that it has the capacity to accommodate the incremental combined loading to its sanitary sewage wastewater treatment system from the refinery and the proposed cogeneration facility. The Birch Bay WWTP would treat the refinery and cogeneration facility sanitary wastes before discharge to the Strait of Georgia. The quantity of sanitary waste that would be generated by the cogeneration facility is not expected to impact receiving water quality in the Strait of Georgia.

### *Refinery Interface*

Stormwater runoff associated with impervious surfaces of the refinery interface components would be treated for water quality and quantity as described above for the cogeneration facility. Potential stormwater impacts associated with operation of the refinery interface would be the same as those described for the cogeneration facility.

### *Transmission System*

Maintenance and operation activities associated with the transmission system could result in chemical spills that could affect fish habitat. A SWPP plan for maintenance procedures, in conjunction with the SPCC plan, would provide structural, operational, and erosion/spill control BMPs for all maintenance activities. The transmission system access roads and tower pads allow stormwater infiltration to occur and would not substantially increase the amount of stormwater runoff over existing conditions.

### *Custer/Intalco Transmission Line No. 2*

Maintenance and operation activities associated with the transmission line could result in chemical spills that could affect fish habitat. This element of the project would be owned and operated by the Bonneville Power Administration. Bonneville has a SWPP plan for maintenance procedures, in conjunction with a SPCC plan that would provide structural, operational, and erosion/spill control BMPs for all maintenance activities on the transmission line.

Overall, transmission line operation and maintenance would be a continuation of current activities. Impacts associated with operation and maintenance of the transmission line with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, would not significantly affect fish or fish habitat.

### *Other Project Components*

Stormwater runoff associated with Access Road 3 would be treated for water quality and quantity as described above for the cogeneration facility. Laydown Area 4 would not be converted to impervious surfaces and would be restored and enhanced following construction with native grass, shrub, and forested vegetation (Appendix E).

Operation activity associated with wetland mitigation sites CMA 1 and CMA 2 would not disturb fish or fish habitat associated with Terrell Creek. A reed canarygrass control program has been developed to remove and control this invasive species within the mitigation areas, which would benefit the riparian habitat of Terrell Creek.

Overall, with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, operation impacts associated with the other project components would not significantly affect fish or fish habitat.

### Threatened and Endangered Species

No federal or state protected species regularly occur within the cogeneration facility, refinery interface area, transmission system corridor, or the other project components of the project site. Operation impacts on protected species are not likely. Treated wastewater associated with the NPDES-permitted outfall is not likely to have a significantly adverse impact on Puget Sound habitat that supports species such as chinook and coho salmon.

### *Custer/Intalco Transmission Line No. 2*

No federal or state protected terrestrial species regularly forage, breed, or occur within the transmission line corridor. No breeding or foraging habitats associated with protected terrestrial species would be affected by operation activities associated with this component of the proposed project.

Federal or state protected fish species may occur in the reaches of Terrell Creek, Fingalson Creek, and California Creek that flow through the transmission line corridor. As described above in the fisheries section, with implementation of the recommended mitigation measures and avoidance of stream and riparian habitat, operation impacts associated with the transmission line would not significantly affect protected fish or fish habitat.

### **3.7.3 Impacts of No Action**

Under the No Action Alternative, new facilities would not be constructed at the site. Impacts on upland vegetation, wildlife and habitat, fisheries, and threatened and endangered species associated with the proposed project would not occur. No impacts or construction would occur that would entail removal or alteration of existing habitat within the proposed project site.

Proposed wetland enhancement and the creation of new wetlands would not occur. Withdrawal from the Nooksack River would not change. Industrial wastewater from the Alcoa Intalco Works would continue to be discharged to marine waters while the smelter was operating.

### **3.7.4 Secondary and Cumulative Impacts**

The proposed project site is zoned as Heavy Impact Industrial by Whatcom County, and is located within the Cherry Point Major Industrial Urban Growth Area/Port Industrial Zone as defined in the Whatcom County Comprehensive Plan (Whatcom County 1997, as amended). The BP Cherry Point Refinery is adjacent to the proposed project site. A variety of industrial

facilities such as Alcoa Intalco Works, an aluminum smelter, and the Conoco-Phillips Refinery, are located within a few miles of the proposed project site.

The loss of approximately 33 acres of upland vegetation from the project site would not result in significant adverse cumulative impacts to wildlife habitat of the area. Wildlife habitats within the proposed project site are not unique or valuable relative to the native forested communities that existed in the area prior to land use conversion.

As part of the proposed enhancement associated with the project, existing ponds and wetland mitigation areas would be connected through corridors to the enhanced wetland area. These measures would increase habitat quality, benefit wildlife species that currently use the area, and likely attract a more diverse assortment of wildlife species.

The proposed Georgia Strait Crossing project, as described in Section 3.10, is anticipated to be constructed concurrently with the proposed project. At this time, the County envisions additional growth and development in the area of the proposed project. Impacts associated with these future projects would generally be similar to the type of cumulative impacts on wildlife and associated habitat as described for the proposed project. Aquatic resources within the boundaries of the proposed Georgia Strait Crossing project would include Terrell Creek and Puget Sound. The proposed project would not contribute to potential cumulative impacts on fish or fish habitat because impacts to aquatic resources are not anticipated under the proposed project.

Additional development projects anticipated to occur in the project vicinity in future years would contribute to cumulative impacts to wildlife, fish, and associated habitat. Because of the zoning status, development options are limited to industrial use and would be consistent with zoning requirements and regulations. The proposed project would not directly cause development or serve as a mechanism to enable it. The extent of cumulative impacts on wildlife and habitat associated with the proposed project would depend on the location, nature, and scale of current and planned future development projects in the region.

The addition of the proposed project would add impervious surfaces to the watershed and create stormwater runoff. Stormwater runoff would be contained and treated before entering mitigation wetlands. The proposed project would not result in significant adverse cumulative impacts on fish or fish habitat in the region.

No breeding or foraging habitats associated with listed threatened and endangered species would be affected by the proposed project. The proposed project would not result in significant adverse cumulative impacts on listed threatened and endangered species.

### **3.7.5 Mitigation Measures**

Much of what would typically be considered mitigation for impacts is inherent in the project design, and is discussed in greater detail under the impacts discussion above.

BMPs would be implemented to protect upland vegetation communities within the proposed project site that are not disturbed during construction. Native vegetation, including seed mixes with native grasses, would be used to replace vegetation, particularly areas infested by weedy species that are disturbed due to construction activities. A landscaping plan would be prepared and implemented that includes long-term weed control measures. To minimize and control the spread of noxious weed species, all equipment would be cleaned before leaving the site.

A portion of Laydown Area 2, about 4.66 acres, would be restored following construction as part of the wetland mitigation proposal. The entire 4.74-acre area of Laydown Area 4 would be restored. The restoration of Laydown Area 4 would include 2.9 acres of wetland (0.5 acre) and upland (2.4) restoration and creation within the cogeneration facility fenceline. The other 1.8 acres of Laydown Area 4 would include restoration of upland habitat outside the fenceline. These restored areas would provide wetland, upland, wildlife habitat, and a visual buffer between the proposed project and Grandview Road. As part of the proposed enhancement associated with the proposed project, existing ponds and wetland mitigation areas would be connected through corridors to the enhanced wetland area. Replacing invasive, non-native vegetation such as reed canarygrass and Himalayan blackberry with native grass, shrub, and tree vegetation would increase habitat quality and diversity, which would benefit wildlife species that currently use the area. High-quality native vegetation communities could attract a more diverse assortment of wildlife species. See Section 3.5 for additional details of mitigation measures recommended for wetlands. Detailed information associated with proposed mitigation measures is provided in the *Revised Cogeneration Project Compensatory Mitigation Plan* and the *May 22, 2003 Addendum: Changes to Revised Cogeneration Project Compensatory Mitigation Plan* (Appendix E).

Fish habitat is not located within 0.5 mile of construction and operation activities associated with the cogeneration facility, the refinery interface, or the transmission system corridor. Wetland enhancement and the creation of new wetlands associated with the proposed wetland mitigation sites CMA 1 and CMA 2, located adjacent to the forested riparian corridor of Terrell Creek, would increase habitat quality of vegetation communities near the riparian corridor of Terrell Creek. Construction and operation activities would avoid stream channels within the transmission line corridor. Water resources that could be affected by the proposed project are limited to wetlands with no known fish use.

Water quality-related design guidelines and other forms of mitigation would be required to comply with various federal, state, and local permit requirements. Conditions of permits or government approvals include erosion- and sediment-control plans, stormwater management plans, and BMPs (e.g., mulching, hydroseeding, check dams, biofiltration swales, phased clearing, silt fencing, and sediment ponds). These mitigation requirements are expected to prevent significant impacts on water quality from construction and operation of the proposed project. Stormwater and runoff increases due to increases in impervious surface area would be contained in stormwater detention ponds and then treated before being discharged into wetland mitigation sites.

Wastewater associated with the project would be retained, treated, and monitored prior to discharge. Water quality impact mitigation would primarily be addressed by development and implementation of construction and operation SWPP plans that include erosion and sedimentation control plans and SPCC plans. A required State Waste Discharge Permit and Fact Sheet for construction and operation of the project is currently under development by EFSEC. The permit and fact sheet would outline water quality and quantity effluent limitations, required treatment strategies, and performance standards. BMPs would detail the sediment and erosion control measures and accidental spill prevention and control measures. The BMPs would be implemented, inspected, and maintained to minimize the potential for adversely affecting downstream water quality. BMPs may include silt fencing and hay bales, and placement of polyethylene tarps to cover exposed surfaces. Control of fuel storage and equipment fueling operations for spill prevention and control would be detailed in the SWPP plan. A more detailed discussion of potential permit requirements, construction BMPs, and stormwater treatment pertaining to potential water quality impacts is presented in Section 3.4, Water Quality.

Potential impacts on migratory birds may be mitigated through a variety of measures. USFWS has developed guidelines to aid in the reduction of fatal bird collisions with prominent structures, including HRSG stacks. The primary mitigation measure applicable to the proposed project is to use best engineering practices to construct the transmission towers at the minimum height allowable with no guy wires or lighting, to avoid impacts to birds. The transmission lines and tower design would be defined by the Bonneville interconnection agreement.

In addition, the HRSG exhaust stacks would not be lighted. Studies performed on Ontario Hydro's two HRSG stacks suggest that the use of lights on HRSG exhaust stacks actually attracts birds and may increase fatalities (BP 2002, Section 3.6).

### **3.7.6 Significant Unavoidable Adverse Impacts**

With implementation of the recommended mitigation measures and avoidance of sensitive areas such as stream and riparian corridors, no significant unavoidable adverse impacts on upland vegetation, wildlife and habitat, fish, and threatened and endangered species are identified. The proposed project would be located adjacent to a facility with associated human-related disturbance that has been operating for more than 30 years. Vegetation communities that provide habitat for wildlife would be cleared, but that vegetation is generally of low quality. Proposed wetland and upland creation and restoration efforts would create higher quality habitat that is likely to attract a more diverse variety of native wildlife species than currently occupy the project site. Fish habitat is not located within about 0.5 mile of the footprint of the cogeneration facility, the refinery interface, or the transmission system corridor. Wetland mitigation sites CMA 1 and CMA 2 would enhance habitat adjacent to the riparian corridor of Terrell Creek. Construction and operation activities would avoid stream channels within the transmission line corridor. Breeding and foraging habitat typically associated with federal and state protected species or listed threatened and endangered species would not be disturbed under the proposed project.