Wildlife

The corridor passes through three major wildlife habitat communities: agricultural, steppe (grass/forb and shrub steppe vegetation communities), and pine forest. In addition, the corridor crosses distinct, localized habitat areas: riparian and riverine habitats along the Spokane River; rock outcroppings and cliff habitats between the Columbia River and Banks Lake; and areas disturbed by urban development north of Spokane. A complete list of wildlife identified as potentially occurring within the corridor is shown in Table C-3 in Appendix C.

Affected Environment

Agricultural Habitat

Approximately 50 percent of the habitat available to wildlife along the corridor is agricultural land. These areas are primarily used for dryland farming and include wheat fields, fields planted to pasture, cover vegetation, or areas allowed to naturally reseed. No native vegetative communities exist on these fields. In general, these monocultural plant communities, such as wheat, are disturbed by plowing, seeding, and harvest annually. Although agricultural land does not support large wildlife populations, it does provide cover for short periods of time while vegetation is maturing, and food sources when there are emerging sprigs and waste grain present. Although pasture land and along fences may not be dominated by native vegetation, pasture land is less frequently disturbed by plowing and harvesting and provides wildlife habitat year round. Agricultural land provides habitat for some wildlife, especially skunks, coyotes, ring-necked pheasants, mallards, and Canada geese. Other wildlife, such as white-tailed deer, likely use the agricultural habitat that is located near other, more preferred, foraging and refuge habitat.

Steppe

Columbia Basin steppe is the second largest wildlife habitat crossed by the corridor and includes grass/forb and shrub/steppe vegetation communities. Over 70 wildlife species are found in Washington steppe habitats (Table C-3). Common species include the turkey vulture, chukar, Washington ground squirrel, and western rattlesnake. Some species such as sage grouse, sage thrasher, Brewer's sparrow, sage sparrow, pygmy rabbit, and the Great Basin pocket mouse are exclusively dependent on shrub steppe habitat to survive.

Approximately 60 percent of the original steppe wildlife habitat has been lost in the Columbia River basin and most of the remaining habitat degraded as a result of farming and livestock grazing (Schroeder et al. 2000 and WDA 2001). Livestock grazing reduces soil productivity and breaks the crust of fungi on the soil. With the soil crust broken, weed species such as cheatgrass and Kentucky bluegrass can invade and out-compete native plants. The loss of native vegetation changes wildlife use and has been attributed to the population decline of species such as the pygmy rabbit and the sage grouse, both of which are dependent upon shrub/steppe habitats

(Schroeder et al. 2000 and WDFW 2001). Any steppe habitat, especially shrub/steppe habitat that retains native species and supports native wildlife is highly valued.

Pine Forest and Deciduous Shrub

The eastern quarter of the corridor passes through mostly grassland and open ponderosa pine forest, with some deciduous shrubland/pine mixes. These second-growth pine forests provide habitat for a variety of wildlife, especially the peregrine falcon, western tanager, Cassin's finch, red crossbill, wild turkey, yellow pine chipmunk, and porcupine. Pine habitats near the Spokane River riparian zone are also heavily used by white-tailed deer and beavers.

Other Habitats

Other habitats include wetlands, the open water of the Spokane River, rock outcroppings near Grand Coulee, and residential areas. Although these habitats do not comprise a significant portion of the corridor, they support unique wildlife populations. Wetlands provide specific habitat for a variety of specially adapted animals, such as amphibians and waterfowl. Wetlands with year-round water provide an important source of water for wildlife in this arid environment (see Chapter 3 Wetlands). The open water of the Spokane River is important habitat for beavers and resting waterfowl and also provides foraging habitat for bald eagles and osprey. Outcrops near Grand Coulee are used for cover, dens, and nests by a wide variety of species normally associated with steppe habitats. It is an especially important habitat for snakes, chukars, cliff swallows, Nutall's cottontails, yellow-bellied marmots, and bushy-tailed woodrats. The corridor itself also provides certain habitat attributes. In residential areas, it provides an unobstructed and safe migration corridor for white-tailed deer, raccoons, and other wildlife. Without the corridor, wildlife would be required to cross numerous fences and possibly encounter harassment from pets such as dogs.

The Washington Department of Fish and Wildlife has designated some habitats as priority habitats for certain wildlife species. Designation is part of a strategy to maintain suitable habitat for priority wildlife. Figure 3-39 shows the corridor crossing six priority habitats. Mule deer priority habitat is located near Grand Coulee and consists primarily of steppe habitat. Two white-tailed deer priority habitats are located east of the mule deer priority habitat, and consist primarily of agricultural and forested habitat near Spokane. Rocky Mountain elk priority habitat is located in the Mill and Tamarack canyons and consists primarily of forest and agricultural habitat. Riparian priority habitats are located along Hawk Creek and its tributaries, Deep Creek, and the Spokane River. Urban Natural Open Spaces are located in Spokane. Other priority habitats and species occur near the corridor. Bald eagle priority habitat occurs along the Spokane River about 8 mile and 17 miles downstream from where the corridor crosses the Spokane River. Sharp-tailed grouse priority habitat occurs about 1.5 miles south of the corridor throughout most of Lincoln County.

Threatened and Endangered Species

The bald eagle and pygmy rabbit are the only federally-listed threatened and endangered species that may occur in the project area.

Bald eagle – No habitat for bald eagles exists in the corridor, largely because the corridor lacks suitable foraging habitat (fish and waterfowl concentration areas) and nesting trees. Bald eagle use of the majority of the corridor area is likely limited to the occasional fly-over as bald eagles move between roosting sites within Northrup Canyon State Park, about 4.5 miles southwest of the corridor, Banks Lake, and the Columbia River. A potential bald eagle roost site exists along the Spokane River about 1 mile north of where the corridor crosses the river in Riverside State Park, so eagles may occasionally perch on transmission towers within the park.

Pygmy rabbit – Although portions of the corridor are comprised of the shrub/steppe habitat preferred by pygmy rabbits, no documented populations exist within the corridor. The pygmy rabbit is dependent on sage brush plant communities, as sage brush comprises 99 percent of its winter diet (WDFW 1995). Pygmy rabbit populations have been declining since 1997. In 1995, five pygmy rabbit populations were documented as existing in Douglas County and a sixth population was found in 1997. However, between 1997 and 2000 five of the six populations disappeared. By March 2001, only one area, Sagebrush Flat, was known to still have rabbits (Hays 2001). The primary factor contributing to the decline of the pygmy rabbit in Washington has been habitat loss due to agricultural conversion (WDFW 1995). As part of the recovery plan for pygmy rabbits, WDFW has captured the last remaining known population to start a captive breeding program (WDFW 2001). The goal is to develop a captive population to ensure the maintenance of Washington's unique pygmy rabbits and to reintroduce sufficient numbers of captive-bred rabbits to re-establish populations in suitable habitat. Eleven of the remaining pygmy rabbits in Washington have been captured and translocated to Washington State University, where one captive female recently gave birth to five young (Hays 2001).

Environmental Consequences

Construction, operation, and maintenance activities can create short- and long-term impacts to wildlife by disturbing wildlife or damaging their habitat. Short-term impacts would include increased noise and human presence during construction, habitat damage due to temporary vegetation removal and wildlife being unable to use the immediate work areas. Long-term impacts would include increased human access into otherwise inaccessible areas, habitat loss due to conversion of forested areas to grass/shrub areas within the corridor, habitat fragmentation, collision hazards, such as overhead ground wires, and disturbance of wildlife during their breeding seasons.

Impact Definitions

A **high** impact would occur under these conditions.

- Construction and mitigation creates long-term decreases in quality or quantity to a substantial amount of existing habitat.
- Critical habitats are disturbed during breeding or winter stress periods.
- Critical habitats are avoided during the breeding or winter stress periods due to increased noise associated with construction activities.
- Construction activities create extensive short-term damage to native vegetation.
- Threatened or endangered species are directly impacted.
- Heavy, uncontrolled human access is allowed.

A **moderate** impact would occur under these conditions.

- Construction and mitigation creates long-term decreases in quality or quantity to a limited amount of habitat.
- Critical habitat is disturbed outside of breeding or wintering periods.
- Critical habitats are avoided outside of the breeding or winter stress periods due to increased noise associated with construction activities.
- Construction activities create some short-term damage to native vegetation.
- Threatened or endangered species are indirectly impacted.
- Light, uncontrolled human access is allowed.

A **low** impact would occur under these conditions.

- Construction and mitigation creates long-term decreases in quality or quantity to a small amount of habitat.
- Critical habitat is not disturbed.
- Critical habitats are not avoided outside due to increased noise associated with construction activities.
- Construction activities create minimal short-term damage to vegetation.
- Threatened and endangered species are not affected.
- Human access is controlled and limited.

Impacts

Towers and Related Construction

Removal of existing wood pole structures would have direct and indirect impacts to wildlife. Direct impacts would result from temporary removal of vegetation around wood pole structures to be removed. Removal of vegetation would result in the loss of foraging habitat and ground

nesting habitat for wildlife. However, impacts to wildlife habitat would be low because the total area of vegetation disturbed would be about 17.4 acre, a small percentage of the 1,528 total acres of available wildlife foraging and refuge habitats along the corridor. Direct impacts would also result from avoidance of immediate work areas caused by construction noise. Noise associated with construction activities occurring during the breeding season (March to August) in shrub/steppe, forested, and riparian habitats, where wildlife abundance and diversity is usually greatest, could have a high impact. In contrast, construction activities occurring during the non-breeding season in agricultural lands and grass/forb habitats, where wildlife abundance and diversity is lower, would have a low impact. Indirect impacts could occur if vegetation was crushed to the extent that noxious weeds could become introduced. With the implementation of the Weed Control Plan (see Chapter 3 **Vegetation**), the impact level would be low.

Construction areas around towers would result in direct and indirect impacts to wildlife. Direct impacts would result from short-term disturbance of 105 acres of agricultural land and 85 acres of native habitat as vegetation is removed, broken, uprooted, or trampled by construction. Direct impacts could also result from increases in noise due to construction. Impacts due to noise would be similar to those described above. Indirect impacts could occur if vegetation was crushed to the extent that noxious weeds could become introduced. The revegetation of disturbed areas, along with noxious weed control, should provide long-term wildlife habitat. The impact level resulting from construction areas around towers would be moderate.

Construction of new towers would result in direct and indirect impacts to wildlife. Direct impacts would result from the permanent removal of 24 acres of habitat (about 12 acres in agricultural land and 10 acres in native habitat) and increases in noise due to construction activities that could cause avoidance of the immediate work areas. Indirect impacts could occur if noxious weeds could become introduced. The impact level resulting from the construction of new tower pads would be low to moderate.

Conductor tensioning sites and staging areas would result in direct and indirect impacts to 42 acres of habitat. Although the exact locations are unknown, it is assumed that approximately half of these areas would be in native habitat. Depending on the location chosen for these sites, direct impacts could result from vegetation being broken, uprooted, or trampled. Indirect impacts could result from noxious weeds becoming established before native species have recovered. If possible, conductor tensioning sites and staging areas would not be placed within 400 feet of sensitive areas, such as wetlands, or State-identified priority habitats. With proper mitigation, the impact level resulting from conductor tensioning sites and staging areas would be low to moderate.

Road Construction

Construction of new access roads would have direct and indirect impacts to wildlife. Direct impacts would result from removal of vegetation and soil compaction and increases in noise due to construction activities that could cause avoidance of the immediate work areas. Indirect

impacts could result from erosion of roads introducing sediments to undisturbed areas and the smothering of vegetation. A detailed description of where the new access roads would be constructed is discussed under **Vegetation**. The total area disturbed would be 15.6 acres, with about 2.6 acres in agricultural land and 13 acres in native habitat. Disturbing wildlife breeding in pockets of sagebrush would be the greatest potential impact from new access road construction. Moderate impacts would be expected from the construction of new access roads within the corridor because this is an area vegetated primarily with native species, with few weed species, and has been identified as potential habitat for a federally-listed plant species. However, if construction of new access roads does not occur during the breeding season a low impact would be expected.

Construction of spur roads would have direct and indirect impacts to wildlife. Direct impacts would result from removal of vegetation and soil compaction and increases in noise due to construction activities that could cause avoidance of the immediate work areas. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas and the smothering of vegetation. The total area disturbed would be 12.6 acres, with about 6.3 acres in agricultural land and 5.1 acres in native habitat. The impact level would be low to moderate.

Improvements to existing access roads would have direct and indirect impacts to wildlife. Direct impacts would result from vegetation removal and/or burying from grading and rocking within the existing road footprint, widening existing roads, vegetation crushing from vehicle use, and increases in noise due to construction activities. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas and smothering vegetation or from the introduction of noxious species. The total area disturbed would be 52.5 acres, with about 42.5 acres in native habitat. Most road improvements would occur within the existing footprint of the road in native habitat; this footprint has already been disturbed by vehicle use. Road widening would convert some land to access road, resulting in the loss of foraging habitat and ground nesting habitat for wildlife. About 80 percent of this loss would be in shrub/steppe habitat. The impact level resulting from improvements to existing access roads would be low to moderate.

Access road widening could impact wildlife by increasing human access to the corridor. This is especially important for raptors and game species, which are easy targets for illegal shooting. Without access control, impacts of increased human activity would be considered high near Spokane where trespassing within the corridor appears to be prevalent, moderate elsewhere in wildlife habitat areas, and low in agricultural areas. Overall, the impact could be minimized by making sure access gates are locked and authorized use areas are posted. The impact level would be low.

Installing/replacing culverts could result in direct or indirect impacts to wildlife. Direct impacts would result from vegetation removal during installation and avoidance of the immediate work areas due to increased noise. Indirect impacts could result from erosion of roads introducing sediments to undisturbed areas and smothering vegetation or from the introduction of noxious weeds. Most of the area disturbed by culvert installation would occur within the existing

footprint of the road, thus reducing direct impacts to habitat. Based on observation and preliminary information, the impact level would be low, unless a federally-listed species is present.

Operation and Maintenance

Operation of the new transmission line would have direct impacts to wildlife, specifically bird species. Direct impacts would result from injury or death caused by collisions with transmission lines. Collisions typically occur in locations where conditions combine to create a high potential for birds striking lines (Avian Power Line Interaction Committee, 1994). Three factors contribute to this potential: the type of power lines, the amount of use of the area by birds, and the inherent tendency of a species to collide with overhead wires.

Type of Power Lines – Because the proposed transmission line would be placed within a corridor with existing lines the potential impact may be less than if the new line were placed where there were no existing lines. Research has shown that location of transmission lines influences bird collision risks, and that installing new transmission lines adjacent to existing lines may reduce the risk of collisions (Thompson, 1978; Avian Powerline Committee, 1994; Bevanger 1994).

When there are multiple lines within a corridor, birds are more likely to strike a conductor if the conductor heights vary. Multiple conductors at different heights create a "fence" effect, a larger area in which birds must avoid obstacles. The proposed line would add to an existing fence effect. The existing two wood pole 115-kV structures are 60 feet tall, each having a flat configuration (the three conductors on the towers are strung at the same height). The double- and single-circuit 230-kV steel towers are 125-feet and 80-feet tall, respectively, and have a stacked configuration (conductors at various heights). For the proposed action, the northern-most 115-kV towers would be replaced with single-circuit steel towers 125 feet tall along most of the transmission line corridor, and the conductors would have a delta configuration (one conductor higher than the other two). Additionally, they would have two overhead ground wires. Double-circuit line would be constructed between corridor mile 73/1 and 73/4, where the steel towers would be 175 feet tall with conductors placed at various heights along the towers. These 175-foot towers would be 50 feet taller than the existing towers and could result in a localized increase in the fence effect. See Chapter 2, Figures 2-5 and 2-6 for tower configurations.

Birds tend to be more likely to strike ground wires. Ground wires are much smaller in diameter than conductors and span the top of the tower to protect the line from lightning strikes. The proposed line would have one or two ground wires the length of the line. These ground wires could increase the fence effect and contribute to potential bird strikes. Fiber optic cable may be used for the ground wire. Although no studies analyzing the risk of avian collisions with fiber optic cable could be found, the cable has similar physical characteristics as ground wire, therefore, impacts would likely be similar.

Amount of Use – In general, the more birds that fly in an area, the greater the risk of collisions with power lines. The areas of highest concern are where lines span bird flight paths, including river valleys, wetland areas, lakes and narrow corridors such as passes that connect two valleys. Transmission lines between waterfowl feeding and roosting areas would also be hazardous (McNeil et al., 1985). The proposed line would cross few areas of open water or wetlands and would run primarily through upland grazed shrub-steppe and croplands. However, a significant potential for collision mortality occurs where the transmission lines cross the Nine Mile Reservoir segment of the Spokane River (between corridor mile 77/3 and 77/4), where waterfowl are known to concentrate. Although waterfowl losses to transmission line collisions are rarely shown to be biologically significant, unmarked ground wire at the Spokane River crossing would result in a moderate impact on waterfowl. If the existing crossing has not been a problem in the past, it is unlikely that the new crossing would be. Since the existing crossing has not been documented to be a problem in the past, it is unlikely that the added line would have an increased adverse effect on waterfowl. Adequate marking or removal of these wires at the crossing would reduce the potential impacts to low.

Species Risk of Collision – Migratory waterfowl have the highest incidence of mortality from collision with transmission lines, particularly near wetlands, feeding areas, or open water (Stout and Cornwell, 1976). Such collisions primarily occur in low visibility conditions (Arend, 1970; Anderson, 1978; Avery et al., 1980; Brown et al., 1985; Fannes, 1987). In a study of waterfowl mortality in Illinois, between 0.2 and 0.4 percent of the maximum number of ducks present near a power plant were killed each fall (Anderson, 1978). Mallards and blue-winged teals were found to be most vulnerable to collisions. Fourteen duck species accounted for 44 percent of the 4,100 birds that collided with power lines in a wetland in Montana (Malcolm, 1982). In a survey of birds flying past a 138-kV power line spanning the Mississippi River, no birds were killed and waterfowl were observed to fly at least 50 feet from the power lines (Fredrickson, 1983). In a survey in Oregon, 60 birds of 13 species were found dead beneath a 230-kV line in 89 days; however, an estimated 354,000 birds moved past the lines in 179 days, of which over 85 percent were observed to fly above the conductors (Lee, 1978).

Raptor collisions with overhead wires would not be expected and collision with overhead transmission line wires is not a major cause of mortality in raptors. Unlike waterfowl, which fly at fast speeds and during inclement weather, raptors keen eyesight and tendency not to fly in inclement weather may contribute to the relatively low numbers of collisions reported (Olendorff et al., 1981; Olendorff and Lehman, 1986; Postovit and Postovit, 1987). Deaths that do occur usually are caused by distribution lines where the distance between ground wires and transmission wires is shorter than the raptor's wing span, making an electrical connection possible if touched. The 500-kV conductors would be too widely spaced for an electrical connection to occur. Therefore, any raptor collisions would not be at levels that would change local breeding populations or distributions.

Some level of ongoing waterfowl, and perhaps raptor, mortality would be expected to occur as a result of the installation of the new transmission lines, however, the mitigation measures

discussed below can be applied to minimize that potential impact. Songbird mortality would be expected to be minor. The impact level would be low.

Maintenance of the new transmission line would have direct and indirect impacts to wildlife. Direct impacts would result from removal and prevention of the development of forested habitat and avoidance of the immediate work areas due to increased noise. Indirect impacts could result from erosion of cleared areas introducing sediments to undisturbed areas, smothering vegetation. Since the maintenance activities would be almost entirely within an existing corridor that has been maintained for nearly 50 years, continued maintenance is expected to have a low impact level.

Priority Habitats

Priority Habitats, identified from WDFW's Priority Habitats/ Species database, are crossed by the corridor and access roads. Impacts would be low to moderate if maintenance activities avoid these habitats during times when breeding, fawning, nesting, and other sensitive activities occur.

Construction impacts to Urban Natural Open Space areas crossed by the corridor would be low because little habitat would be permanently removed and disturbed habitat would be revegetated.

Threatened and Endangered Species

The Federally-threatened bald eagle may occur in the vicinity of the corridor at certain times of the year. Bald eagles likely pass through or over the corridor when migrating or when moving between winter foraging areas, especially between Banks Lake and Lake Roosevelt. Unlike waterfowl, which fly at fast speeds and during inclement weather, raptors, like bald eagles, are generally not prone to collision deaths (see Olendorff, et al., 1981; and Postovit and Postovit, 1987). Deaths that do occur usually are caused by distribution lines where the distance between ground wires and transmission wires is shorter than the raptor's wing span, making an electrical connection possible if touched. However, the 500-kV conductors would be too widely spaced for an electrical connection to be expected to occur.

The other potential impact to bald eagle habitat would be the possible removal of a few potential perching trees within the corridor where it crosses the Spokane River (between corridor mile 77/3 and 77/4). Riparian trees, mostly cottonwoods and willows, could be removed to allow for conductor swing. Although the exact number of riparian trees to be removed is unknown, it is expected that a small number perch trees would be removed relative to the number of perch trees in the vicinity.

Presence of the Federally-endangered pygmy rabbit has not been documented in the vicinity of the corridor, although their historic range once occupied Douglas, Grant, Lincoln, Adams, and Benton counties. As part of the recovery effort, WDFW has started a captive breeding program, with the goal of reestablishing viable populations of pygmy rabbits in central Washington. No

reintroduction of pygmy rabbit populations is expected to occur within the corridor. Although the sage brush habitat within the corridor, important to pygmy rabbits, would be disturbed during construction, these disturbed areas would likely have recovered before any new populations of pygmy rabbits would be proposed for introduction into the area.

A Biological Assessment analyzing the effects of the project on federally-listed threatened and endangered species will be conducted pursuant to Section 7 of the Endangered Species Act.

Environmental Consequences of the Alternative Action

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

Cumulative Impacts

In the Columbia River Basin ecosystem, biodiversity has been reduced by loss and fragmentation of native habitats, especially shrub/steppe habitat and dependant wildlife communities. Species dependent on shrub/steppe habitat, such as Columbian sharp-tailed grouse and pygmy rabbits, have declined dramatically in the region since conversion of steppe to agriculture land. WDFW has declared the shrub/steppe habitat type as a Priority Habitat and recognizes that preserving large tracts of high quality steppe habitat is important for maintaining populations of these species.

This project is unlikely to contribute to further biodiversity loss. The amount and quality of habitats lost due to access road widening, construction and maintenance of the new right-of-way, and other construction activities is relatively insignificant. Important vegetation corridors connecting key wildlife habitats, such as riparian zones and Urban Natural Opens Space areas, in most cases would not be substantially impacted by the project.

Mitigation

To reduce potential impacts to wildlife, mitigation to be implemented would include:

- Mark with bird flight diverters or remove the ground wire at the span crossing the Spokane River (structures 77/3 through 77/4) and where the line spans wetlands.
- Limit removal of large riparian trees at the Spokane River crossing.
- Limit the removal of forest habitat to only those trees that would directly interfere with transmission lines. Retain or create snags within the corridor at a density of at least 2 snags per 1 acre. This partially compensates for forest characteristics lost during tree removal.

- When possible, avoid construction activities within high-use native habitats, especially riparian, tall sagebrush, and dense pine forest habitats, during the breeding season (March 1 to August 15).

- Gate and lock access to the corridor, especially where the corridor crosses habitats heavily used by wildlife.

- Limit vehicular travel to access roads through sensitive habitat such as shrub/steppe.

- A Biological Assessment, as required under the Endangered Species Act, would be prepared that provides detailed actions to reduce or eliminate impacts on listed species, and BPA would implement any reasonable measures recommended the U.S. Fish and Wildlife Service to reduce or avoid impacts.

Environmental Consequences of the No Action Alternative

Current levels of disturbance to wildlife and wildlife habitat associated with ongoing maintenance activities for the existing transmission line, substations, and right-of-way would continue under the No Action Alternative. Activities could include vehicular traffic, transmission structure replacement, vegetation management activities, and access road improvements. Disturbances to wildlife from unauthorized human access within the corridor could also continue under this alternative. No new impacts to wildlife and wildlife habitat are expected under this alternative.

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