

# **BIOLOGICAL EVALUATION FOR THE CROSS CASCADE PIPELINE PROJECT**

## **1.0 INTRODUCTION**

A biological evaluation (BE) is required for Federal Activities (projects that are authorized, funded or carried out by a Federal Agency) under section 7 (c) of the Endangered Species Act, as amended, 1973. This BE addresses potential effects of the proposed Cross Cascades Pipeline (CCP) project on federally listed, proposed, or candidate species, and designated or proposed Critical Habitat; state listed, sensitive, and candidate species; U.S. Forest Service (FS) sensitive species, FS Record of Decision (ROD) survey and manage species; and complies with FS direction regarding listed and sensitive species (FSM 2670). It is intended to ensure that proposed management activities will not likely jeopardize the continued existence of the aforementioned species nor adversely modify critical habitat. Fish are not included in this report since no threatened or endangered fish occur within the project area such that they would be affected by this project.

## **2.0 PROPOSED ACTION**

### **2.1 PROJECT DESCRIPTION**

Olympic Pipe Line Company (OPL), based in Renton, Washington, proposes to construct a 227-mile underground petroleum products pipeline from Woodinville to Pasco, Washington. The proposed pipeline will transport gasoline, diesel, and jet fuel refined at western Washington refineries to eastern Washington markets. Actual pipeline construction would likely start in the summer of 1998 and end in the fall of 1999.

The proposed CCP project includes a 227-mile underground pipeline that will connect to OPL's existing north-south lines, six pump stations along the route, and a storage and truck distribution terminal at the town of Kittitas. At its termination, the pipeline will connect to the existing Northwest Terminalling facility at Pasco. A general project vicinity map (Figure 1) is presented, with a more thorough listing of the project route by mile post sections given in section 2.1, Site Description, in the EFSEC application.

### **2.2 PROJECT LOCATION**

The proposed pipeline corridor generally follows existing rights-of-way where power lines, trails, and roads are already located. At its origin point, the new pipeline will be within an existing Bonneville Power Administration transmission line corridor. The new pipeline will proceed east, cross the Snoqualmie River, then turn southeast following existing transmission line rights-of-way, trails, and roads. At North Bend in King County, a second pump station (North Bend Station) will be constructed. The new line will cross Snoqualmie Pass using the old Chicago, Milwaukee-St. Paul Railroad tunnel, and continue southeast along existing rights-of-way.

Near the Indian John Rest Area, the pipeline will cross under I-90, then cross the Yakima River following

existing transmission line rights-of-way eastward, passing north of Ellensburg. It then will turn south to the community of Kittitas. At Kittitas, a storage and distribution facility will be constructed on a parcel of land adjacent to I-90 where two gasoline service stations are located. The Kittitas terminal will provide both in-transit storage for the pipeline and inventory storage to support tanker trucks making deliveries to central Washington. The Kittitas Terminal will consist of ten storage tanks, plus the necessary valves and piping, all surrounded by a containment basin. A pump station will provide pressure to continue moving product through the line for deliveries to Pasco.

The Kittitas Terminal will also include a truck loading and unloading area consisting of 2 major product loading bays, 1 utility loading and unloading bay, loading and unloading pumps, an oil-water separator, and a vapor recovery unit. The pipeline will be 14 inches in diameter from its point of origin to the Kittitas Terminal. From Kittitas to Pasco, the pipeline will be 12 inches in diameter. From Kittitas, the pipeline will proceed southeast crossing under I-90 and along the northern edge of the Yakima Training Center. It will cross the Columbia River by directional drilling just downstream of Wanapum Dam. On the east side of the Columbia, the line will continue east, then near Othello head south to Pasco.

Initially, the new pipeline will require the construction of two pump stations in western Washington and one pump station in eastern Washington. The two pump stations in western Washington will be located at the point of origin, Thrasher Corner in Snohomish County, and near North Bend in King County. The pump station in eastern Washington will be located at the Kittitas Terminal. Additional pump stations are planned for locations approximately two miles east of Lake Keechelus in Kittitas County (Stampede Station), east of Wanapum Dam (Beverly-Burke Station) and just south of Othello (Othello Station). These three pump stations will not be constructed until fuel volumes increase in the future, estimated to be at least five years following startup of the pipeline.

## **2.3 PROPOSED ACTIVITIES**

The pipeline will primarily be constructed underground across land, under rivers, streams, and roadways. Construction methods will involve work crews and heavy equipment. Along the pipeline route, pipe staging areas and contractor construction yards will be located away from priority habitats or locations of special status species. Along the majority of the pipeline route, construction will be done quickly with only short term disturbance from noise and activity. Human activity and noise generated from construction of the petroleum pipeline will result in temporary disturbance to immediately surrounding areas. In areas with an existing roadway, trail, or rights-of-way, trenching, pipe stringing, and backfilling will be conducted in a few days. Roadways and trails will require a short term closure while construction activities are ongoing. In some areas where the ground is not trenchable, blasting may be necessary.

The most notable effect of pipeline construction will be the modification or loss of habitat that will occur from clearing along the 60' wide construction corridor where existing rights-of-way, roadways, or railbeds are not present. In those areas, some loss of trees, shrubs, and existing ground cover will occur. In addition to construction impacts, a maintenance corridor will be maintained to facilitate periodic pipeline monitoring.

This corridor will be 30' wide centered on the pipeline route in segments that are not within an existing road, railroad, or powerline right-of-way. In addition, trees up to 15' from the pipeline may be removed.

The construction and operation of the Kittitas Terminal and the Thrasher, North Bend, and Stampede pump stations will have activity and noise. The activity will be greatest at the Kittitas Terminal, but due to the existing noise levels at the site from Interstate 90 and the neighboring gas station, disturbance impacts will be minimal. The Thrasher Station will be enclosed to limit noise impacts. The Beverly-Burke and Othello Stations are located in agricultural areas that are currently farmed. Approximately 6 acres of grass/forb and meadow, including a small number of second or third-growth trees, and approximately 30 acres of cropland will be permanently lost, although these sites are surrounded by many acres of similar types of habitats.

## **2.4 HOW DOES THE PROJECT APPLY TO FOREST PLAN AS MODIFIED BY THE PRESIDENTS PLAN**

This project applies directly to the forest plan in several ways. First, the project protects all late-successional and old growth forests by avoiding those sensitive areas along the project area. By avoiding those areas it also avoids impacts to those sensitive species that are associated with those late-successional forested areas. Second, the project minimizes impacts to all riparian areas and waters that will be crossed along the project route. The project also applies to the Aquatic Conservation Strategy (ACS) by avoiding sensitive aquatic areas and limiting their impact. Wetland and aquatic areas that will be affected by the project are addressed by the wetland technical report. Third, the project addresses survey and manage species by surveying for those species in the project area prior to ground disturbing activities.

## **3.0 ENVIRONMENTAL SETTING**

### **3.1 VEGETATION AND HABITAT TYPES**

The study area extends through the following vegetational areas (Franklin and Dyrness 1988):

- western hemlock (*Tsuga heterophylla*) zone,
- subalpine forest zone, includes silver fir (*Abies amabilis*) and mountain hemlock (*Tsuga mertensiana*)
- Douglas fir (*Pseudotsuga menziesii*) zone,
- ponderosa pine (*Pinus ponderosa*) zone, and
- shrub-steppe zone, with big sagebrush (*Artemisia tridentata*).

The plant communities occurring along the route fall into five main categories: forested, shrub, herbaceous, agricultural, and developed areas. These categories are based on the dominant cover type. Due to changes in climate, substrate, and elevation along the route, vegetation varies greatly. The route begins in the wet, temperate environment of the Puget lowlands, crosses the Cascade Mountains, and ends in the arid environment of eastern Washington. Based on the information review and knowledge of the area, the

following plant communities were identified as occurring in the study area:

- Forested plant communities: second-growth coniferous forest (western hemlock, silver fir, mountain hemlock, Douglas fir, and ponderosa pine); regenerating coniferous forest; and old-growth plant communities; deciduous forest; and mixed forest;
- Shrub plant communities: scrub-shrub, shrub-steppe
- Herbaceous plant communities: grass/forb;
- Agricultural plant communities: hay/pasture, cropland, orchard; and
- Developed areas.

Seventy wetlands that occur along the project area will be impacted from the project construction. Wetland types that occur along the route include palustrine forested, palustrine scrub-shrub, palustrine emergent, riverine, and palustrine open water wetlands. Wetlands are among the most productive of all wildlife habitats (Weller 1986), and their value and preservation is protected by state and federal laws. Wetlands are considered a priority habitat in Washington because of their high fish and wildlife density and species diversity, their important breeding habitat and seasonal ranges for fish and wildlife, and their limited availability and high vulnerability to alteration. More indepth information of wetlands delineated along the pipeline route is given in the wetlands technical report.

### **3.2 HABITAT TYPES AND WILDLIFE USE**

The project area relative to habitat types and wildlife use for this project is defined as a 0.5-mile-wide corridor centered along the proposed pipeline route that would allow for minor adjustments in the pipeline route. This project area was selected to encompass the actual construction corridor, which would be a 60' wide strip at its maximum. Contained within the construction corridor would be a maintenance right-of-way, which would be a 30' wide area. Wildlife species potentially occurring along the pipeline were identified from existing literature and from surveys conducted for two salamander species. Wildlife habitats in the project area were mapped and potential impacts analyzed using a Geographic Information System.

### **3.3 WILDLIFE SPECIES ALONG PIPELINE CORRIDOR**

The pipeline route traverses a variety of vegetation types that provide a broad range of habitat for wildlife species. The special status species addressed in this report inhabit a broad range of habitats from old growth or late-successional coniferous forests to wetlands. Species that could occur in old growth habitats in the project area include the flammulated owl, Johnson's hairstreak, Larch Mountain salamander, marbled murrelet, northern goshawk, northern spotted owl, Pacific fisher, pileated woodpecker, vaux's swift, and white-headed woodpecker. Several other species could occur in forested habitats including mixed forests, but not necessarily late-successional forests. Special status species that could occur in the project area in those habitats include the black-backed woodpecker, gray wolf, grizzly bear, Lewis woodpecker, lynx, Townsend's big-eared bat, and wolverine.

Other habitat for special status species along the project area includes open grasslands and sagebrush areas, and aquatic habitats. The pipeline route traverses a large expanse of open country where grassland and open plains with interspersed lands of agricultural, shrub-steppe, and grasslands exist. Special status species that could occur in those types of habitat within the project area include the American peregrine falcon, burrowing owl, ferruginous hawk, golden eagle, loggerhead shrike, and sage and sharp-tailed grouse. The pipeline route also includes a variety of aquatic habitats including riparian areas adjacent to rivers and streams, lakes and ponds, and wetlands. An assortment of special status species may occur in those habitats in the project area including the bald eagle, Columbia pebblesnail, common loon, long-horned leaf beetle, northern leopard frog, sandhill crane, spotted frog, Van Dyke's salamander, and western pond turtle.

#### **4.0 FIELD RECONNAISSANCE OR SURVEYS**

The U.S. Fish and Wildlife Service (FWS) and the Washington Departments of Fish and Wildlife (WDFW) and of Natural Resources were contacted for information on threatened and endangered species and priority habitats and species potentially occurring in the project area. The Natural Heritage Data Systems (NHDS) were searched for documented occurrences of species of concern in the project area. Local biologists with the WDFW were contacted to confirm specific information on species of concern in the project area. All federal and state listed species, critical habitat, federal and state candidate, and FS sensitive species known or suspected of occurring in the project area are presented in Table 1.

#### **4.1 PRE-FIELD REVIEW**

Based on information available from the FWS, WDFW, WDNR, and Mount Baker/Snoqualmie and Wenatchee National Forests, the following species are not expected to occur within or adjacent to the proposed project because their range is not in the project area:

- Columbia Pebblesnail
- Lynx
- Western Pond Turtle

Suitable habitat is not found in the project area for the following species:

- Long-horned Leaf Beetle

## 4.2 FIELD RECONNAISSANCE

Surveys were conducted in the project area following FS protocol for the following two survey and manage species. Survey results are presented in Appendix A.

Larch Mountain Salamander  
Van Dyke's Salamander

Surveys were not conducted for the following species for the stated reasons:

Suitable habitat is available and/or sightings are on record, but the project does not affect suitable habitat.

Black-backed Woodpecker	Northern Goshawk
Common Loon	Northern Spotted Owl
Flammulated Owl	Pacific Fisher
Gray Wolf	Pileated Woodpecker
Grizzly Bear	Townsend's Big-eared Bat
Lewis Woodpecker	White-headed Woodpecker
Marbled Murrelet	Wolverine

Johns

Suitable habitat available and/or sightings on record, but mitigation and conservation measures will avoid impacts to suitable habitat or species.

American Peregrine Falcon	Northern Leopard Frog
Bald Eagle	Sage Grouse
Burrowing Owl	Sandhill Crane
Ferruginous Hawk	Sharp-tailed Grouse
Golden Eagle	Spotted Frog
Loggerhead Shrike	

## 5.0 SPECIAL STATUS SPECIES AND PRIORITY HABITATS

### 5.1 INTRODUCTION

This biological evaluation/biological assessment includes information on special status wildlife species that might occur in the project area and may be affected by the proposed project. This includes federally listed and proposed endangered, threatened, and candidate species and their critical habitat. Critical habitat is not discussed separately but is included with the species accounts for the two species (marbled murrelet and spotted owl) with designated critical habitat. State listed special status wildlife species include endangered, threatened, sensitive, and candidate species. Also included with the state species are priority habitats and species which the WDFW designates and manages as priorities to help prevent species from becoming threatened or endangered. Species accounts are not given for priority habitats and species, unless the

species are currently listed by the state as endangered, threatened, candidate, or sensitive, but they are addressed below in the section on priority habitats and species. Species accounts are also included for FS sensitive and survey and manage species.

Impacts to priority habitats were evaluated using the GIS system. The states PHS information was input into the system and the pipeline route was overlaid on the PHS polygons. The impact area was calculated using a 60 feet wide area along the pipeline centerline. Acreages for impacts to priority habitats were based on the linear distance of the pipeline through the different PHS polygons. Riparian impacts were calculated using the Department of Natural Resources, Forest Practices Division guidelines for stream types and Riparian Management Zones (RMZ) for streams west of the Yakima River. For stream crossings including the Yakima River and east, the RMZ was calculated by measuring the riparian area off of aerial photographs and subtracting the width of the stream. If the stream width was not known or indistinguishable on the aerial photographs, the whole width of the stream was used to calculate the riparian area, giving a worst case scenario. Riparian areas were not calculated for stream crossings where there was no distinguishable difference between upland vegetation areas adjacent to streams and streamside vegetation. All construction corridors through riparian area will be 30 feet wide and impacts were calculated using that width.

## **5.2 FEDERALLY LISTED SPECIAL STATUS SPECIES**

Federally listed threatened and endangered species are those plant and animal species formally listed by the FWS under authority of the Endangered Species Act of 1973, as amended. An endangered species is defined as one in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as one likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Candidate species are those being considered for listing as threatened or endangered by the FWS.

Threatened, endangered, and candidate wildlife species identified by the FWS that may be present in the project area are listed below. A search of the WDFW Nongame database and Priority Habitats and Species database was conducted to show occurrences of critical species in the vicinity of the project area and are described below. The project area vicinity is defined as any area within 0.25 mile of the proposed pipeline. Two exceptions to this are the bald eagle (one active nest was located within two miles of the pipeline) and the spotted owl. Spotted owl information was obtained from the WDFW database which gives all activity centers whose associated conservation circles may be intersected by the pipeline (i.e., within 1.8 miles of the construction corridor). This information is presented under individual species accounts under the section, Populations in Project area.

## **5.3 STATE LISTED SPECIAL STATUS SPECIES AND HABITATS**

State listed endangered wildlife species are those native wildlife species to Washington that are seriously threatened with extinction throughout all or a significant portion of its range in the state. State listed threatened wildlife species are species native to Washington that are likely to become endangered within the

foreseeable future throughout significant portions of their ranges in the state without cooperative management or the removal of threats. State listed sensitive wildlife species are species native to Washington that are vulnerable or declining and could become endangered or threatened in the state without active management or removal of threats. State listed candidate wildlife species are those that are native to Washington that will be reviewed by the department (WDFW) for possible listing as endangered, threatened, or sensitive (Rodrick and Milner 1991).

State-listed wildlife species and habitats are managed by the WDFW Nongame and Priority Habitats and Species (PHS) programs. The goal of the Nongame Program is to recover endangered and threatened species so that they may be delisted and to prevent sensitive and monitor species from becoming threatened or endangered. Candidate species are under review for being listed as endangered, threatened, or sensitive. The category of priority species includes all species that are presently state or federal endangered, threatened, sensitive, or candidate because these species require special attention. Priority species also includes species that the WDFW believes are vulnerable to future listing and species with recreational importance that are vulnerable to impacts because of lost or degraded habitat. The Nongame database and the Priority Habitats and Species database were searched through the WDFW for documented occurrences of species of concern in the project area (Natural Heritage Data Systems 1996). Analysis using Geographical Information System (GIS) were conducted to ascertain whether any Priority Habitats and Species exist in the project area.

### **5.3.1 Priority Habitats and Species**

Priority habitats support unique wildlife or a wide diversity of wildlife, and must be protected to prevent further species losses. A total of thirteen priority habitats were identified by the Priority Habitats and Species Database in the vicinity of the project area. Of these, 9 are actually traversed by the proposed pipeline. Wetlands are listed as a priority habitat by the State of Washington and do occur in the vicinity of the pipeline. Wetlands are considered a priority habitat in Washington because of their high fish and wildlife density and species diversity, their important breeding habitat and seasonal ranges for fish and wildlife, and their limited availability and high vulnerability to alteration. Seventy wetlands will be crossed along the pipeline route and a total of 16.4 acres will be impacted. The route is divided into two sections, one section east of the Snoqualmie Pass and the other section west of the pass. Along the pipeline, 10.2 acres of wetland will be impacted west of the pass, and 6.2 acres east of the pass. Special status species that rely on wetland habitat for part or all of their needs include the common loon, long-horned leaf beetle, northern leopard frog, sandhill crane, spotted frog, and western pond turtle.

Oak woodlands are classified as a priority habitat by WDFW because they support comparatively high wildlife density and species diversity, are limited and declining in availability, and are highly vulnerable to habitat alteration. Oak woodlands include areas with pure or mixed stands of oak or oak savannah greater than one acre. Species that depend on oak woodlands in eastern Washington in the project area include special status species such as the Lewis woodpecker. Oak woodlands occur near Swauk Creek and 1.8 acres will be impacted. Impacts will include disturbance, but no loss of oak trees will occur in this priority habitat

area.

Riparian habitats are defined as "areas adjacent to aquatic systems with flowing water, that contain elements of both aquatic and terrestrial ecosystems that mutually influence each other" (WDFW 1996). Riparian areas support high wildlife density and species diversity, as well as providing important breeding habitat and movement corridors. Special status species in the project area that are found in riparian habitat include the bald eagle, Lewis woodpecker, northern goshawk, northern leopard frog, spotted frog, Van Dyke's salamander, and western pond turtle. Riparian priority habitat exists in the vicinity of the project area and 4.6 acres will be impacted.

Rural natural open space (RNOS) and urban natural open space (UNOS) are designated as priority habitats because a priority species resides in them or adjacent to them, they connect other priority habitats, or they are a remnant of natural habitat larger than ten acres and surrounded by, agricultural developments (RNOS), or urban developments (UNOS). RNOS and UNOS are in the vicinity of the project area and 4.9 and 3.0 acres, respectively, will be impacted. UNOS includes a forested hillside near the Tolt River crossing and the area adjacent to the Snake River where the Pasco terminal will be. The Tolt River crossing will include a new corridor, but impacts to riparian vegetation will be minimized by limiting the impact to a 30 feet wide corridor. The Snake River area will have a new corridor constructed to connect the pipeline with the terminal. The RNOS is on the Lower Babcock Ridge and will include a new corridor through that area.

Cliff priority habitat are those cliffs that are greater than 25 feet in height and occur below 5,000' elevation. These areas are important because they provide significant wildlife breeding habitat and have limited availability and unique species assemblages. Cliff habitat occurs within the vicinity of the project area along Swauk Creek, but is not actually crossed by the pipeline and will not be impacted. Several special status species addressed for this project use cliff habitat, primarily as nesting sites, and they include the American peregrine falcon and golden eagle.

In addition to the priority habitats discussed above, priority habitat for specific wildlife species also occurs in the vicinity of the project area. These include the California quail, elk, mule and black-tailed deer, ring-necked pheasant, sandhill crane, waterfowl concentrations, and cavity nesting ducks. No habitat for California quail, elk, or cavity nesting ducks will be impacted by the project. Priority habitat for black-tailed deer includes regular and large concentrations and migration corridors. Priority habitat for mule deer includes regular and large concentrations in winter, breeding areas, and migration corridors. Priority habitats for both of these species occur in the project area between Cle Elum and Ellensburg, Washington. Acres of impact include 108.3 acres, but that area includes only 4.8 acres of new corridor at the Currier Creek crossing. The rest of the habitat currently exists in a BPA corridor. Impacts will be minimized by constructing the pipeline outside of the migration season and during times when deer are not in regular or large concentrations, and by restoring important migration areas to their natural state. Construction and operation of the project will not impact the migration of these species because construction will occur from June to October, which is outside of the critical period (December 1 to April 1).

Priority habitat for ring-necked pheasant occurs along the project in eastern Washington. Priority habitat includes self-sustaining birds in regular or large concentrations during winter. Those areas include uncultivated areas in close proximity to agricultural lands, and 14.4 acres will be impacted by the project. New corridors will be constructed in designated priority habitat areas but they include areas adjacent to existing highways, railways, or roads. Impacts to priority habitat for pheasants will be avoided by not constructing during the winter when regular or large concentrations of pheasants might occur in the priority habitat in the project area.

Priority habitat for sandhill cranes will also be traversed by the pipeline. Priority habitat areas include regular and large concentrations, migration staging areas, and breeding areas. Priority habitat occurs in the project area near Corfu and Basin City, and 6.8 acres will be impacted. Sandhill cranes using the Columbia Basin are migrants traveling north to breeding grounds. There are no records of cranes breeding in the project area and construction of the pipeline will occur along the route from June to October and will not cause any impacts to migrant cranes.

Concentrations of waterfowl, including Canada geese, mallards, gadwalls, pintails, wigeons, shovelers, and teal, are defined as a state priority habitat. Habitat includes regular and large concentrations in winter, and significant breeding areas. Seasonally flooded fields across much of eastern Washington provide wintering habitat for wigeons, mallards, pintails, buffleheads, Canada geese, and trumpeter swans (Natural Heritage Data Systems 1996). The project area includes 10.3 acres of habitat that will be impacted from project activities. Only a small portion of the 10.3 acres (0.3 acres) is a waterfowl rearing area along the Ringold Wasteway, which will be crossed adjacent to Glade North Road and will be of little impact to the waterfowl rearing area. The rest of the area is a Canada Geese winter wheat feeding area. That area should not be impacted during the summer when project construction activities will take place.

#### **5.4 FOREST SERVICE SPECIAL STATUS SPECIES**

Forest Service sensitive species are those species that have appeared in the federal register as proposed for classification and are under consideration for official listing as endangered or threatened species. Survey and Manage species are species that are addressed in the ROD (USDA and USDI 1994) and which require land managers to take certain actions relative to rare species. Survey and Manage component 2 species are species which require surveys prior to ground disturbing activities that will be implemented in 1997 or later.

#### **5.5 SPECIES ACCOUNTS**

The following accounts provide the protective status, general background information, and specific information on populations within the project area. Included are all federally listed, or proposed, threatened, and endangered wildlife species. Background information includes general ecology, distribution, habitat preferences, and threats to the species continued existence. Information on species distribution in the project area was obtained from the available literature, contacts with state and federal agencies, historical

information, and field surveys.

This biological evaluation addresses 33 federally listed, state listed, and state and FS sensitive or candidate species. There are six mammals, 19 birds, one reptile, four amphibians, and three invertebrates. The six mammals include two federally listed, one as endangered and one as threatened, one state listed threatened species, and three state or FS sensitive or candidate species. The 19 birds include four federally listed, one listed as endangered and three as threatened, two state listed birds, one listed as endangered and one as threatened, and thirteen state or FS sensitive or candidate birds. The one reptile is state listed as endangered. The four amphibians include one federal candidate species and three state or FS sensitive or candidate species. All three of the invertebrates are state candidate species.

### **5.5.1 American Peregrine Falcon (*Falco peregrinus*)**

Status: The American peregrine falcon is federally listed as threatened. It is listed as endangered by the State of Washington. The FS considers the peregrine falcon a sensitive species.

Background Information: The peregrine falcon is found across North America from northern Alaska and Canada south to southern Baja California, the coast of Sonora, and into Central and South America (AOU 1983). This species is an uncommon permanent resident in the state of Washington and is generally seen as a migrant and winter visitor. It is more common along the Pacific Ocean and less common east of the Cascade Mountains (Larrison and Sonnenberg 1968).

The peregrine falcon is found in a variety of open habitats including, tundra, steppe, high mountainous areas, and open forested regions. They nest on cliffs and forage on birds which are caught on wing generally in open areas. Nesting normally occurs from March to June when 3-4 eggs are laid in a nest the birds do not build (Terres 1991). Cliff ledges, tree branches, or other species nests serve as nest sites.

The reason for this species' decline is reproductive failure due to pesticide contamination. Nationwide population declines in the 1950's and 1960's appear to have been reversed in recent years do to reintroduction efforts including hacking programs in many major cities.

Populations in Project area: The FS has delineated potential suitable nesting cliff habitat in the Snoqualmie Pass Adaptive Management Area Plan (SPAMAP), however, there are no known eyries in the AMA (SPAMAP 1995). There are no documented sightings of peregrine falcons in the South Fork of the Snoqualmie Watershed, but cliff habitat at Snoqualmie Pass were rated as fair but the watershed does not appear to have high quality cliff nesting habitat (SFSWA 1995). This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. This species could occur in the project area at cliff habitat or in open habitat foraging. Impacts to this species would be temporary and insignificant.

### 5.5.2 Bald Eagle (*Haliaeetus leucocephalus*)

Status: The bald eagle is listed as threatened by the FWS and by the State of Washington. It is considered a FS sensitive species.

Background Information: The bald eagle is found breeding from central Alaska south through Canada and in the United States from the west coast to the Florida Keys, south to Texas, Arizona, New Mexico and into Baja California (AOU 1983). Bald eagles occur in Washington as residents near large waters west of the Cascade Mountains, with fewer breeding birds found in eastern Washington (Rodrick and Milner 1991). Birds wintering in Washington are found on the Olympic Peninsula, San Juan Islands, the major tributaries of the Puget Sound, the Cowlitz and Columbia Rivers, and Hood Canal.

Habitat is primarily near seacoasts and rivers and lakes. The breeding habitats of this species include nest sites in large trees within a kilometer of water and free from disturbances (Johnsgard 1990). Perching habitat for wintering and nesting bald eagles consists of large trees and snags along rivers and streams which provide food stocks for eagles, primarily in the form of anadromous and resident fish. Other important food items include waterfowl, rabbits, and carrion (FWS 1986).

Nesting birds build their large stick nest in mature or old growth trees, which may be used in successive years. Courtship and nesting in Washington start around January or February. Eggs are laid in March or April with young hatching in April or May. The young fledge by mid-July but remain in the nest area for another month (Rodrick and Milner 1991).

Threats to bald eagles include human encroachment, shooting, lead poisoning, and general habitat alteration.

Populations in Project area: There is one known bald eagle nest within the AMA but it is north of the project area near Lake Cle Elum (SPAMA 1995). No bald eagle nests have been reported for the North Bend Ranger District and eagles occasionally are found wintering along the South Fork Snoqualmie River (SFSWA 1995). The FS lists available winter roosting and nesting habitat within the South Fork Snoqualmie Watershed. This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest.

There is one bald eagle nest territory near the Snoqualmie River north of Carnation, Washington. This nest is in a large cottonwood tree, approximately 9,500' west of the proposed pipeline. Bald eagle nesting activities occur from about January 1st through August 15th. Breeding surveys conducted by the WDFW indicated that the nest site was active in 1995. Wintering bald eagles occur in the vicinity of the project area from about October 31st through March 31st. One communal night roost is known adjacent to the Snoqualmie River east of Maltby, Washington, but this site is over 0.5 miles from the project area, and over 4,000' from the maintenance right-of-way. This species could occur in the project area but impacts to this species would be temporary and insignificant.

### **5.5.3 Gray Wolf (*Canis lupus*)**

Status: The gray wolf is listed as endangered by the FWS and the State of Washington. The gray wolf is a FS sensitive species.

Background Information: Wolves formerly occupied most of the North American continent and are now known from Alaska through Canada and into the northern United States from Washington to Michigan. Gray wolf recovery has been an ongoing state project and in 1990 the presence of breeding gray wolves was documented for the first time since the beginning of the century.

Wolves in the United States occupy remote wilderness and forest land generally away from human populations. Reintroduction efforts have focused on large public lands with healthy prey populations. Prey species are generally large mammals such as deer and elk, but smaller mammals such as the beaver are also consumed (Zeveloff 1988). Breeding occurs once a year from January to April and a litter of 6 or 7 pups are born 63 days later.

The main threat to this species is persecution from humans (Zeveloff 1988).

Populations in Project area: There are no confirmed sightings of gray wolves within the AMA but there are several unconfirmed sightings and the FS has delineated potential suitable habitat in the AMA (SPAMA 1995). The FS considers suitable gray wolf habitat as areas at high elevation with broad valley bottoms, little human disturbance, and a good supply of prey. There is also suitable denning and rendezvous habitat (1631 acres) in the South Fork Snoqualmie Watershed with a substantial prey base of elk using the area year-round (SFSWA 1995). However, there are no confirmed sightings of wolves, but several unconfirmed sightings in the watershed. This species is known from the Wenatchee National Forest. The Priority Habitat and Species Database has one occurrence record from 1993 along the pipeline route east of Cle Elum. One other occurrence record of a gray wolf track observed on the North Bend Ranger District is 0.5 miles from the pipeline route east of North Bend. An additional occurrence exists east of I-90 near Easton, but it also is outside the project area. The occurrence of this species in the study area would be very rare and impacts to this species would be insignificant.

### **5.5.4 Grizzly Bear (*Ursus horribilis*)**

Status: The grizzly bear is federally listed as threatened. It is listed as endangered by the State of Washington. The FS considers the grizzly bear a sensitive species.

Background Information: The grizzly bear historically occupied most of western North America from Alaska, south through Canada, all the way down to central Mexico (Hall and Kelson 1959). Currently this species is restricted to some areas in Washington, Idaho, Montana, and Wyoming in the lower 48 states. In Washington, it is found in the north and central Cascade Mountains and in north eastern Washington.

The grizzly bear inhabits a diversity of habitat types including forested regions and high mountain areas and is generally found in remote areas away from humans. They forage on small mammals, fish, insects, berries and nuts, and carrion near high concentrations of wintering ungulates. Breeding occurs in late spring to early summer and cubs are born from January to March when females are hibernating (Zeveloff 1988).

Grizzly bears occupy large home ranges and their main threat is from human encroachment to habitat.

Populations in Project area: There are no confirmed sightings of grizzly bears in the AMA but there are many unconfirmed sightings and two confirmed sightings just north of the AMA (SPAMAP 1995). The area north of I-90 is within the North Cascades Grizzly Bear Recovery Zone. No confirmed sightings are on record for the North Bend Ranger District but there are confirmed sightings to the east on the Cle Elum Ranger District on the Wenatchee National Forest (SFSWA 1995). The available grizzly bear habitat in the South Fork Snoqualmie Watershed has limited security cover and summer foraging areas due to the amounts of roads, trails, and other human disturbances. This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. Two unsubstantiated record of occurrence exist within one mile of the project area on the North Bend Ranger District. The occurrence of this species in the study area would be very rare and impacts to this species would be insignificant.

#### **5.5.5 Marbled Murrelet (*Brachyramphus marmoratum*)**

Status: The marbled murrelet is federally listed as threatened with critical habitat designated. It also listed by the State of Washington as threatened. It is considered a FS sensitive species.

Background Information: The marbled murrelet is found throughout the North Pacific, from the Aleutian Islands, Kodiak Island, and Kenai Peninsula in Alaska south to central California. In Washington, marbled murrelets occur in nearshore saltwater habitat during most of the year, and breed inland in mature and old-growth forests. Marbled murrelet habitat generally includes large mature trees, such as Douglas-fir, western red cedar, and western hemlock, that are within 55 miles of marine environments. Although marbled murrelets have been detected more than 50 miles inland in Washington, the majority of detections (90%) in the Northern Washington Cascades are within 37 miles of the coast (Hamer and Cummins 1991). Murrelet detections decline rapidly as the distance from marine environments increases above 40 miles, with less than 5 percent of the detections in areas greater than 40 miles inland (SPAMAP 1995).

This marine diving bird feeds on fish and crustaceans caught underwater (FWS 1988). Nesting occurs from the first of April to the middle of September. It lays one egg on moss covered branches in mature trees. Both sexes incubate the egg and change shifts once a day, usually at dawn or dusk.

Threats to this species includes the loss of old-growth habitat, entanglement in gillnets, and degradation of marine environments (FWS 1988).

Critical Habitat Units: There are several Critical Habitat Units (CHU's) on federal land along the pipeline route, but not all of the CHU's are in late-successional reserves (LSR's), which is required for protection. Along this section of the pipeline route a limited amount of forested area will be cut. Some of the area is adjacent to CHU's on LSR's, some of the area is in CHU's not in LSR's, and some of the area is in CHU's in LSR's but no trees will be removed in that section. Township 22 North, Range 9 East, includes two CHU's. Section 2 is in a LSR but the project area is approximately 750 feet from the CHU and more than 2,000 feet from the maintenance right-of-way, which will be on the John Wayne Pioneer Trail (JWPT) through this CHU. No trees will be removed adjacent to this CHU. The CHU in Section 12 will have a few trees removed just east of Alice Creek where the pipeline will come off of the JWPT to FS Road 110. The area where trees will be removed is on the edge of the CHU but not within a LSR. It is approximately 500 feet from the CHU in LSR to the project area and over 2,000 feet to the maintenance corridor.

Township 22 North, Range 10 East, includes three CHU's. Section 18 is more than 500 feet from the project area and more than 2,000 feet to the maintenance right-of-way. The pipeline route near this CHU stays on FS Road 110 and no trees will be removed in this area. In Section 14, the pipeline project area is within the CHU in LSR and the maintenance corridor will be within one section of the CHU. The pipeline route in this section remains on Tinkham road and no trees will be removed. In Section 13, trees will be removed in a 30 foot wide corridor so the pipeline route can go uphill from Tinkham Road to an upper section of road from the Annette Lake Trailhead Road. This area is in a CHU but not in a LSR. The CHU in LSR in this section is approximately 500 feet from the maintenance right-of-way. Once the pipeline is on the upper road, it crosses Humpback Creek and joins an existing old trail/railbed/road paralleling the BPA corridor.

The last CHU is in Township 22 North, Range 11 East, Section 18. The pipeline route through this section is on the old trail/railbed/road paralleling the Bonneville Power Administration corridor. Limited trees will be removed along the old trail to allow equipment to operate on the trail but those trees will be alders and young conifers growing at the edge of the trail. This area is outside of the CHU in LSR. Impacts to marbled murrelet CHU's will be low since no loss of forested habitat will take place in any CHU in a LSR.

Populations in Project area: There is one marbled murrelet detection in the AMA and it was detected 2 miles east of the Cascade Crest (SPAMAP 1995) but it is not known whether the detection was in the project area. There have been no detections made in the South Fork Snoqualmie Watershed but the FS delineated habitat and critical habitat has been designated in the watershed (SFSWA 1995). This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest.

There are several stands of mature forest on the Mount Baker-Snoqualmie National Forest, mostly along Tinkham Road. Since pipeline construction in this area will take place entirely in the existing road and no potential habitat will be lost, there will be no impact to any potentially nesting murrelets in the area. One marbled murrelet occurrence was reported within the vicinity of the pipeline near Snoqualmie Pass on the

east side of I-90. This detection was over 4,000' from the proposed pipeline route and does not indicate an occupied stand or nesting activity near the project.

Impacts to marbled murrelets will be mitigated by restricting construction activities to times of the year when marbled murrelets would not be using the potential habitat (after September 15). In areas where the proposed project goes through areas where breeding birds are located, construction will not be allowed within 0.5 miles of occupied sites. Locations of potential construction restrictions will be decided through Section 7 Consultation with the USFWS. Impacts to this species after mitigation would be insignificant.

#### **5.5.6 Northern Spotted Owl (*Strix occidentalis*)**

Status: The northern spotted owl is federally listed as threatened with designated critical habitat. It is listed as endangered by the State of Washington. This species is also considered a FS sensitive species.

Background Information: Spotted owls occur in mountainous and humid coastal forests from southwestern British Columbia, south through western Washington and western Oregon, to southern California and possibly northern Baja California; and in the Rocky Mountains from southern Utah and southwestern Colorado, south to the mountains of Arizona, New Mexico, and western Texas, and south into northern and central Mexico (AOU 1983). The northern spotted owl occurs in Washington from the Olympic Peninsula east through the Cascades from Canada south to the Columbia River (Jackson et al. 1995).

This species is dependent on stands of mature and old-growth forest with a multi-layered canopy (Johnsgard 1988). Spotted owls occupy northern interior forests with a moderate to high canopy closure, a multi-layered multi-species canopy with large trees, a high degree of deformities in large trees, large snags, fallen trees and other debris on the ground, and open space below the canopy (Jackson et al. 1995). Spotted owls prey on forest species such as flying squirrels, wood rats, hare or rabbits, other small mammals, birds, and some reptiles and invertebrates (Johnsgard 1988).

Spotted owls generally nest in tree cavities or on stick platforms or other debris in old growth conifer trees. Research on spotted owls in the AMA indicates nest sites near the Cascade Crest and west of the Crest occur in cavities, while nest sites farther to the east are in mistletoe brooms or old northern goshawk nests (SPAMAP 1995). Resident owls start roosting near nesting territories in February or early March with actual egg laying occurring March to May (Terres 1991). Generally two eggs are laid and hatch about a month after being laid.

The primary threat to this species is the loss of habitat from forest management practices (Johnsgard 1988).

Critical Habitat Units: Critical habitat is designated along the proposed pipeline route in CHU WA-33 and WA-14. In CHU WA-33 at Township 22 North, Range 10 East, Section 13 and 14, the pipeline route goes through both of those sections. In Section 14, the route is along Tinkham Road and there will be no loss of trees. In Section 13, the route would remove trees in a 30 foot wide section from Tinkham Road up to the upper road and the route across Humpback Creek. No loss of trees would occur once the route reaches the

upper trail. The trees lost in the lower section are not old-growth trees (first and second growth conifers and alders) and the proximity to Tinkham Road and the Annette Lake Trailhead probably limit the use of this area by spotted owls. In Sections 18, 27, and 34 (Township 22 North, Range 11 East), which are also CHU's, the route goes through portions of those sections. In Section 18, the route would continue across Humpback Creek along an old trail/railbed/road that runs below the BPA corridor. No loss of trees would occur along the road except to clear room for equipment to operate. Limited trees would be removed along the road and no old growth trees would be lost. Trees removed would include young conifers and alders. In Sections 27 and 34, the route would be along the JWPT and no loss of trees would occur.

In CHU WA-14, the project area includes a corner of Section 30 (Township 20 North, Range 14 East). The route would be along the BPA corridor in this section and the maintenance corridor does not occur in the CHU and no loss of trees would occur in the CHU. In Section 32 (Township 20 North, Range 14 East), the maintenance corridor is not included in the CHU and no trees would be lost along the BPA corridor in this section. Four Sections (4, 10, 11, and 12) occur in Township 19 North, Range 14 East and are CHU's. These sections include portions of the proposed route. In Section 4, the route goes through the northeast corner of the section. The route would be in the BPA corridor here and no loss of trees would occur. In Section 10, the route goes through the extreme northeast corner and the maintenance corridor in this section could entail some loss of trees. A 30 feet wide corridor would be cut through the northeast corner and a 15 feet wide section of conifer trees would be lost. In Sections 11 and 12, the route goes through the northern quarter of these sections. A new corridor would be cut through the north quarter of Section 11, and through the northwest corner of Section 12. Some loss of conifer trees would occur along the 30 feet wide corridor. Impacts to spotted owl critical habitat would be low since minimal loss of trees would occur and those losses would not be old growth trees. Trees that would be cut do not occur in unfragmented stands and occur in sections adjacent to existing roads, trails, powerline corridors, or next to non-federal lands.

Populations in Project area: The Snoqualmie Pass Adaptive Management Area lists 33 owl activity centers within the AMA but the checkerboard arrangement of habitat into fragmented one square mile sections is not conducive to sustain spotted owls in the long term (SPAMAP 1995). There are 3 known spotted owl home ranges in the South Fork Snoqualmie Watershed and the watershed is located within designated critical habitat unit WA-33 (SFSWA 1995). This species is known from the Wenatchee National Forest. The project area includes sections which contain spotted owl circles in the Cle Elum area and east and west of the Yakima River Crossing in the Yakima River Valley. The project area includes sections with spotted owl circles that are from 0.5 miles to greater than 3.0 miles to the project area. This section of the pipeline route is along existing BPA corridors that have already been disturbed and no mature or old-growth habitat occurs along the route.

The Washington Department of Natural Resources (WDNR) has records of occurrence on Department Land southeast of Easton, Washington. In that area, the project is within a BPA corridor, so no impact would occur. The North Bend Ranger District has two occurrence records near the route along Tinkham Road. The records are from 1983 and 1988, and both records are greater than 0.75 miles from the route. There would be no loss of trees in this area along Tinkham Road.

The WDFW spotted owl database was searched for any activity centers along the pipeline route. Nine owl centers whose associated circles would intersect the project area were identified. The first two activity centers overlap the project area where the pipeline route would be along the JWPT and include some of the area described in the marbled murrelet CHU's. The next three activity centers overlap the spotted owl and marbled murrelet CHU's described in the Annette Lake Trailhead and Keechelus Lake area. The sixth activity center was not described in any of the CHU's and includes the area near the Stampede Pass Pump Station. The last three activity centers include the area southeast of Cle Elum described above in the spotted owl CHU's.

Impacts to these activity centers will include disturbances from construction and maintenance activities, but with no ground disturbance to mature or old-growth habitats. Disturbances from construction and maintenance activities will be very short term. Construction is expected to move through the area at approximately 1,200-1,500 feet per day. Maintenance activities will occur sporadically and be very short term in duration. Disturbances from both of these types of activities will be more short term than disturbances from recreational activities and their impact should also be less. To diminish the impacts to spotted owls, mitigation measures including timing restrictions will be placed on construction activities in areas where the project area passes through CHU's or active spotted owl activity centers. Construction activities will be restricted to those areas until after August 31. Impacts to spotted owls after mitigation measures will be low.

### **5.5.7 Spotted Frog (*Rana pretiosa*)**

Status: The spotted frog is listed by the FWS as a Candidate species.

Background Information: This species historic range includes southeast Alaska south through British Columbia, Washington, and Oregon to northeast California, and eastward through Idaho, and northern Nevada and western Montana, western Wyoming, and northern Utah (Leonard et al. 1993). Currently it has become very rare in western portions of its range including Washington (Blaustein 1995). It occurs patchily distributed west of the Cascades and in parts of the Cascade Mountains, with its status in eastern Washington unknown.

This very aquatic frog inhabits marshy edges of lakes, seeps, springs, ponds, and streams in forested and semi-arid to arid sites in sagebrush communities. Spotted frogs eat insects, arachnids, and molluscs (Blaustein 1995). They mate sometime in February or March at lower elevations and later in May or early June in higher elevations (Leonard et al. 1993). Metamorphosis into frogs is complete by late summer.

Threats to this species includes the loss of forested habitat, particularly in western Washington (Blaustein 1995), and the introduction of non-native bullfrogs (Rodrick and Milner 1991).

Populations in Project area: The SPAMAP (1995) identifies one unconfirmed sighting in the Green

Watershed, which is south of the project area, but no sightings on the east side of the Cascade Crest within the AMA. They do delineate potential breeding habitat in the AMA. Spotted frogs have been found in the South Fork Snoqualmie Watershed and suitable habitat is delineated (SFSWA 1995), but it is not known if this species occurs in the project area. This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. This species could occur in wetland habitats in the project area but impacts to this species would be low.

### **5.5.8 Ferruginous Hawk (*Buteo regalis*)**

Status: This species is listed as threatened by the State of Washington. The FS considers this hawk a sensitive species.

Background Information: The ferruginous hawk is found wintering in the southwestern United States to Baja California and central Mexico, with casual occurrences in Montana, North Dakota, and western Minnesota (Terres 1991). Breeding birds occur from southwestern Canada, eastern Washington and Oregon, south to Nevada and east to Texas.

This hawk is found in open dry country of prairies and plains where it is seen perched on short trees or fence posts waiting for prey such as ground squirrels and prairie dogs (Terres 1991). Nests are built in tall trees, especially along streams, and on cliffs, cutbanks, and hillsides. Three to four eggs are laid from February to July with young fledging about 45 days after hatching (Terres 1991).

This species is rare in many parts of its range and is often shot while feeding on roadside rodents (Terres 1991).

Populations in Project area: This species is not known from the Wenatchee National Forest. One ferruginous hawk nest was located in the Columbia National Wildlife Refuge. It was occupied in 1988 and used by red-tailed hawks in 1992. It is located a mile from the pipeline route. This species could occur in the project area foraging on the eastern side Washington. Impacts to this species would be temporary and insignificant.

### **5.5.9 Lynx (*Lynx canadensis*)**

Status: The State of Washington lists this cat as a threatened species. It is considered a sensitive species by the FS.

Background Information: The lynx occurs from western Alaska to eastern Canada, and in the mountainous areas of the western United States in south to Utah and Colorado, and east to northern Lake States and northern New England (Rodrick and Milner 1991). In Washington, this species occurs in the northern portion of the state from the northeastern Cascades to isolated areas in the Okanogan Highlands of northeastern Washington above 4,500 feet elevation in Chelan, Okanogan, Ferry, Stevens, and Pend Oreille

Counties.

The distribution of the lynx appears tied to that of the snowshoe hare and both species are found in boreal forests of North America and in the spruce, subalpine fir, and lodgepole pine forests. Lynx primarily prey on snowshoe hare but they also eat mice, squirrels, grouse, and ptarmigan. Breeding occurs in March or April with kittens being born in late May (Koehler 1990 in Koehler and Aubry 1994).

Threats to this species includes management of habitat for snowshoe hare populations and trapping mortality during low population cycles (Koehler and Aubry 1994).

Populations in Project area: This species is known from the Wenatchee National Forest, but the project area is not within the range of this species and its occurrence in the project area would be very rare. The effects of the project on this species would be insignificant.

#### **5.5.10 Sandhill Crane (*Grus canadensis*)**

Status: The sandhill crane is listed as endangered by the State of Washington.

Background Information: Sandhill cranes occur throughout North American as migrants (AOU 1983). They bred from Hudson Bay to Siberian and south through northcentral, northwestern, and southeastern United States (Rodrick and Milner 1991). In Washington, a single pair is known to breed in Klickitat County, but migrants occur throughout the state in spring with large numbers occurring in the central Columbia Basin including Grant County in the project area (Rodrick and Milner 1991).

They are found in open grasslands, meadows, marshes, along lake edges and river banks, and in agricultural fields when foraging. Sandhill cranes are listed as a state endangered species primarily due to their reliance on large tracts of undisturbed marshes and meadows for feeding and nesting. Breeding season is from March to August, with 2 eggs being laid on a mound of marsh plants or grasses (Terres 1991).

Management recommendations for this species includes restricting road and foot travel within 0.25 miles of nests, curtailment of logging operations within 0.5 miles of the nest, avoiding water level fluctuations in crane habitats, conducting mowing or haying operations after August 15, and avoiding new construction or increased traffic within 0.5 miles of feeding areas (Rodrick and Milner 1991).

Populations in Project area: This species is not known from the Wenatchee National Forest. Sandhill crane concentrations occur to the northwest of Ginko State Park, but the area is over 2.25 miles north of the project area. Regular large concentrations of sandhill cranes occur just south of Highway 26 in the Crab Creek area along the pipeline route. In addition, the route goes through priority sandhill crane habitat in this area. A total of 7.8 acres of priority sandhill crane habitat will be impacted from the project in these areas. The WDNR has records of occurrence southeast of Royal City on Department Land. In this area, a new corridor will be built adjacent to Highway 26, but no wetlands will be impacted and the new corridor should

not affect cranes in this area. Sandhill cranes using the Columbia Basin area of the project are migrants traveling north to breeding grounds. There are no records of cranes breeding in the project area and construction of the pipeline will occur along the route from June to October and impacts to this species would be temporary and insignificant.

#### **5.5.11 Western Pond Turtle (*Clemmys marmorata*)**

Status: The State of Washington considers it an endangered species.

Background Information: This species is found along the Pacific coast of North America from southwestern British Columbia to northwestern Baja. The northern subspecies is found in the Pacific Northwest (*C. m. marmorata*) and populations in Washington are found from the southern end of Puget Sound and a small area along the Columbia River (Blaustein 1995). Individual turtle sightings have been confirmed in King County (Rodrick and Milner 1991).

The western pond turtle inhabits marshes, lakes, ponds, and slow-moving rivers or creeks (Blaustein 1995). This species has also been found in terrestrial habitats, which are used for nesting, overwintering, and dispersal. They feed on aquatic invertebrates, vertebrates, such as frogs and fish, and plant material (Blaustein 1995). Nesting takes place from late April to August, with 1 to 13 eggs hatching in the fall. Threats to this species include respiratory disease, and general habitat degradation.

Populations in Project area: This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. From information on the range and current distribution of this species it appears that this species is unlikely to be found in the project area. Impacts to this species would be insignificant.

#### **5.5.12 Black-backed Woodpecker (*Picoides arcticus*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The black-backed woodpecker occurs as a resident from Alaska and Canada to the Cascades through Washington and Oregon, and south to the Sierra Nevada Mountains in central California and west-central Nevada, east to Montana, Wyoming, and South Dakota, and farther east to northern Minnesota, Wisconsin, Michigan, New York, Vermont, New Hampshire, and Maine (AOU 1983). In Washington, this species occurs on the east slope of the Cascades and into the coniferous forests to the east (Rodrick and Milner 1991). The range of the black-backed woodpecker occurs in the project area in Kittitas County.

This species is found in coniferous forest with windfalls and burned areas with standing dead trees and less common in mixed coniferous-deciduous forests (AOU 1983). They inhabit lodgepole pine, ponderosa pine, and mixed conifer forests, preferring mature and old growth forests (Rodrick and Milner 1991). This

woodpecker feeds on insect larvae, weevils and beetles, ants, spiders, and other insects along with fruits, nuts, and some inner tree bark (Terres 1991). The black-backed woodpecker nests in ponderosa pine and lodgepole pine trees, generally in dead trees or trees with heartrot (Rodrick and Milner 1991). Usually four eggs are laid from May to June (Terres 1991).

Threats to this species includes the loss of mature and old growth lodgepole pine forests with heartrot and insect infestations (Rodrick and Milner 1991).

Populations in Project area: This species could occur in the project area, most likely within its range in forested habitat in Kittitas County. Impacts to this species would most likely be temporary and insignificant.

### **5.5.13 Burrowing Owl (*Athene cunicularia*)**

Status: It is also considered a Candidate species by the State of Washington.

Background Information: The burrowing owl occurs only in the western hemisphere, as a resident from southern Canada south to eastern Washington, Oregon, California and into Baja California, and east to the eastern edge of the Great Plains (Terres 1991).

Habitat includes open grasslands, prairies, plains, and savanna (AOU 1983). In eastern Washington, they are found in sagebrush and grassland country. In all habitats they generally occupy ground squirrel or prairie dog burrows, which they occupy year after year (Terres 1991). Food is primarily insects and small rodents. Burrowing owls often nest in colonies, especially in prairie dog towns. Eggs are laid from March to July with 7-9 young hatching after 28 days of incubation.

Threats to this species in Washington include the loss of habitat from reclamation of sagebrush habitat (Larrison and Sonnenberg 1968).

Populations in Project area: It is not known whether this species occurs on the Wenatchee National Forest, but it is unlikely. Burrowing owl nesting pairs occur in the vicinity of the project near Pasco and northeast of Richland, but none occur in the project area. In the Eagle Lakes area, nesting owls occur over 0.75 miles from the project area. Four burrowing owl nests were identified by the Priority Habitat and Species Database along the pipeline route. One nest occurred in 1987 along the north side of Highway 26 east of Royal City. The pipeline route is on the south side of the highway in this area, but the pipeline could affect foraging owls in the area. Another occurrence in 1987 was east of Royal City just north of Highway 26. The pipeline would run adjacent to Highway 26 on the north side. The burrowing owl nest, if still active could be within 150 feet of the maintenance right-of-way and foraging owls could use the project area. Two other occurrences are south of Basin City. One occurrence in 1987 was along the east side of Glade North Road. The pipeline route will run along the east side of the road in this area and if owls are still nesting their they could be impacted by the pipeline construction. The other occurrence, also in 1987, was along

Garfield Road. The pipeline will be west of Garfield Road, but the maintenance right-of-way could be within 1000 feet of the nest, if it is still active. Concerns for burrowing owls is increasing due to recent information on declines in populations (P. Bartels 1996, WDFW, pers. comm.). New surveys will be conducted in the spring of 1997 and will give a better understanding of populations in the project area. Burrowing owls occur in the project area and impacts could be significant.

#### **5.5.14 Columbia pebblesnail (*Fluminicola columbiana*)**

Status: The State of Washington considers this species a Candidate species.

Background Information: This species is possibly extinct in the lower Columbia River of Washington and Oregon, and definitely extinct in most of the middle and upper Columbia River in Washington, Montana, and British Columbia, and in the Payette River in Idaho. It still survives in the Okanogan and Methow Rivers in Washington, in Hanford Reach area in Washington, and a limited portion of the Snake River and a few of its tributaries (Frest and Johannes 1993).

It is found in small to large rivers with swift current and cold, unpolluted, highly oxygenated water. They inhabit areas where gravel and boulders exist (Frest and Johannes 1993).

Populations in Project area: This species is known from the Hanford Reach area along the Columbia River but not from the area where the Columbia River will be crossed in the project area. The area below the Wanapum Dam and above the Priest Rapids Dam is not swift current, with gravel and boulder habitat and it is unlikely that this species would occur in the project area at the Columbia River crossing. No impacts to this species would occur.

#### **5.5.15 Common Loon (*Gavia immer*)**

Status: This species is considered a Candidate species by the State of Washington. The FS considers this bird a sensitive species.

Background Information: The common loon occurs in Alaska, across Canada, Iceland, and Greenland, and in the northern lower 48 states. In Washington, this bird is found as a migrant on lakes in northeastern Washington, as a winter visitor in bays and inlets on salt water, and as a summer resident and breeder on secluded Mountains lakes (Larrison and Sonnenberg 1968). Breeding pairs have been confirmed on lakes in King, Whatcom, Chelan, Douglas, Ferry and Okanogan Counties (Rodrick and Milner 1991).

Common loons inhabit lakes and ponds, and occasionally along river banks from the tundra to coniferous forests in open or forested area (AOU 1983). Loons are attracted to secluded lakes with large fish populations (Rodrick and Milner 1991). Fish make up a large portion of their diet along with other aquatic species such as frogs, crayfish, salamanders, snails, leeches, and aquatic insects (Terres 1991). One to three eggs are laid from May to June, with chicks hatching about one month later.

Threats include the presence of suitable nesting areas and disturbances during the nesting season (Rodrick and Milner 1991). Management recommendations include protection of known nest sites, restricting disturbance of nest sites from April to September, and the construction of artificial nest structures (Rodrick and Milner 1991).

Populations in Project area: Records of occurrence exist for the North Bend Ranger District. All of the occurrences are over 0.5 mile from the project area. This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. Common loon habitat is considered a priority habitat by the WDFW, but no common loon habitat will be impacted by the project. Any impacts from the project would be temporary and insignificant.

#### **5.5.16 Flammulated Owl (*Otus flammeolus*)**

Status: The State of Washington considers this owl a Candidate species.

Background Information: The flammulated owl is found breeding from southern British Columbia, north-central Washington, eastern Oregon, southern Idaho and northern Colorado south to southern California, southern Arizona, southern New Mexico and western Texas, and south into Mexico (AOU 1983). It is considered an uncommon resident in Washington, east of the Cascade Crest and into the Blue Mountains (Rodrick and Milner 1991).

In Washington, this owl is found in ponderosa pine, grand-fir-Douglas fir mature and old growth forests with open canopies above 3,000 feet elevation (Rodrick and Milner 1991). Flammulated owls sometimes form loose breeding colonies with territories found in mature timber of 200 year old trees with two canopy layers. The core areas are adjacent to brush covered clearings (Rodrick and Milner 1991). This species is insectivorous and feeds primarily on grasshoppers and moths.

Flammulated owls nest in tree cavities or excavated holes of other birds. Two to four eggs are laid in May to June (Terres 1991). Incubation takes 21-22 days, while fledging takes from 21-25 days (Johnsgard 1988).

After the young fledge in July and August the young disperse in late August and adults migrate to wintering areas in early October (Rodrick and Milner 1991).

Threats to this species includes the use of insecticides and the loss of brushy foraging habitat in forested areas (Rodrick and Milner 1991).

Populations in Project area: This species is not known from the Mt. Baker/Snoqualmie National Forest but is present in the Wenatchee National Forest in white-fir, ponderosa pine, lodgepole pine, and mixed conifer forests (Verner 1994). Impacts from the pipeline construction would be temporary and insignificant.

### **5.5.17 Golden Eagle (*Aquila chrysaetos*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The golden eagle occurs in North America and Eurasia. In North America, it is found breeding from Alaska and Canada south to Baja California and northern Mexico, east to central Texas, western Oklahoma and western Kansas, and in the eastern United States from New England, New York, and eastern Tennessee and western North Carolina (AOU 1983). In Washington, this eagle is found from the upper Columbia River Basin, with breeding birds occurring in most counties but it is absent from the lower Columbia Basin and parts of the Puget Trough (Rodrick and Milner 1991).

This species occurs in open areas of the eastern side of the state, where cliffs, large trees, or sagebrush habitat with cliffs and plateaus exist. They require large open areas for feeding and in western Washington they occur in mature and old growth forests near clearcut edges (Rodrick and Milner 1991). Golden eagles feed on a wide range of species from insects and small mammals to larger mammals and carrion, with rabbits, marmots, ground squirrels and birds such as grouse and ptarmigans being the majority of food taken (Terres 1991).

Golden eagles build large nests on cliffs, in pine trees or on earthen mounds overlooking grasslands or open space. Some birds use the same nest sites each year. Two eggs are generally laid from February to May, with the young hatching approximately 45 days later and fledging about 70 days after hatching (Terres 1991). The young are dependent on the adults for about one month after fledging.

Threats to this species include human disturbance to nest sites, human persecution and widescale killing, lead poisoning, and loss of habitat (Rodrick and Milner 1991).

Populations in Project area: One reported occurrence exists for the Kittitas Valley and although the occurrence was not in the project area, it is in the vicinity of the project. This species could occur foraging over the eastern portion of the pipeline route. Impacts to this species would be temporary and insignificant.

### **5.5.18 Johnson's (mistletoe) Hairstreak (*Mitoura johnsoni*)**

Status: This butterfly is considered a Candidate species by the State of Washington.

Background Information: This species occurs in British Columbia, western Washington, Oregon, and California (Rodrick and Milner 1991). In Washington, it is found in Mason County, and Pierce County, and in a variety of lowland old-growth forest areas in King, Jefferson, Lewis, and Skamania Counties (Rodrick and Milner 1991). In the project area, this species could occur in lowland old-growth forests in King and Snohomish Counties.

This species is found on lowland coniferous forests that contain dwarf mistletoes, which occur on western hemlock and true fir trees. The best habitat is old growth and late successional second growth lowland forests, but younger forests with dwarf mistletoe may support populations of this butterfly (Rodrick and Milner 1991).

Threats to this species include the use of insecticides and herbicides, mistletoe suppression, and the loss of old growth habitat (Rodrick and Milner 1991).

Populations in Project area: No loss of old growth or mature forest will occur along the project area. This species could occur in other forested habitat along the pipeline route but impacts to this butterfly would be temporary and insignificant.

#### **5.5.19 Larch Mountain Salamander (*Plethodon larselli*)**

Status: It is considered a sensitive species by the State of Washington. It is also considered a sensitive species and a survey and manage species by the FS.

Background Information: This species has a restricted range and was generally thought to occur only in the Columbia River Gorge area, but recently it has been found in the central Cascade Range of Washington (Blaustein 1995). Other populations have been found near Mt. St Helens and south of Mt. Rainier to 3,400 feet elevation (Leonard et al. 1993). The Larch Mountain salamander is a terrestrial species generally found in association with old growth forest conditions. This species inhabits forested and non-forested talus slopes and has been found in non-talus areas with pieces of bark on the forest floor.

This salamander feeds on small invertebrates but little information exists on reproductive behavior (Blaustein 1995). Reported information indicates mating occurs in the fall and sometimes in the spring (Blaustein 1995), with eggs possibly being laid in the spring (Leonard et al. 1993).

Threats to this species includes the harvesting of mature/old growth forests and gravel mining of talus fields (SPAMAP 1995). This species was given a high-risk score for local extinction by Lehmkuhl and Ruggiero (1991).

Populations in Project area: This species is known from the Wenatchee National Forest but it is not known from the project area on the forest. A population of this species was found in the AMA approximately 5 miles to the east of Snoqualmie Pass. That population was found at 3,700 feet elevation in a talus slope adjacent to old-growth western hemlock, Pacific silver fir, and Douglas-fir (SPAMAP 1995). Potential suitable habitat has been delineated in the AMA in Township 21 North, Range 12 East, Sections 35 and 36. Field reconnaissance will be conducted in that area to determine if suitable habitat occurs along the route, and if so, surveys will be conducted. From the species range and present known distribution it would be unlikely to find this species in the project area. Impacts to this species if found in the project area could be significant but mitigated.

### **5.5.20 Lewis Woodpecker (*Melanerpes lewis*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The lewis woodpecker breeds from southern British Columbia and Alberta, Canada, to Montana, South Dakota and Nebraska, south to south-central California, central Arizona, southern new Mexico, and eastern Colorado. It winters from northern Oregon, southern Idaho, central Colorado and south-central Nebraska, south to Baja California, Mexico, southern New Mexico and western Texas (AOU 1983). In Washington, this species occurs from northwest Washington south through the Olympic Peninsula to southwest Washington, through the Columbia Gorge, up the east slope of the Cascades to the Okanogan Highlands and northeastern Washington, and the southeastern corner of the state in the Blue Mountains (Rodrick and Milner 1991).

This species occurs in open forest and woodlands that often have been logged or burned, including oak, coniferous forests, and riparian woodlands and orchards (AOU 1983). Lewis woodpeckers are species of the transition zone between ponderosa pine and cottonwood riparian areas (Rodrick and Milner 1991). An important element of their breeding habitat is shrubby undergrowth such as sagebrush, golden current, bitterbrush and rabbitbrush (Rodrick and Milner 1991). In the project area this species occurs on the eastslope of the Cascades in Kittitas County.

The lewis woodpecker is one of the most aerial foraging woodpeckers. It feeds on flying ants, beetles, flies, and mayflies, also feeds on insects caught on bushes, and gleaned from bark and limbs but does not hammer trees like other woodpeckers (Terres 1991). Other sources of food include fruits, berries, and nuts. Nests are built in snags and decaying timber, often in cottonwood riparian areas or oak woodlands. Six to seven eggs are laid from May to June, with young fledging 28-34 days after hatching.

Threats to this species includes the loss of riparian habitat and competition for limited snags, and this species is susceptible to disturbances at the nest site (Rodrick and Milner 1991).

Populations in Project area: This species could occur in the project area on the east side of the Cascades in Kittitas County. Impacts to this species would be temporary, insignificant, and primarily in the form of disturbance.

### **5.5.21 Loggerhead Shrike (*Lanius ludovicianus*)**

Status: It is considered a Candidate species by the State of Washington.

Background Information: The North American breeding distribution of this species in the north generally extends from eastern Washington, across the lower portions of the Canadian provinces through Quebec, to New York and Pennsylvania, and in the south from Baja California, northern Mexico south to Oaxaca, and Veracruz, to the gulf coast of Texas, and to Florida (AOU 1983). The winter distribution is generally confined to the southern half of the breeding range.

This species is a bird of open country, savanna, desert scrub, and open woodlands (AOU 1983). In Washington, it is found in open sagebrush and cultivated field areas of eastern Washington (Larrison and Sonnenberg 1968). The species commonly makes use of telephone poles and wires, and fence lines and posts.

The loggerhead shrike takes a variety of prey from mice and small birds to insects such as grasshoppers and crickets (Terres 1991). The species is well known for the caching of food items on thorns, and barbs on fence wire (Applegate 1977). Dense vegetation such as trees and shrubs are used for nesting structures. Nesting occurs from April to July with 4-7 eggs laid (Terres 1991). Both sexes incubate the eggs for 10 to 12 days, young leave the nest 20 days after hatching and a second clutch is laid.

Populations in Project area: This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. Records of occurrence exist for the Lower Crab Creek area but they are greater than 0.75 miles from the project area. Occurrences also exist for the Saddle Mountains area but they are over 1.5 miles from the project area. This species could occur in the project area on the eastern side of the pipeline route. Impacts to this species would be insignificant or temporary, and some impacts could be beneficial to this species by providing more foraging habitat in new corridor areas.

### **5.5.22 Long-horned leaf beetle (*Donacia idola*)**

Status: This beetle is considered a Candidate species by the State of Washington.

Background Information: This species occurs in lowland sphagnum bogs of Washington and southwest British Columbia. The historic range of this species in Washington is only from the far western edge of Snohomish County (Rodrick and Milner 1991). This beetle inhabits eutrophic sphagnum bogs in lakes, generally below 3,280 feet elevation. Long-horned leaf beetles feed on aquatic plants, both submerged (beetle larvae), and exposed (adults) (Rodrick and Milner 1991).

Threats to this species include its limited distribution and isolated populations (Rodrick and Milner 1991).

Populations in Project area: This species is known only from the western side of Snohomish County, which is near the northern end of the project in the Woodinville area. It is known from bog habitat, but no bog habitat is known along the project and no bog habitat will be impacted along the project.

### **5.5.23 Northern Goshawk (*Accipiter gentilis*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The northern goshawk nests from the boreal forests of Alaska and northern Canada, south through the Cascades and Sierra Nevadas to northern Mexico, and east to northern Minnesota and east to New England (Marshall 1992). In the state of Washington, nesting goshawks occur in the Cascades and Olympic Mountains, and in forested areas east of the Cascades.

Goshawks inhabit mature forested areas with high canopy closure, sparse understory, and small forest openings. This species prefers to nest in areas with permanent water within 0.5 miles of their nest. The northern Goshawks feed on prey from the forest edge or species which inhabit the ground or shrub layers of forest communities (Marshall 1992). Reported mammalian prey includes chipmunks (*Tamias* spp.) to snowshoe hares (*Lepus americanus*), and birds from American robins (*Turdus migratorius*) to blue grouse (*Dendragapus obscurus*).

Goshawks build large stick nests in large mature trees. Three eggs are normally laid from April to early June, with eggs hatching around mid-May (Marshall 1992). Hatchlings stay in the nest for about 45 days and continue to rely on adults for food until late summer.

The most significant threat to this species in Washington and Oregon is the deterioration and loss of habitat (Marshall 1992). Threats to this species includes loss of forested habitat, toxic chemicals, drought, lack of fire, and loss of prey species from tree harvesting (Reynolds et al. 1992).

Populations in Project area: The AMA lists approximately 30 sites with goshawk detections and 8 confirmed nest sites (SPAMAP 1995). Suitable habitat has been delineated for this species in both the Snoqualmie Pass Adaptive Management Area and the South Fork Snoqualmie Watershed Analysis. The problems of land ownership cause some concerns for habitat fragmentation which are similar to concerns for the spotted owl. No sightings of goshawks and no surveys for this species have been done on the South Fork Snoqualmie Watershed (SFSWA 1995). There are records for this species in the Cedar and Green River areas, over 3 miles to the south of the project area. This species is known from the Wenatchee National Forest and several occurrences have been reported in the Cle Elum Area, but none of the occurrences are in the project area and all are greater than 0.5 miles from the project area.

Two occurrence records for the northern goshawk are given in the vicinity of the project area. Two occurrences are in the Snoqualmie Pass area and both are within 0.25 miles of the pipeline route. The two

occurrences were visual sightings of goshawks (1991) and one was a response to a calling survey (1994). It is unknown whether or not goshawks are actually nesting in these areas. The pipeline will be constructed on the JWPT and Tinkham Road in this area and no loss of timber will occur. Significant disturbance impacts to northern goshawks could occur in this area, but mitigation and conservation measures would reduce the impacts.

#### **5.5.24 Northern Leopard Frog (*Rana pipiens*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The northern leopard frog has one of the broadest distributions of any North American frog. It occurs from Canada south to eastern Washington, Oregon and California, east to northern Arizona and New Mexico, through the northern Great Plains and east to Ohio, northern West Virginia and the upper New England states (Stebbins 1985). In Washington, this frog is limited to the Potholes Reservoir in Grant County, from along the Columbia River in Walla Walla and Benton Counties, and from areas in northeast and north-central Washington (Leonard et al. 1993). The range of this species in the project area includes Grant, western Adams, and Franklin Counties.

This frog is found in wet meadows, potholes, and riparian habitat with extensive vegetation for hiding cover (Leonard et al. 1993). The northern leopard frog is the most cold-adapted leopard frog and is found high into the mountains within its range (Stebbins 1985), but in Washington it is found in lower elevations along the Columbia River and Snake River drainages. This species feeds on insects, spiders, sowbugs, leeches, fish, amphibians, small snakes, and birds (Leonard et al. 1993).

The breeding biology of this species is not well known in Washington, but within its range it breeds from March to June (Stebbins 1985). Breeding occurs in shallow areas around the periphery of ponds and in slow moving waters where egg clusters are attached to emergent vegetation (Leonard et al. 1993).

Threats to this species is primarily losses from predation by bullfrogs (Leonard et al. 1993).

Populations in Project area: This species could occur in the project area along the eastern side of the pipeline route. Impacts to this species could include direct losses from wetland construction or losses to eggs in wetlands where they are found along the project area. The widespread distribution of this species would minimize the effect from any local losses and impacts to this species would be insignificant.

### 5.5.25 Pacific Fisher (*Martes pennanti*)

Status: It is considered a Candidate species by the State of Washington.

Background Information: The fisher occurs from northern British Columbia to Idaho and Montana in the west, from northeastern Minnesota to Upper Michigan and northern Wisconsin, and in the Appalachian Mountains of New York and throughout forested areas of the northeast (Powell and Zielinski 1994). In Washington, the fisher is very rare and may be on the verge of extinction. Only three substantiated sightings supported with photographs or carcasses have occurred in the state between 1955 and 1993 (Aubry and Houston 1992 in Powell and Zielinski 1994). One fisher was killed in a trap in 1969 on the Olympic Peninsula, and two other fishers were trapped or photographed in 1991 and 1993 from the Cascade Range.

This species is a forest inhabitant utilizing mature and old-growth conifer forests. West of the Cascade Crest they are found below 3,000 feet elevation and at all elevations on the east side (SPAMAP 1995). They feed on small to medium sized birds and mammals from mice to snowshoe hare and porcupine, and on carrion from larger mammals such as deer (Powell and Zielinski 1994). Breeding occurs from January to April

Threats to this species include losses due to trapping and loss or altering of habitat through forestry practices and other activities (Powell and Zielinski 1994).

Populations in Project area: No surveys have been done for this species but one fisher was sighted near Lake Keechelus in 1986 and there are other sightings on both sides of the Cascade Crest (SPAMAP 1995). Suitable habitat has been delineated in the Snoqualmie Pass Adaptive Management Area and the South Fork Snoqualmie Watershed Analysis, but concerns for unfragmented habitat south of I-90 have questioned the likelihood of the watershed to support fishers (SFSWA 1995). Historical records exist for the South Fork of the Snoqualmie River since 1970, but no definite sightings are given. The North Bend Ranger District has a record of occurrence near the pipeline route, but it is approximately 0.5 miles from the project area and 0.75 miles to the construction corridor. This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest.

It is unlikely that this species is present in the project area due to the lack of mature and old-growth habitat available. There are small patches of mature forests adjacent to the project area, but no mature forests will be removed during the project construction. Impacts to this species would be temporary, insignificant, and primarily from disturbance.

### **5.5.26 Pileated Woodpecker (*Dryocopus pileatus*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: The pileated woodpecker is a resident from northern British Columbia and southern Canada south to northern California, Idaho, Montana, eastern Kansas, and south to the Gulf Coast and Florida. In Washington, this species occurs in forested areas of the state from low to moderate elevations.

Pileated woodpeckers inhabit mature and old-growth forests and also occur in second-growth forests with large numbers of snags and fallen trees. They spend most of their time in forest stands older than 70 years (Rodrick and Milner 1991). The pileated woodpecker is considered a forest indicator species of mature and old-growth forests.

Pileated woodpeckers feed primarily on carpenter ants, beetle larvae, and other insects. Breeding occurs from March to July when they excavate nest cavities in western larch, ponderosa pine, black cottonwood, Douglas fir, and grand fir (Rodrick and Milner 1991).

Threats to this species include forest management practices that removes large trees and snags and insecticide use (Rodrick and Milner 1991).

Populations in Project area: This species could occur along the pipeline route in forested habitat. Several pileated woodpeckers were also detected in 1995 by biologists in a large wetland complex east of Maltby directly on the pipeline route. The North Bend Ranger District has a number of occurrences along the project route. Four records of occurrence could be within the construction corridor, but most of the records are outside of the project area. One occurrence exists in the Cherry Creek area east of Duvall and it is along the pipeline route. Impacts to this species would be temporary, insignificant, and primarily from disturbance.

### **5.5.27 Sage Grouse (*Centrocercus urophasianus*)**

Status: It is considered a Candidate species by the State of Washington.

Background Information: The sage grouse occurs from southcentral Canada to central Washington east to western North Dakota, south to eastern California and east through Nevada and Utah to western Colorado and southeastern Wyoming (Johnsgard 1975). In eastern Washington it occurs from the sagebrush areas and sometimes at higher elevations during summer (Larrison and Sonnenberg 1968).

They occupy sagebrush habitat from the mountain slopes and foothills down to the plains (AOU 1983). The sagebrush areas provide food, breeding, and nesting areas. Sage grouse primarily feed on sage through the

winter and into the spring, they also feed on legumes, broad-leaved weeds, and grasses (Johnsgard 1975). Insects, including grasshoppers and ants, also are fed upon (Terres 1991).

Strutting grounds are found in sagebrush habitats where the males congregate in spring to display, attracting females. After fertilization the females leave the strutting grounds to nest under sagebrush. Approximately 8 eggs are laid from mid-March to mid-June and the young hatch 25-27 days later (Johnsgard 1975). The females move their broods to places with abundant food such as hay meadows, river bottoms or irrigated areas.

The primary threat to this species is the loss of habitat.

Populations in Project area: This species is most likely to occur in the eastern part of the project in sagebrush communities. No breeding grounds have been identified along the pipeline route but one lek was observed 0.6 miles from the project area. That lek was active in 1983 but has not been active since. One record of an adult and young were observed greater than 2.0 miles to the north of the project area in the Boylston area. Impacts to this species would be temporary and insignificant.

#### **5.5.28 Sharp-tailed Grouse (*Tympanuchus phasianellus*)**

Status: It is considered a Candidate species by the State of Washington.

Background Information: This species occurs from Alaska, across Canada, south to eastern Washington and Oregon, east across Utah, Wyoming, and Colorado, in the Great Plains from Nebraska north through the Dakotas, and east through the northern states of Minnesota, Wisconsin, and Michigan (Johnsgard 1975). In Washington, this species occurs east of the Cascades in the dry interior areas of the state preferring sagebrush, bunchgrass, and yellow pine habitats (Larrison and Sonnenberg 1968).

This grouse is found in grasslands, scattered woodlands, sagebrush, oak savanna, and edges of riparian woodlands (AOU 1983). This species is often considered a plains grassland species but it is also associated with sagebrush semidesert, open woodlands, and brush coniferous and deciduous forested habitat (Johnsgard 1975). Display grounds, or dancing grounds, are areas where sharp-tailed grouse males come to attract females for breeding. Not long after the females arrive on the display grounds, the dominant male breeds and then the females leave the dancing grounds to nest. Nests are built in April or May in hidden sites not far from the dancing grounds (Terres 1991). About 12 eggs are laid from early April to June. After the eggs hatch in 23-24 days, the female leads the young away from the nest to a new foraging area where insects and other food items are plentiful. Grouse feed on insects such as grasshoppers, crickets, and beetles, fruit, grain, and leaves, buds, and flowers (Terres 1991).

Threats to this species includes the loss of sagebrush and bunchgrass habitat to crop fields (Larrison and Sonnenberg 1968).

Populations in Project area: This species could occur in eastern Washington along the project area. No breeding grounds have been identified along the pipeline route. Impacts to this species would be temporary and insignificant.

#### **5.5.29 Townsend's Big-eared Bat (*Plecotus townsendii*)**

Status: This species is considered a Candidate species by the State of Washington. The FS considers this species a sensitive species.

Background Information: *Plecotus townsendii* has a broad distribution in the western United States. It occurs from Washington and Wyoming, east to the Black Hills of South Dakota, south to Texas, California and Arizona into Mexico. Isolated populations occur in the central Appalachian Mountains and the Ozark Mountains. Breeding sites in Washington include near Bellingham, Mt. St. Helens, and near the Columbia River Gorge (Rodrick and Milner 1991).

This species inhabits a variety of habitats including deserts, woodlands, and coniferous forests (AGFD 1993). They are found in caves, lava tubes, and abandoned buildings (Rodrick and Milner 1991). They feed on insects, primarily small moths, which they catch in flight or glean from vegetation. Mating occurs in October with young born in June.

This species is very susceptible to disturbances and populations in many states such as Washington and Oregon are declining (AGFD 1993).

Populations in Project area: Only one known winter hibernaculum is known on the Mount Baker Snoqualmie and Wenatchee National Forests and that is south of the project area over 20 miles (SPAMAP 1995). No surveys have been conducted in the South Fork Snoqualmie Watershed and no species have been found (SFSWA 1995). Both the AMA and SFSWA have delineated potential habitat for this species.

Concerns for this species in the project area were centered around the potential for bats to inhabit the Snoqualmie Pass tunnel. Construction will not occur in the tunnel area until summer, which should not pose a threat to this species continued existence. Most concerns about this species focus on disturbance to wintering individuals rather than broadly dispersed summer individuals. Bats that occur in the Snoqualmie Pass Tunnel will likely leave during the summer construction and then return after construction is finished (Steve West, Univ. of Washington, pers. comm.). This species could occur in areas in the project area under bark on trees. Impacts to this species would be temporary and insignificant.

#### **5.5.30 Van Dykes' Salamander (*Plethodon vandykei*)**

Status: The State of Washington considers this species a Candidate species. The FS considers this species a survey and manage species.

Background Information: This salamander is found only in Washington from sea level to around 3,600 feet

elevation (Leonard et al. 1993). It is known from the Olympic Mountains, the southern Cascades, and the Willapa Hills. Within its range, this species is rare and often difficult to locate with a patchy distribution even in areas of known populations (Blaustein 1995). The best time to locate this species is from early spring to late fall.

This terrestrial salamander is considered the most aquatic of the *Plethodon* genus. Suitable habitat consists of splash zones of creeks, streams or falls under rocks or logs, or within seepages over talus slopes on moss covered north facing slopes (Leonard et al. 1993). Although its association with forested conditions is not well known, Thomas et al. [(1993) in Blaustein et al. (1995)] considered this salamander closely associated with old-growth forest conditions.

Females lay eggs every other spring and they are deposited into a gelatinous cluster under rocks or in logs near water (Leonard et al. 1993). Young hatch in late summer or early fall and they emerge when fall rains come.

This species was given a high-risk rating for local extinction by Lehmkühl and Ruggiero (1991).

Populations in Project area: No surveys for this species have been conducted on the AMA but one sighting is on record in the Green Watershed, which is to the south of the project area (SPAMAP 1995). This species could occur in forested communities with streams along the pipeline route. These habitats will be surveyed prior to ground disturbing activities. If salamanders are located, then FS guidelines for habitat protection will be followed. Impacts to this species would be insignificant since surveys to locate any potential salamanders using the pipeline route will preclude project construction.

#### **5.5.31 Vaux's Swift (*Chaetura vauxi*)**

Status: This species is considered a Candidate species by the State of Washington.

Background Information: This swift breeds from southeastern Alaska, British Columbia, northern Idaho and western Montana, south to central California, west of the Cascade and Sierra Nevada Mountains (AOU 1983). A common migrant and summer resident from April to September in timbered areas throughout the state (Larrison and Sonnenberg 1968).

Prefers forested regions including Douglas fir and hemlock forests (Larrison and Sonnenberg 1968), where they use forests for foraging and nesting. They feed on flying insects which are caught in the air high above the trees or close to the ground on rainy days (Terres 1991). Nests are built in mature and old-growth coniferous forests where they place nests inside hollow burned-out snags, or in cavities of trees with broken tops (Rodrick and Milner 1991). Three to six eggs are laid from May to July (Terres 1991).

Threats include the loss of old-growth habitat with adequate snags for nesting. Management guidelines include the protection of mature and old-growth habitat with large defective trees with broken tops and signs of decay (Rodrick and Milner 1991).

Populations in Project area: This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. Any impacts to this species will be temporary and insignificant since no old-growth or mature forests will be impacted.

#### **5.5.32 White-headed Woodpecker (*Picoides albolarvatus*)**

Status: This woodpecker is considered a Candidate species by the State of Washington.

Background Information: This woodpecker occurs as a resident from southern British Columbia, north-central Washington and northern Idaho, south through Oregon to southern California and west-central Nevada (AOU 1983). In Washington, this species occurs in the ponderosa pine forests on the east side of the Cascades and into eastern Washington (Rodrick and Milner 1991).

Occurs in mature ponderosa pine forests with decayed snags on the eastslope of the cascades, which includes Kittitas County in the project area. The white-headed woodpecker feeds mainly on seeds of ponderosa pine trees, but also eats bark beetles, spiders, ants, and fly larvae, and this species regularly drinks water (Terres 1991). White-headed woodpeckers excavate nests in standing dead snags and lay three to seven eggs from April to June (Terres 1991).

Threats to this species includes the use of insecticides and habitat needs of large and dead ponderosa pine trees (Rodrick and Milner 1991).

Populations in Project area: This species could occur in ponderosa pine forests east of the Cascades. Impacts to this species would be temporary and insignificant.

#### **5.5.33 Wolverine (*Gulo gulo*)**

Status: It is considered a sensitive species by the FS.

Background Information: The wolverine occurs from Alaska, throughout the Yukon and Northwest Territories in Canada, and into other provinces in Canada but not as extensive. In the United States they occur in Montana, Idaho, Wyoming, Colorado, Washington, Oregon, and California (Banci 1994). In Washington, there are 28 records from 1970 to 1990 but their distribution in the state is unknown.

Within its range the wolverine is found in a variety of habitats but generally they occur in remote wilderness areas away from humans and human development (Banci 1994). Wolverines are described as opportunistic omnivores and scavengers. They feed primarily on carrion of large mammals, snowshoe hares, and squirrels and other small mammals (Banci 1994). Breeding occurs from May to August and wolverines have from 3 to 6 young.

Threats to this species includes land-use activities that fragment habitat and increase human access to

remote areas (Banci 1994).

Populations in Project area: This species is known from the Wenatchee National Forest but it is not known whether it occurs in the project area on the forest. This species is very unlikely to occur in the project area. Impacts to this species would be insignificant since it is known to avoid areas where humans are.

## **6.0 IMPACTS AND MITIGATION**

The potential effects of the proposed project on priority habitats and special status species is discussed. Different kinds of potential impacts could occur from project construction and project related activities after construction. The potential effects of those impacts will be discussed in respect to their level of impact and whether mitigation measures are given. Mitigation measures provided will be discussed.

### **6.1 POTENTIAL IMPACTS TO HABITAT TYPES AND WILDLIFE**

There are several types of impacts that could occur from construction of the proposed pipeline. Direct impacts are impacts caused by the action and occur at the same time and place and are considered primary effects. Direct impacts could occur from surface disturbance at construction sites where new corridors are constructed, in existing powerline corridors, where new access roads are built, or where new pump stations or terminals are located. Surface disturbances could occur from the proposed project construction, operation and maintenance, emergency activities, or cessation of operations along the pipeline route. Other direct and indirect impacts could occur from increased human activity. Indirect impacts are caused by the action and are later in time or farther removed in distance and are considered secondary effects. Indirect impacts may include impacts such as urban development and other impacts related to induced changes in the pattern of land use, human population density or growth rate, and related impacts on air and water and other natural systems, including ecosystems (40 CFR 1508.8 [a]). The duration of the effects can be temporary and short-term or extended and long-term. The impacts discussed in this section include surface disturbance effects and increased human activity from project construction, operation and maintenance, emergency activities, and cessation of operations. Mitigation measures discussed were designed to reduce the impacts and include pre-construction, construction, and post-construction activities.

### **6.2 SURFACE DISTURBING (HABITAT) AND HUMAN ACTIVITY EFFECTS**

Direct impacts from surface disturbance and human activity related to construction activities include temporary and/or permanent disturbance, displacement, or the removal of special status species or their food or habitat. Permanent disturbance presents long-term impacts that would persist for the life of the project. Long-term effects of pipelines on wildlife is unknown because most species are capable of adapting to this type of disturbance. Areas of permanent disturbance include the construction corridor, access roads, block valves at stream crossings, the Kittitas terminal, and pump stations. Temporary surface disturbing effects could occur at vegetated and unvegetated construction corridors and at stream and wetland crossings.

Indirect impacts from surface disturbing and human activity effects of the proposed project could occur to vegetation or to special status species or their prey. Indirect disturbance could include decreased habitat use by special status species or their prey, increased public road use, fragmentation or edge effect, and impacts to wetlands such as a decrease in water quality from sedimentation, soil compaction, or a change in hydrology. Indirect surface disturbing impacts could occur at construction corridors, access roads, block valves at stream crossings, pump stations, and at wetlands and stream crossings.

Ground disturbance impacts vegetation by habitat destruction and degradation due to soil compaction and vegetation removal, and by erosion when vegetation is lost. Vegetation loss can also affect wildlife species dependent on vegetation for food or cover and can cause some species to avoid areas due to created edge or the fragmentation of habitat while other species are attracted to natural or induced edges and disturbed conditions. Increased human access to roads or the pipeline corridor can act as barriers to species causing fragmentation of habitat, while some species are positively influenced by the creation of edge habitat.

### **6.2.1 Project Construction**

The effects of project construction include direct and indirect effects that can be permanent or temporary and can affect wildlife, wildlife habitat, or prey species of wildlife. Direct effects of project construction could include ground disturbance, wildlife mortality, loss or modification of habitat, or noise impacts. Indirect effects could include increased public access, habitat fragmentation, or an increase in invasive species.

#### **6.2.1.1 Direct Effects**

Direct impacts from project construction could include permanent or temporary impacts from disturbance, displacement, or the removal of species, food, or habitat. A total of 46.5 miles of pipeline will be placed within existing roads and abandoned railbeds, and will not impact the surrounding habitat. The remaining 180.5 miles of pipeline will directly impact habitat either in the form of modification or loss. This includes forest, regenerating forest, oak woodland, and orchard. Shrubs, grasses, and forbs will be disturbed by trenching, stockpiling of topsoil and overburden, machinery and vehicle access and movement, and backfilling. However, most of this portion of the route is in transmission line corridors, agricultural areas, or other habitat that has previously been modified. Where the pipeline corridor uses existing roadways, trails, or railbeds, construction will be kept within the existing cleared areas and no vegetation will be lost in those areas. In existing powerline corridors, construction activities will disturb shrub and grass vegetation, with large shrubs being lost permanently and grasses being lost temporarily.

From the start of the pipeline to the Cascade Crest, direct impacts will occur to forested, shrub, herbaceous, and agricultural plant communities. Two important river crossings with riparian areas will be affected in this area, but only short sections of forested habitat will be impacted by the construction of new corridors. Most of this section of the route occurs in a fragmented landscape with construction occurring on roads, trails, or in powerline corridors. A variety of habitats occur within this section including aquatic

communities in wetlands and streams, and terrestrial communities in riparian areas, forested habitat, and open areas such as grass/forb, meadow, and hay/pasture habitats. Potential special status species that could occur in those habitats include bald eagle, northern goshawk, Pacific fisher, pileated woodpecker, and Van Dyke's salamander.

From the Cascade Crest to the Columbia River most of the direct impacts will be to shrub-steppe and grassland habitats. The pipeline route through shrub-steppe vegetation will be placed in powerline corridors, in new corridors, in or adjacent to existing roads, or through private land. Shrub-steppe vegetation is considered fragile and difficult to establish and areas impacted will be revegetated with shrubs in the 30' construction corridor, but only with grasses in the 30' maintenance corridor. Little impact will occur in forested habitat since existing trails and roads will be used extensively in forested areas. One stream crossing (Swauk Creek) has mixed forest habitat, but impacts from cattle grazing have currently impacted the area and limited forest impact will take place. Additional agricultural land will be impacted but the effects on habitat or special status species will be insignificant since agricultural lands are extensively disturbed and generally monotypic and most wildlife habitat has been created among a disturbed agricultural landscape. Along this section, many stream crossings will occur, but those crossings will be minimally impacted due to the route being on roads, trails, and existing powerline corridors. Wildlife along this section of pipeline route could be directly impacted from human activity, noise, and surface disturbance in areas where new corridors are needed. Special status wildlife species that potentially could occur along this section include species of aquatic habitats (i.e., bald eagle, northern leopard frog, spotted frog), species from forested habitats (i.e., Larch Mountain salamander, northern goshawk, spotted owl, Townsend's big-eared bat, Vaux's swift), and species of open grasslands and shrub-steppe habitats (i.e., burrowing owl, golden eagle, loggerhead shrike, sage grouse).

From the Columbia River to Pasco, Washington, a variety of habitats could be affected including wetlands, shrub-steppe, grasslands, and agricultural types. Impacts to wetland-dependent wildlife species such as sandhill cranes will be temporary and very short term. Other special status species affected could include the American peregrine falcon, ferruginous hawk, burrowing owl, sage and sharp-tailed grouse, and loggerhead shrike. All of these species are very mobile and little impact will occur to these species primarily in the form of harassment, but impacts could also affect their prey and are unavoidable.

Direct impacts to wildlife species can occur from ground disturbance and can have a more permanent effect due to the take of wildlife species. Direct impacts from construction vehicles and heavy equipment offer the greatest threat to special status species along the pipeline. Direct mortality to special status species will be low for mobile species and higher for non-mobile species such as wetland dependent amphibians. Wetland dependent species are mobile, but more restricted to suitable habitat and some loss of individuals in wetlands could occur but will be mitigated. Other impacts to wildlife can occur due to a change in habitat conditions created by project construction, such as edge habitat being created and offering predators access to areas along the pipeline route that were previously unavailable.

Permanent loss of shrub vegetation will occur from installation of the pipeline only in areas of scrub-shrub

and shrub-steppe habitat where the shrubs are tall and dense. Installation of the pipeline in the BPA right-of-way will result in clearing scrub-shrub habitat, and shrub vegetation will be allowed to grow in the maintenance corridor unless it interferes with visual inspection or access. Temporary loss of vegetation will occur in grass/forb, meadow, and hay/pasture habitats. The pipeline construction corridor will be revegetated with grasses in those habitats. Wildlife species dependant on shrub habitats will be permanently displaced during construction and will not likely return after construction. Wildlife species dependant on grassland habitat will be temporarily harassed and could return after construction is complete. Other wildlife may take advantage of the created edge habitat and use those areas more when foraging.

Construction activities will include the construction of new access roads. The only new access roads built will be in Ginko State Park. The rest of the access roads currently exist on BPA corridors or on existing roads or trails. The loss of habitat may directly impact some individuals that are taken because they cannot or do not move out of the way. Construction and maintenance vehicle traffic also may kill some individuals as they cross the access roads. This mortality is expected primarily to affect small mammals, ground-nesting birds, amphibians, reptiles, and invertebrates. Wildlife that prey on those species could be positively affected. Those impacts will affect a very small percentage of the existing animal populations and will be insignificant.

Human activity and noise generated from construction of the pipeline will result in temporary harassment of wildlife in surrounding habitat. Human activity and noise from construction will be temporary, and wildlife tends to habituate, so only minor impacts are expected to occur. Pipeline construction noise will emanate from trenching activities. Areas along the pipeline route that are inundated with untrenchable substrates will require blasting. Blasting crews will place mats over the area to be blasted to decrease noise and limit the amount of outward explosion. Potential noise impacts from operation of the project do not exceed the threshold established noise guidelines presented in WAC 176-60-020(2) given in Section 4.1 Environmental Health of the EFSEC Application. Assuming these noise regulations are suitable for protection of wildlife as well as humans, noise impacts to wildlife from operation of the project will be significant but mitigated.

Several priority habitats will be impacted by the pipeline. Most of the habitat types within these priority areas will only have a short term loss since the vegetation is comprised primarily of non-woody vegetation. Wetlands are considered priority habitats and 70 wetlands will be crossed by the proposed pipeline, including 16.4 acres of impact. Direct impacts to wetland vegetation will occur from trenching and backfilling. Most of the losses will be temporary because most of the vegetation will revegetate naturally. Limited woody vegetation will be lost and will be replaced by herbaceous vegetation. Impacts to wetlands such as a decrease in water quality caused by sedimentation, erosion, chemical and toxic substances from construction equipment, or a change in wetland hydrology may impact wetland vegetation and wildlife species dependant on aquatic environments, but impacts will be mitigated (avoided or restored).

Impacts to wetlands during construction may directly affect wildlife by displacement, disturbance, and direct mortality. Direct mortality may occur to some species that are less mobile such as amphibians and small mammals as a result of construction, but these impacts will affect a small percentage of existing

populations and impacts will be low. Several special status species which occur in wetlands and adjacent terrestrial environments could be impacted from construction including the spotted frog and northern leopard frog. Species that are mobile would be temporarily impacted and include several priority species and special status species such as the sandhill crane, cavity nesting ducks, waterfowl concentrations, and common loon. Impacts to wetlands and wildlife using wetland habitat would be temporary unless individuals are killed. Impacts would be mitigated and small for the overall population and those species could recover.

Riparian habitats are considered a priority habitat by the WDFW and will be crossed along the pipeline route at several stream or river crossings. Potential impact to riparian areas ranges from 4.6 acres from construction corridors 30 feet wide, and 1.5 acres from maintenance corridors 10 feet wide. Potential disturbance to these areas include direct long-term and short-term impacts, and indirect impacts such as habitat fragmentation. Direct impacts from human activity will be short-term since most stream crossings will take place within 48 hours. Two riparian crossings west of the Cascade Crest (Snoqualmie and Tolt Rivers) and one crossing east of the Cascade Crest (Swauk Creek) pose impacts to adjacent forested areas. The Snoqualmie River Crossing includes a mixture of shrubs, mixed conifers, mature forests, and hay and pasture habitat. The crossing will traverse a wooded area on the west side of the river that is intermixed with roads, houses, and agricultural land. Little fragmentation of the landscape will occur at this crossing. Riparian habitat at the Tolt River crossing includes young deciduous forest, mature cottonwood trees, forested wetlands, mixed forest, shrubs, and an active tree farm. Fragmentation at this stream crossing would also be minor, with minor effects on deer and elk using the area, which would most likely be an increase in shrub vegetation that would have a positive impact on those species. The Swauk Creek crossing includes interspersed conifers, mixed deciduous trees, scattered oaks, willows, cottonwoods, aspens, shrubs, and talus habitat. The Swauk Creek area is considered a priority habitat by the WDFW because of the oak trees in the area. The area has previously been impacted by cattle grazing. The alignment of the project through the area will limit the disturbance to non-oak vegetation. Potential special status species that could use this area include golden eagles and peregrine falcons. These species forage in open habitat and impacts will be insignificant at this crossing to these species.

Direct impacts will occur at block valves along the pipeline route. Block valves will be constructed at pump stations and at all major stream and river crossings. Construction sites will include a fenced area approximately 40' x 40', a block valve vault, a 10' x 10' control building, and a power pole. Disturbance impacts will include the clearing of vegetation at the site and site construction. The site will not be permanently maned so human activity will primarily be during initial construction. Wildlife impacts could include disturbance and harassment at the construction site, and the take of some non-mobile ground dwelling species. Impacts would be temporary and insignificant and localized to a small area.

Impacts from the construction and operation of the Kittitas Terminal and the pump stations will be similar to those of the pipeline and would be considered insignificant. Approximately 6 acres of grass/forb and meadow, including a small number of second or third-growth trees, and approximately 30 acres of cropland will be permanently lost, although these sites are surrounded by many acres of similar types of habitats. No

special status species will be impacted from the construction or operation on the 26 acres of cropland at the Kittitas Terminal. Of the five other pump stations, only the Stampede Station would have potential impacts on special status species.

The Stampede Station is proposed to be built near an existing spotted owl circle. The timing of construction activities will exclude activities during critical periods and will minimize impacts. The Stampede Station will also be located approximately 2,000 feet from an inactive goshawk nest. This nest was last used in 1987. The Stampede Station will not be constructed as part of the initial construction.

#### 6.2.1.2 Indirect Effects

Indirect impacts from project construction could include impacts from disturbance, displacement, and the removal of species, food, or habitat. Indirect impacts could result in increased habitat disturbance and a decreased use of habitat by species or their prey due to increased public road use or pipeline corridor use, increased edge effect and habitat fragmentation, and impacts to wetlands. Project construction activities could indirectly impact construction corridors, access roads, block valves, pump stations, and wetlands by making them more accessible to the public or by increased human activity at those sites.

Potential habitat value reductions would result from increased exposure of wildlife to hunters, poachers, or predators, and alterations to temperature and moisture regimes along the edges of the right-of-way which could favor different species. Indirect impacts to vegetation and wildlife species occurs from public access associated with site construction areas and new road construction and can impact vegetation by prohibiting vegetative reestablishment in continually disturbed areas. No wetlands will be accessible from roads after construction is complete so increased public access will not occur. Wildlife can be adversely affected by increased public access that causes wildlife harassment, legal and non-legal take of wildlife species not previously accessible and take from vehicles on roads or off-roads accessed by construction sites. Impacts can occur from loss of vegetation and wildlife from failure of revegetative processes in disturbed areas due to erosion or continued road disturbance. Impacts from public access will be low for several reasons. Forested areas are currently fragmented and construction will occur primarily on roads, trails, or in powerline corridors in forested areas. New access roads will be limited to Ginko State Park or the Yakima Training Center so impacts from public exposure will be low. And corridors in eastern Washington will be in existing powerline rights-of-way or on private land, which could be restricted by fencing closure if the owners desire. Impacts from public access will be insignificant.

Indirect impacts to habitat will result from clearing forest vegetation in new construction corridors. Although the area outside of the maintenance right-of-way will be revegetated with grasses and forbs immediately following construction, the change in microclimate and edge could affect vegetation or wildlife species in those areas. Species that will be affected by fragmentation are usually species with low dispersal capability and mammals with large home ranges that are dependent on connected habitats. All of the forested landscape that is being traversed by the pipeline is already highly fragmented. The placement of the pipeline on roads, trails, and powerline corridors has precluded the need to build new corridors through

forested habitats and all new corridors will be connecting roads, trails, and powerline corridors with each other. High road densities south of I-90 and the matrix of private and public forest sections has made the South Fork Snoqualmie Watershed the highest fragmented watershed in the basin (SFSWA 1995). Impacts from forest fragmentation in this highly fragmented area will be insignificant.

Construction of the pipeline in areas without existing rights-of-way will create new corridors on the landscape. These corridors may be used as travel corridors for large mammals, such as deer, elk, coyotes, and black bears. Deer and elk also could feed or browse in the open corridor while staying close to the dense hiding cover provided by the adjacent forest habitat. Raptors such as red-tailed hawks and Cooper's hawks also may be attracted to the open corridor, preying on small mammals and birds in the right-of-way. The creation of corridors creates edge habitat and decreases the amount of interior habitat in the patches along the proposed route. While some species (e.g., deer and elk) prefer edge habitat, several special status species such as the spotted owl and northern goshawk depend on interior forests for their survival. Corridors also affect the adjacent habitat by altering microclimates at their edge. Habitats next to corridors may be exposed to increased sunlight and wind which tend to dry out the soils and may affect the composition or health of vegetation. New corridors may provide routes for opportunistic species to invade previously undisturbed habitats. The creation of new corridors in forested habitats will primarily connect existing roads, trails, and powerline rights-of-way through highly fragmented habitat. Areas where new corridors are built through grassland and shrub-steppe habitat along the eastern portion of the pipeline route will be revegetated.

The FS considers the Snoqualmie Pass area as an important corridor in the north-south and east-west movement of species (SPAMAP 1995). Since the pipeline will be placed along the JWPT through the Snoqualmie Pass Tunnel, this project will not cause disturbance to species movements over Snoqualmie Pass. The tunnel is considered potential habitat for the Townsend's big-eared bat but concerns for this species are generally for wintering concentrations and construction in the area will occur during summer. Impacts to this movement corridor will be insignificant.

Block valves will not be manned after construction but the location of block valves at river and stream crossings could attract attention to these sites. Vegetation around the block valve sites will be disturbed and invasive species could become established. The habitat could attract edge species such as deer or elk to browse at these sites or small mammals could be exposed to predation from hawks and eagles. Pump stations will be constructed on small parcels and indirect impacts could occur from ground disturbance with establishment of invasive species at those sites and a change in habitat conditions adjacent to the pump stations. Impacts by both block valves and pump station locations will be insignificant due to the small area and lack of continued human activity at those sites.

## 6.2.2 Operation and Maintenance

Impacts from the operation and maintenance of the pipeline or associated pipeline facilities will be both permanent and temporary. Direct and indirect impacts could occur from operation and maintenance along the pipeline corridor, during biweekly helicopter overflights, and at pump stations and the Kittitas Terminal. No impacts from operation and maintenance will occur in wetlands, because no rights-of-way will be cut through wetlands and vegetation will not be managed in wetlands, and only selected trees will be removed from wetlands, buffers, or riparian areas.

### 6.2.2.1 Direct Effects

In addition to construction impacts, a maintenance corridor will be maintained to facilitate periodic pipeline monitoring including overflights. The corridor will be 30' wide centered on the pipeline route in segments that are not within an existing road, railroad, or powerline right-of-way. Maintenance along the corridor will include the control or elimination of trees and large shrubs and impacts to the maintenance corridor will be permanent. Wildlife species along the maintenance corridor will either habituate to the disturbances or they will be displaced. Habitat changes could force species that are specialists to relocate while species that are generalists will adjust to the changes and probably thrive.

Project operation and maintenance will involve noise impacts from biweekly overflights of the pipeline route, which are required and will be conducted by helicopter. Overflights could periodically disturb wildlife that return to the pipeline corridor and adjacent habitat after construction. Other direct impacts could occur from stress during overflights, which could theoretically cause mortality to individual species that become stressed and flee the area and are preyed upon. Minor impacts are expected from overflights because of the intermittent nature and short duration of flights and the likelihood and ability of wildlife to habituate to disturbance.

During operation there will be activity and noise at the Kittitas Terminal and the pump stations. The activity will be greatest at the Kittitas Terminal, but due to the existing noise levels at the site near Interstate 90 and the neighboring gas station, harassment impacts to wildlife will be insignificant. Additional harassment or take could occur from vehicles on roads going to and from the pump stations. The Thrasher, North Bend, and Stampede Stations will be enclosed to limit noise impacts. The Beverly-Burke and Othello Stations are located in agricultural areas that are currently farmed. Impacts to special status wildlife from operation of the pump stations and Kittitas Terminal will be insignificant.

### 6.2.2.2 Indirect Effects

Indirect impacts to habitat could occur in maintenance corridors where the vegetation is changed from one cover type to another or in disturbed areas where invasive species become established. The loss of forested habitat or fragmentation of the landscape could affect adjacent vegetation types by changing moisture regimes, temperature, or soil conditions. Changes along the pipeline route where forested areas currently exist will be revegetated with grasses and forbs. The loss of trees could influence wildlife in the corridor or in adjacent forested areas. Small species such as salamanders and small mammals will be affected most, and species that can not adjust to habitat changes will be forced to move. Mortality could occur to species that invade other species territories, or to species that can not locate suitable habitat, or to species which get preyed upon while searching for new habitat. Impacts from the loss of habitat due to operation and maintenance activities will be so small as to be insignificant.

Indirect impacts from disturbances at pump stations and the Kittitas Terminal could include the establishment of invasive species at the pump stations or terminal. The effect of invasive species on wildlife is varied and some wildlife will find cover or forage where invasive species become established while others will not. Some of the special status species could become opportunistic foragers around new cleared pump stations or along newly revegetated grassland corridors. Bird species, such as the ferruginous hawk and loggerhead shrike, who forage on small mammals and insects, respectively, could take advantage of the pump sites and corridor. Indirect impacts on wildlife will be insignificant.

### 6.2.3 Emergency Activities

Impacts related to emergency activities are difficult to predict but an established emergency plan will be in place to lessen impacts from any emergency situation. Impacts could be direct or indirect, and cause disturbance, displacement, mortality of species or their prey, or the removal of habitat.

### 6.2.3.1 Direct Effects

Direct impacts could occur from emergency activities anywhere at any time along the pipeline route. Emergency situations could arise from a natural disaster, accident, or other events, which could cause the rupture of the pipeline or a fire or explosion. To address these issues, Section 2.9, Spill Prevention and Control and Section 7.2, emergency Plans were formulated pursuant to State of Washington Code and are given in the EFSEC Application. Emergency activities require an immediate response to ensure safety and damage control. Repair crews would use existing access roads, but emergency situations could occur anywhere along the pipeline and additional ground disturbance could occur along with increased human activity, both of which could cause mortality to special status species or their prey, and loss of habitat. Since the extent of the disturbance caused by emergency activities is unknown, the impacts from those activities are also unknown, but the impacts would be temporary. Impacts from the emergency itself could be high under certain circumstances or low under other circumstances depending on the kind of emergency, but to address the impacts from the emergency itself would be purely hypothetical. Direct impacts from emergency activities could be high or low and long or short term but emergency plans will help to reduce their effect. Impacts from emergency activities may be significant but mitigated.

### 6.2.3.2 Indirect Effects

A discussion of indirect impacts from disturbance, displacement, or loss of wildlife, prey, or habitat would be a reexamination of impacts already discussed in other sections on project construction and operation and maintenance. Impacts from emergency activities, depending on the extent of the emergency, would be similar to indirect impacts from the initial construction of the pipeline route or from maintenance activities.

## 6.2.4 Cessation of Operations

Impacts from the conclusion of pipeline activities, meaning, if the pipeline ever ceased being a pipeline, would involve direct and indirect effects. Direct impacts would occur from salvage operations including required toxic or hazardous materials removal and from restoration operations. Direct impacts would occur from increased disturbance and human activity, and increased disturbance and displacement of vegetation and wildlife. Activities that would increase disturbance and human activity would come from pipeline removal as specified in the easement agreements, and the removal of block valves, pump stations, and the Kittitas Terminal. All of these impacts would be temporary. Impacts would be similar to initial impacts from project construction and operation and maintenance. Indirect impacts would be similar to initial project construction and operation and maintenance, but again they would be temporary impacts.

#### 6.2.4.1 Direct Effects

The cessation of the pipeline could cause some additional direct impacts such as increased ground disturbance and increased human activity. The stopping of operations would entail the removal of block valves at stream crossings, which would require the removal of fencing around the valves, excavation of valves, and backfilling of the site. Those impacts would be temporary and the sites would be revegetated and returned to pre-construction conditions. Pump stations would also be dismantled and sites returned to pre-construction conditions. The Kittitas Terminal would be shut down and dismantled and the site would be made available for further industrial use by leveling and coverage of the site with gravel. In certain sections of the pipeline that were required to be removed, additional surface disturbance and human activity similar in scope to project construction activities would occur. Some take could occur from construction equipment along segments of the pipeline route. Environmental impacts will be less if the pipeline is left in place and inert materials are added to segments of the pipeline after cessation than to areas where the pipeline is required to be removed. Impacts from cessation of activities will be significant but mitigated.

#### 6.2.4.2 Indirect Effects

Indirect impacts could disturb species that had become reestablished along the pipeline route. The longer the period between pipeline construction and cessation, more species would have become reestablished and the more potential for disturbance. This also applies to areas adjacent to the project area. Some species along the route could become established and habituated to the presence of the pipeline route. New construction impacts to these areas could cause additional stress and take from disturbance and disruption. If the pipeline was not removed after termination, impacts would be less because of less area impacted. The only impacts will be at block valves, pump stations, and the Kittitas Terminal. Indirect impacts will be less than initial construction and operation impacts. They will be temporary but significant impacts and mitigated.

### 6.3 CUMULATIVE EFFECTS

Cumulative effects under Endangered Species Act regulations are defined as those of future non-federal (state, local government, private) activities that are reasonably certain to occur during the course of project activity. Future federal actions are subject to the consultation requirements established in Section 7 of the Endangered Species Act and, therefore, are not considered cumulative to the proposed action. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

Cumulative impacts could occur at the Kittitas Terminal if new development takes place. The primary impacts resulting from the development would be additional disturbance of agricultural lands and potential habitat loss adjacent to those lands. Cumulative impacts are likely to be minor because of the high level of disturbance associated with the gas stations and adjacent Interstate 90. Actions on private and other public

lands could include timber harvesting, agricultural, recreational, and industrial. It is anticipated that such activities will continue to occur, although the rate and frequency cannot be predicted.

## 6.4 MITIGATION MEASURES

Mitigation measures are designed to reduce the impacts of the proposed project. Mitigation measures have been applied to various stages of the project including pre-construction, construction, and post-construction, and can lessen project impacts on species and habitat of concern. Mitigation measures described were initiated in an attempt to avoid, minimize, restore, and compensate for impacts. Mitigation measures include route changes and timing restrictions to avoid and minimize most effects along the route. Route changes were made to avoid priority habitats and special status species nesting or foraging areas. In areas where the project location could not be rerouted to avoid sensitive habitat or species, restrictions on the timing of construction will be implemented.

The proposed Cross Cascade Pipeline will cross many types of environments, and its environmental impacts are minimized for four key reasons:

- **Underground Location:** Because the pipeline will be located underground, the impacts on most land uses will be temporary.
- **Short Construction Period:** A pipeline is constructed in sections, thereby minimizing the time during which any particular area is under construction. For the most sensitive sections along the pipeline route--such as stream crossings--it is expected that the construction process will be completed within 48 hours. The length of time construction activities will take place in any given location will depend on the location, topography, soils, etc.. Generally speaking, west of Snoqualmie Pass, construction is expected to move approximately 10,000 feet per day, east of the pass it is expected to move approximately 12,000 to 15,000 feet per day. In the pass area and narrow sections of the route, such as along the JWPT or in BPA corridors, construction time will be slower or approximately 1,200 to 1,500 feet per day.
- **Sensitive Areas Avoided:** The proposed pipeline route has been adjusted to take into consideration sensitive areas and to avoid them as much as possible. In its 227-mile length, over 99 percent of the corridor has been routed to avoid wetlands. The 16 acres that cannot be avoided will be restored or replaced. In addition, by placing the pipeline in existing right-of-way corridors, pipeline impacts are generally confined to areas that already have been disturbed.
- **Rivers, Streams, and Canals:** The proposed pipeline will cross 285 waterways, most of which are small streams, many of them intermittent. Wherever practicable, existing bridges will be used to cross wetlands and streams.

Directional drilling will be used for crossing two or three streams including the Columbia River. Directional drilling is a method by which the pipeline is buried far beneath the river bottom. By using this

method, neither the drill, nor the pipe itself, comes into contact with the river water.

Other major river crossings will use an open-cut dry method which diverts the water flow in sections of the river for placement of pipe sections. This method can be accomplished in a very short period of time and eliminates the need for a large drilling equipment staging area.

Construction activities within the project area will occur generally from June to October. More specific timing restrictions will occur along the route where any special status species occur within the project area. Specific timing and distance restrictions that might be followed include:

- Northern goshawk - No disturbance within 1/4 mile of nest sites from March 1 to September 30.
- Northern spotted owls - No disturbance within 1/4 mile of nest sites from March 1 to August 31.
- Marbled murrelets - No disturbance within 1/2 mile of occupied sites from April 1 to September 15.

Prior to construction, OPL will conduct additional field studies to determine what, if any, impacts on spotted owls or goshawks would result from the construction and operations of the Stampede Station. If impacts are found to be likely, OPL will consult with EFSEC and the appropriate state and federal resource agencies to develop appropriate mitigation measures.

Priority habitats impacted include wetlands, oak woodlands, riparian areas, rural natural open space, and urban natural open space, mule and black tailed deer habitat, ring-necked pheasant habitat, sandhill crane habitat, and waterfowl concentration areas. Impacts to wetlands and riparian areas, including ring-necked pheasant, sandhill crane, and waterfowl concentration areas will be mitigated by measures given for wetlands and by timing restrictions for construction only during non-critical times of the year. Impacts to wildlife and habitat will occur as a result of construction of the proposed pipeline. Mitigation measures to further reduce impacts will include the following:

- Full-time Environmental Inspector: In order to minimize impacts during construction--and to ensure that environmental protection is given a high priority--OPL will have a full-time environmental compliance coordinator during project construction. This coordinator will oversee qualified personnel working with construction crews to ensure environmental "best management practices" are carried out. In addition, OPL will fund a full-time environmental inspector position that will be supervised by and report to the Energy Facility Site Evaluation Council. This inspector will have stop-work authority.
- Confining Pipeline to Existing Corridors Minimizes Impact on Wildlife and Plants: The pipeline will use existing right-of-way corridors whenever possible. These corridors already have experienced significant alterations to vegetation and habitat. Edge and corridor habitat have been created over the years, meaning that wildlife have adjusted to

altered habitat conditions.

Any habitat disruption will occur on a temporary basis during construction. Concentrated construction activity will take place for about a two-week period in any given location. Disturbed areas will be restored.

Construction of the pipeline in some limited areas will require the minimal cutting of trees. No old-growth trees have been identified in areas needing clearing. New rights-of-way will be created in areas where the proposed route must cross from one existing right-of-way to another. It will also be created where power lines in the existing right-of-way are strung from one slope to another, where shrub vegetation below the power line is currently re-established.

Following construction, a 30-foot-wide corridor is normally desired for long-term right-of-way maintenance. Thirty feet of the construction easement will be restored and revegetated with native plant species favorable to wildlife immediately following construction, consistent with a site-specific vegetation plan and landowners agreements, as appropriate.

No access roads will be constructed through sensitive wetland areas and there will be no long-term maintenance right-of-way corridor through wetlands, wetland buffers, and riparian areas, with the exception of limited removal of trees in the wetland buffer.

- Erosion and Sediment Control: Construction contractors will implement an erosion and sediment control plan to include Best Management Practices. These plans and practices will minimize or eliminate potential impacts such as water quality degradation through sedimentation, erosion, and removal of vegetation, and effects on fisheries and aquatic resources.
- Little or No Long-term Noise Impacts: Temporary increases in noise will result from construction of the pipeline. However, most construction will be limited to daytime hours and most areas will experience no more than two weeks of construction activity at any given time.

Noise from operation of the pipeline will be minor. The equipment at the Thrasher, North Bend and Stampede pump stations will be enclosed in buildings to minimize noise. The Kittitas Terminal is adjacent to I-90, where noise levels are already high due to traffic. There are gasoline service stations in the immediate vicinity, but no residences.

## 6.4.1 Preconstruction Mitigation

Mitigation measures applied during construction activities include measures intended to lessen impacts to species and habitat in the project area. Specific mitigation measures were formulated for vegetation and wildlife species, but many measures may apply to both groups. Mitigation measures were developed for some specific species or priority habitats and they are described by species or habitat. Preconstruction mitigation measures include:

- Consolidate the pipeline route to a single corridor along roads, railroads, and in existing right-of-ways to lessen the impact from habitat fragmentation.
- New corridors were located along the periphery of forested areas whenever possible to lessen impacts to interior forest species and reduce impacts from edge effect.
- New corridors were located along the periphery of forested areas whenever possible to lessen impacts to
- New corridors through forested areas will be restricted to 30 feet wide or less in the Alice Creek and Humpback Creek areas.
- The new corridor from Tinkham Road to the upper trail road near the Annette lake Trailhead area will be bent to limit straight line-of-sight.
- In upland forested and riparian areas where new corridors are cut through forested areas downed logs will be moved and replaced after construction if the logs and debris are substantial enough to allow replacement.
- Contact state and federal wildlife agencies periodically for possible additions of any endangered, threatened, or sensitive wildlife species, or priority habitats of statewide significance in the vicinity of the proposed project. If any are identified, coordination for any possible mitigation measures will occur with the appropriate agency.

### 6.4.1.1 Burrowing Owls

Surveys for nesting burrowing owls will be conducted along the route in suitable burrowing owl habitat. The WDFW will conduct surveys in 1997 in areas that may include the route. If nesting burrowing owls are found within the construction corridor, the owls may be moved by the WDFW or construction in those areas may be restricted until young of the year have fledged and the adults have left the burrow. This will eliminate the likelihood of take of burrowing owls along the pipeline route.

#### 6.4.1.2 Larch Mountain and Van Dyke's salamanders

Surveys prior to ground disturbing activities will be conducted for both of these species. If any individuals are found in the project area construction restrictions will be applied following FS guidelines.

#### 6.4.1.3 Spotted Frogs and Northern Leopard Frogs

Prior to construction in wetlands, inspect wetlands for spotted frogs and northern leopard frogs, adults, froglets, and tadpoles and collect individuals from construction areas to be impacted and place them into open water habitat not to be disturbed.

In streams, if adult or juvenile spotted frogs or tadpoles are present at the time of construction, they will be captured and relocated downstream of the crossing to decrease take of these species.

#### 6.4.1.4 Wetlands

All activities within the wetland and buffer will be kept to the minimum disturbance area possible.

Where wetlands must be crossed, the pipeline will be routed through less sensitive portions of the wetland if it is feasible.

The scrub-shrub and forested portions of wetlands will be avoided to the greatest extent possible.

### **6.4.2 Construction Mitigation**

Native vegetation will be retained as much as possible in the impact area to preserve wildlife habitat. Shrub habitat will be maintained at low to medium vegetation heights in the rights-of-way buffers.

The normal corridor needed during construction will be 60 feet wide. When a new right-of-way is created in sensitive areas, special construction techniques will be used to restrict it to the smallest area possible.

Restrictions on blasting will coincide with general timing restrictions for construction.

#### 6.4.2.1 Northern Spotted Owl

Although no impacts on threatened and endangered species have been identified, there are potential habitat areas for threatened and endangered species within existing right-of-way corridors. Three new short corridor areas are within spotted owl management areas, but the corridor is not anticipated to affect the nest sites due to its distance from the nest areas. The pipeline corridor will be located on existing logging or forest roads to the extent feasible.

#### 6.4.2.2 Wetlands

Pipeline construction impacts to wetlands will be minimized by using the narrowest possible corridor (30') and by constructing during a time of year when the resources (i.e., nesting or migrating waterfowl or amphibians) are either not present or less vulnerable.

Along with other temporary erosion and sedimentation controls, filter fencing and straw bales will be used during construction to minimize sedimentation in wetlands and to deter construction equipment operators from venturing further than absolutely necessary into sensitive areas.

To the extent possible, construction through wetlands will occur when water levels are low.

Trench plugs will be used, as necessary, to prevent diversion of water from wetlands to restrict the loss of water and control the loss of wildlife from dehydration.

In wetlands and riparian areas, vegetation that must be removed will be cut at ground level, leaving existing roots systems intact. The pulling of tree stumps and grading activities will be limited to those that would directly interfere with trenching, pipe installation and backfill.

Matting will be used to support construction equipment when the water level is within 18 inches of the soil surface.

In the event that matting is necessary, all construction activities will be carried out from the matting. Equipment will not be allowed in the wetland off the mats, at any time. The mats will be inspected prior to placing in the wetland and mats with foreign material will not be used.

No herbicides and pesticides will be used in wetlands.

All construction equipment used in wetlands will be refueled at least 100 feet from water bodies or wetland boundaries. All equipment will be inspected and cleaned prior to entering a wetland.

#### **6.4.3 Post Construction Mitigation**

Manage corridors to create a vegetation structure changing from grasses and forbs in the center of the maintenance corridor to shrubs and trees in the outside construction corridor to lessen impacts from a created edge.

Reseeding of forest and shrub habitats impacted by ground disturbance in western Washington, and reseeded of shrub-steppe habitats with grasses and shrubs.

Seasonal restrictions on corridor maintenance, such as vegetation clearing, will be done during the summer months when most species will not be breeding.

At block valves, pump stations, and the Kittitas Terminal a noxious weed eradication effort will be used to eliminate invasive species that become established at disturbed areas.

#### 6.4.3.1 Wetlands

Where trenching occurs through open water, aquatic bed, emergent, and scrub-shrub wetlands, soils and vegetation will be replaced.

Where trenching through a wetland may alter the hydroperiod (i.e., excavation through a hardpan layer, or altering the topography, soil or sub-basin which supports wetland hydrology), soil, subsoil and/or topographic conditions will be recreated as nearly as possible to restore the existing wetland hydrology. During excavation in wetlands, a soil scientist will determine if mitigation measures are needed to address potential impacts from changes in wetland hydrology. If the determination is made that mitigation is needed, measures will then be implemented at that site.

Compensation for permanent impacts to native plant communities and fish and wildlife habitat values will be negotiated with landowners and natural resource agencies.

Specific mitigation plans, including monitoring, will be developed for wetland compensation, with the goal of no net loss of wetland acreage, values and functions.

Disturbance to forested wetlands will be mitigated by both: restoration of the disturbed area to either forested wetland or scrub/shrub wetland; and either replacement with other forested wetland (restoration or creation) in an amount equal to the disturbed area, or enhancement of disturbed emergent herbaceous wetland to forested wetland in an amount equal to twice the disturbed area.

Disturbance impacts to scrub/shrub wetlands will be mitigated by both: restoration of the disturbed area to scrub/shrub wetland; and either replacement with other scrub/shrub wetland (restoration or creation) in an amount equal to one-half the disturbed area, or enhancement of disturbed emergent wetland to scrub/shrub wetland in an amount equal to the disturbed area.

Disturbance to emergent herbaceous wetlands will be mitigated by restoration of the disturbed areas to native emergent herbaceous wetland.

Wetlands will be monitored during construction to provide oversight to ensure the implementation of Best Management Practices and for on-site adjustments to construction practices. A five year post-construction monitoring plan will be developed and implemented to assess mitigation success or failure.

Restoration of wetland, buffer, and riparian vegetation presently vegetated with native species is considered successful if the native herbaceous and/or woody cover is at least 80 percent of the total cover, and native species diversity is at least 50 percent of the diversity originally found in the wetlands. If vegetation is not successful at the end of the 5 year post-construction monitoring period, the applicant will develop and implement (in consultation with a professional wetlands ecologist, EFSEC, WDFW, and WDOE) a plan to actively revegetate the wetland with native wetland herbaceous and woody plant species.

## **7.0 EFFECT DETERMINATION**

### **7.1 AMERICAN PEREGRINE FALCON (*FALCO PEREGRINUS*)**

May effect, not likely to adversely affect

### **7.2 BALD EAGLE (*HALIAEETUS LEUCOCEPHALUS*)**

Bald eagle restrictions on construction during Nov 1 to April 1 in wintering areas. Areas within 0.5 miles of the Snoqualmie, Yakima, and Columbia Rivers, not impacted because no perch trees will be removed and construction will not occur during time period for wintering concerns (Nov 1 to April 1).

May effect, not likely to adversely affect

### **7.3 GRAY WOLF (*CANIS LUPUS*)**

May effect, not likely to adversely affect

### **7.4 GRIZZLY BEAR (*URSUS HORRIBILIS*)**

May effect, not likely to adversely affect

### **7.5 MARBLED MURRELET (*BRACHYRAMPHUS MARMORATUM*)**

Construction will not occur from April 1 to September 15 in areas of the project where occupied marbled murrelet sites occur. Restrictions may apply to CHU's in LSR along the project which will be subject to section 7 consultation with the USFWS.

May effect, not likely to adversely affect

### **7.6 NORTHERN SPOTTED OWL (*STRIX OCCIDENTALIS*)**

Construction activities will not occur from March 15 to August 31 in areas of the project that include CHU's or occupied habitat. Section 7 consultation with the USFWS will define those areas.

May effect, not likely to adversely affect

**7.7 SPOTTED FROG (*RANA PRETIOSA*)**

Although individual frogs may be impacted, populations would not be adversely effected by the pipeline construction.

The project may effect, but is not likely to adversely affect this species.

**7.8 FERRUGINOUS HAWK (*BUTEO REGALIS*)**

May effect, not likely to adversely affect

**7.9 LYNX (*LYNX CANADENSIS*)**

No effect

**7.10 SANDHILL CRANE (*GRUS CANADENSIS*)**

May effect, not likely to adversely affect

**7.11 WESTERN POND TURTLE (*CLEMMYS MARMORATA*)**

No effect

**7.12 BLACK-BACKED WOODPECKER (*PICOIDES ARCTICUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.13 BURROWING OWL (*ATHENE CUNICULARIA*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.14 COLUMBIA PEBBLESNAIL (*FLUMINICOLA COLUMBIANA*)**

No impact

**7.15 COMMON LOON (*GAVIA IMMER*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.16 FLAMMULATED OWL (*OTUS FLAMMEOLUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.17 GOLDEN EAGLE (*AQUILA CHRYSAETOS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.18 JOHNSON'S (MISTLETOE) HAIRSTREAK (*MITOURA JOHNSONI*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.19 LARCH MOUNTAIN SALAMANDER (*PLETHODON LARSELLI*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.20 LEWIS WOODPECKER (*MELANERPES LEWIS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.21 LOGGERHEAD SHRIKE (*LANIUS LUDOVICIANUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.22 LONG-HORNED LEAF BEETLE (*DONACIA IDOLA*)**

No impact

**7.23 NORTHERN GOSHAWK (*ACCIPITER GENTILIS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.24 NORTHERN LEOPARD FROG (*RANA PIPIENS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.25 PACIFIC FISHER (*MARTES PENNANTI*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.26 PILEATED WOODPECKER (*DRYOCOPUS PILEATUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.27 SAGE GROUSE (*CENTROCERCUS UROPHASIANUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.28 SHARP-TAILED GROUSE (*TYMPANUCHUS PHASIANELLUS*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.29 TOWNSEND'S BIG-EARED BAT (*PLECOTUS TOWNSENDII*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.30 VAN DYKES' SALAMANDER (*PLETHODON VANDYKEI*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.31 VAUX'S SWIFT (*CHAETURA VAUXI*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

**7.32 WHITE-HEADED WOODPECKER (*PICOIDES ALBOLARVATUS*)**

**May impact individuals but not likely to trend towards federal listing or loss of viability.**

**7.33 WOLVERINE (*GULO GULO*)**

May impact individuals but not likely to trend towards federal listing or loss of viability.

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**BIOLOGICAL EVALUATION  
CROSS CASCADE PIPELINE**

**For**

**OLYMPIC PIPE LINE  
D&M JOB NO.: 05591-023-020  
May 3, 1999**