BELLEVUE CRITICAL AREAS UPDATE
WILDLIFE INVENTORY

March 2003

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1.0 INTRODUCTION

This inventory of Bellevue's wildlife habitat has been prepared to support an update of policies and regulations for the management of critical areas in the City. Wildlife habitat areas are one component of "fish and wildlife habitat conservation areas," a critical area defined by Washington's Growth Management Act. Fish and wildlife habitat conservation areas are defined as critical areas in Washington Administrative Code (WAC) 365-190-080 and include the following components:

- Areas that have a primary association with endangered, threatened, and sensitive species;
- Habitats for species of local importance;
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat;
- Waters of the state; and
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.

Streams and habitat for fish, including anadromous salmonids, are addressed in a separate stream inventory report. The remainder of this report describes inventory methodology and Bellevue's landscape and major habitat types, identifies "special status" species that are known to inhabit or may inhabit Bellevue, and describes habitat conditions in the City's five major drainage basins. The five watershed basins are:

- East Lake Washington Basin,
- Kelsey Creek Basin,
- West Lake Sammamish Basin,
- Lewis Creek, and
- Coal Creek.

2.0 METHODOLOGY

2.1 Review of Existing Documentation

The preparation of this report included review of several existing sources of documentation, review of agency databases and maps, and correspondence with agency resource staff. Four days of field reconnaissance were conducted to review wildlife habitat conditions and verify written documentation. The review of existing information included the following documents and information sources:

- City of Bellevue sensitive area maps (Sensitive Areas Notebook) and aerial photographs;

- City of Bellevue Park planning and management documents for Mercer Slough, Kelsey Creek, and Lake Hills Greenbelt Parks (wildlife lists in park documents are attached in Appendix WL-1);
- The Washington Department of Fish and Wildlife (WDFW) habitats and species database;
- Communications with WDFW staff (personal communications noted in text);
- The Washington Department of Natural Resources (WDNR) Natural Heritage Program database; and
- Communications and documentation from the East Lake Washington Audubon Society.

In addition, a graduate student, with faculty support from the University of Washington Department of Urban Design and Planning and affiliated departments, used high-resolution multi-spectral imagery to map vegetation types in the City. This land cover analysis was conducted as part of the University's Puget Sound Regional Synthesis Model (PRISM) program. The City will be explaining options for using this information, along with other sources, to show the current spatial distribution of habitat patches/core areas and linkages in the City.

2.2 Field Investigation

Wildlife habitat was evaluated in the field from public rights-of-way and on public land. A habitat data form developed to implement these methods was used in the field to document field observations (Appendix WL-2). Field surveys also included observations of threats to habitat and opportunities for improving habitat. Habitat assessment methods described in *Wildlife–Habitat Relationships in Oregon and Washington* (Johnson and O'Neil, 2001) were used to describe and evaluate common habitat types in the City. These methods were developed by the WDFW with input from a panel of regional wildlife experts and with information collected from more than 12,000 pertinent publications. Using this methodology, habitats were assessed at three levels of detail: wildlife habitat types, structural conditions, and habitat elements.

The term "wildlife habitat type" as referred to in this inventory and in Johnson and O'Neil (2001) generally describes vegetation cover types or land use/land cover types. Geographic distribution and physical setting-- including climate, elevation, soils, hydrology, geology, and topography-- determine vegetation cover types. Human activities determine other land use cover types such as urban and agricultural habitat types. Habitat types can also include areas of disturbance where grasses, forbs, shrubs, or tree saplings are the primary vegetation cover type. Wildlife habitat types, in turn, are directly related to wildlife species abundance and distribution.

Structural conditions refer to vegetation structure and are based on the characteristics of trees and shrubs including tree size, number of canopy layers, and canopy closure. Structural conditions in urban areas are shaped by land use cover type as indicated by variables such as the percent impervious surface in a watershed.

Habitat elements are described on a site-specific basis and include biological, physical, and anthropogenic features that influence wildlife species distribution, abundance, fitness, and viability. Common habitat elements in Bellevue include downed wood, tree snags, moss, leaf

litter, trails, hedgerows, street trees, ornamental landscaping, and roads. Habitat elements can have positive or negative effects on wildlife species.

Specific wildlife species and their associations with habitat types in Bellevue are listed in Appendix WL-3. In this wildlife-habitat association table, species are **closely associated** if the species depends on the habitat type for part or all of its life history. Species are **generally associated** if the species is adaptable and supported by a number of habitats, and a species is presumed to be **present** if it only occasionally uses the habitat type.

Figure WL-1, referenced throughout this document, includes locations of priority species in Bellevue and is located at the end of this report. This figure, along with photos referenced throughout the text, are provided in the Figures and Photos section at the end of this report.

3.0 LANDSCAPE SETTING

3.1 Pre-Urban Development Landscape

Bellevue's pre-settlement landscape consisted of mature forest dominated by western hemlock and other native coniferous and deciduous trees. This landscape matrix is depicted on historic (circa 1850) wildlife habitat maps (Scale 1:3,000,000) of Washington published by the Northwest Habitat Institute and WDFW (Johnson and O'Neil, 2001). In this pre-settlement landscape, the Kelsey Creek-Mercer Slough wetland system likely provided habitat to numerous freshwater and wetland-related plant and wildlife species. Numerous streams such as Lewis Creek, Coal Creek, and Yarrow Creek and their associated wetlands flowed through this native forest landscape, and along with smaller depressional wetland pockets contributed to habitat diversity, providing important breeding and foraging sites for native wildlife species. Variable topography including steep slopes further added to the array of microclimates and habitats available for native wildlife species.

Settlement started in Bellevue with timber harvesting and the conversion of upland forest and wetland habitats to agricultural uses including cropping, grazing, and berry farming. Based on this history and observed forest structure in Bellevue, it is evident that virtually all of the forests in Bellevue have been harvested at least once. Timber harvest generally resulted in a temporal loss of forests, while expanding agricultural activities resulted in the conversion of native forest and wetlands to developed grassland and other open habitats. This loss of native habitat fragmented the continuous forest habitat and reduced the number and diversity of native wildlife species in Bellevue.

3.2 Urban Development

Urban development in Bellevue has further reduced and fragmented native wildlife habitat, introduced non-native wildlife (e.g., rock dove, rat, eastern gray squirrel, fox, Virginia opossum), and added large amounts of impervious surfaces to the landscape matrix. Impervious surfaces can alter surface water hydrology, resulting in negative effects to streams and riparian habitat as

described in the stream inventory and best available science review. The numerous major roads that now dominate the landscape in Bellevue have also created barriers to wildlife movement, fragmented habitat, and facilitated the spread of non-native plant and animal species along rights-of-way. Other urban-related disturbances that can have negative effects on habitat and native wildlife species include:

- Locally warmer air and water temperatures;
- Increased artificial light;
- Major changes in wildlife food availability;
- Increased human activity (recreation, noise, landscaping, etc.); and
- Predation by household pets such as cats and dogs (Ferguson et al., 2001 *in* Johnson and O'Neil, 2001).

On a regional scale, wildlife habitats in the greater Puget Sound region have become fragmented by urban and agricultural developments since the 1800s. Habitat connections between Bellevue and the surrounding region have been lost. As a result, wildlife species that have large home ranges and require large, continuous tracts of habitat or wide, well-vegetated connections between larger habitat tracts have disappeared or become extremely rare in Bellevue. These species include several large mammal species such as black bear, cougar, and bobcat, and old-growth related species such as the spotted owl and marbled murrelet. As a general observation, native wildlife species diversity in the region has decreased with increasing urban development (Ferguson et al., 2001).

In Bellevue, the landscape matrix now consists largely of urban habitat, predominantly single-family residential and commercial development. However, large blocks of forest/wetland habitat remain in four of the five major basins and include habitat areas associated with Mercer Slough, Kelsey Creek, Coal Creek, Lewis Creek, and Weowna Park. Riparian corridors and associated wetlands in each of the five major basins provide valuable links between larger blocks of wetland and native upland forest, habitats on steep slopes, and habitat on private and public land. However, streams and riparian habitat are generally degraded in terms of water quality, base flow, channel morphology, vegetation cover, and woody debris (see Stream Inventory). Some isolated wetland habitats in the City have been filled during agricultural and urban development (see Section A, Wetland Inventory).

Due to the high level of disturbance to soil and vegetation in agricultural and urban habitats in Bellevue, these areas now support more "generalist" wildlife species compared to pre-settlement conditions. They are also more prone to invasion by non-native, invasive plant and animal species (Edge W.D., 2001; Ferguson et al., 2001 *in* Johnson and O'Neil, 2001). The term generalist refers to those species that can use a variety of vegetation cover types for breeding and foraging; they include native species such as the American robin, black-capped chickadee, and deer mouse. Generalists also include non-native species; non-native, invasive plant and animal species that are now common in Bellevue include Scot's broom, Himalayan blackberry, English ivy, European starling, house sparrow, domestic pigeon, Virginia opossum, Norway rat, black rat, and house mouse. As Bellevue has developed, some of these generalist species have likely

become more abundant, while most specialist native species (e.g., winter wren, red-legged frog, river otter) are less abundant.

4.0 WILDLIFE COVER TYPES AND ASSOCIATED WILDLIFE

Bellevue contains six major habitat types described by Johnson and O'Neil (2001). These six habitat types are:

- Westside lowland conifer/hardwood forest;
- Westside riparian areas/wetlands;
- Herbaceous wetlands;
- Open water;
- Agriculture, pasture and mixed environs; and
- Urban and mixed environs.

Each of these habitat types is discussed below.

4.1 Westside Lowland Conifer-Hardwood Forest

In pre-settlement times, westside lowland conifer-hardwood forest was the most common habitat type in the City of Bellevue. (The most common habitat type now in the City is urban and mixed environs.) Dominant trees in forest areas include Douglas fir, western hemlock, western red cedar, big leaf maple, red alder, and vine maple. Pacific madrone is common on the slopes above the West Lake Sammamish shoreline and in Robinswood Park. Common understory shrubs, herbs, and forbs include salmonberry, Indian plum, sword fern, salal, and Oregon grape. The understory of younger (sapling and small tree) forests is dominated by red alder, salmonberry, and Himalayan blackberry. Invasive, non-native plants that are common in forest areas include Himalayan blackberry, English ivy, and English holly.

The largest tracts of westside lowland conifer-hardwood forest habitat in Bellevue are found in City Parks, on steep slopes, and in ravines (Figure WL-1). Forest habitat on steep slopes is distributed mostly in the West Lake Sammamish, Coal Creek, Lewis Creek, and Kelsey Creek basins. These forested slopes are remnant patches of habitat that dominated the landscape matrix in this region in pre-settlement times (Johnson and O'Neil, 2001). Forested slopes in the City are valuable as they provide wildlife linkages, connecting other habitat types such as westside riparian-wetlands, herbaceous wetlands, and open water. In addition, this habitat type keeps slopes stable, preventing slope failure, soil erosion and subsequent surface water quality problems. When forest habitat is removed from steep slopes, expensive engineering solutions may be required to stabilize slopes because vegetation is no longer present to absorb runoff and hold soils in place.

As previously discussed, forest structural elements defined by (Johnson and O'Neil, 2001) include tree size, number of canopy layers, and canopy closure. Most forest areas surveyed for

this inventory in the City are characterized by medium-sized trees (15-19 inches diameter at breast height [dbh]), one to two canopy layers, and moderate canopy closure (40-69 %) (Photo FW-1). Habitat elements or features include snags, downed logs, stumps, moss and lichens, leaf litter, and dense shrub thickets. Adjacent streams, wetlands, and lakes are also considered habitat elements.

Wildlife species associated with and present in this habitat type include 83 birds (15 closely associated, 63 generally associated, and five present), 48 mammals (13 closely associated, 31 generally associated, and four present), 10 amphibians (two closely associated and eight generally associated), and six reptiles (all are generally associated). A complete list of these species is located in Appendix WL-3.

Common bird species observed in forest areas with medium trees, one to two canopy layers, and moderate canopy closure included black-capped chickadee, dark-eyed junco, song sparrow, golden-crowned kinglet, American robin, Northern flicker, pileated woodpecker, red-breasted nuthatch, spotted towhee, and bushtit. The only mammals observed during field surveys were two introduced species, European rabbit and eastern gray squirrel. These mammal species were observed at transitions between forest and urban and mixed environs habitats. Other mammals that are likely to be found in forest habitats include raccoon, opossum, black-tailed deer, coyote, mole, vole, rat, and mouse. Amphibians use upland forest for cover and dispersal and include Pacific treefrog, red-legged frog, northwestern salamander, long-toed salamander, and western red-backed salamander. Reptiles expected to use upland forest include rubber boa and northwestern and common garter snakes.

4.2 Westside Riparian-Wetlands

Westside riparian-wetlands in Bellevue include forested and scrub-shrub upland riparian areas and wetlands, most of which are associated with streams and lakeshores. Dominant plants in wetland-riparian areas include black cottonwood, red alder, willow species, Douglas spiraea, salmonberry, red osier dogwood, Himalayan blackberry and reed canarygrass. Westside riparian-wetlands provide habitat for most wildlife species that reside in or migrate through the City. Wildlife species abundance and diversity is higher in wetland-riparian areas than in other habitat types because these areas generally provide:

- Greater structural and plant diversity;
- More edge habitat (where two or more habitat types adjoin);
- More varied forage; and
- A predictable water source (Kauffman, et al., 2001 *in* Johnson and O'Neil, 2001; O'Connell et al., 2000).

Lists of wildlife observed in Mercer Slough, Kelsey Creek, and Lake Hill Greenbelt Parks are provided in Appendix WL-1. The two largest wetland complexes at Mercer Slough and Kelsey Creek Parks attract bird enthusiasts and are featured in birding publications such as the *Birder's Guide to Washington* (MacRae, 1995) (Figure WT-1, in Section A, Wetland Inventory). Refer to Section A, Wetland Inventory for additional discussion of wetlands.

Most of the forested and scrub-shrub wetlands in Bellevue are associated with large wetland complexes, such as Mercer Slough (Photo FW-2) and Kelsey Creek. Other riparian areas are associated with numerous streams including Coal Creek, Richards Creek, Valley Creek, Yarrow Creek, and Lewis Creek. These riparian areas extend across numerous private and public properties in Bellevue. The quality of these riparian areas varies from relatively undisturbed, high quality stream systems (e.g., Lewis Creek, Photo FW-3) to relatively confined and modified stream channels surrounded by non-native invasive riparian vegetation (e.g., Richards Creek, Photo FW-4). Wetland and riparian areas provide valuable connections between larger habitat areas throughout the City; for example, stream riparian corridors provide nearly continuous strips (although they may be narrow in places) of forest and shrub habitat between Lake Washington and Lake Sammamish. Structural conditions and habitat elements are similar to those described above for the westside lowland conifer-hardwood forest habitat, except that structural diversity is generally higher, surface water is present, and shrub thickets and red alder saplings are more prevalent.

Wildlife species associated with and present in this habitat type include 98 birds (26 closely associated, 66 generally associated, and six present), 48 mammals (15 closely associated, 29 generally associated, and four present), 10 amphibians (eight closely associated and two generally associated), and nine reptiles (two closely associated and seven generally associated). A complete list of these species is located in Appendix WL-3.

4.3 Herbaceous Wetlands

Most of the herbaceous wetlands in the City are part of larger wetland complexes in the Mercer Slough and Kelsey Creek Basins that also include open water, forest, and scrub-shrub habitats (Photo FW-5) (Figure WT-1 in Section A, Wetland Inventory). Dominant plants in these herbaceous wetland habitats include reed canarygrass, common cattail, creeping buttercup, soft rush, small fruited bulrush, and slough sedge. Vegetation is dense, providing valuable water quality treatment for urban surface water runoff. Large snags are sometimes present, providing nesting, roosting, and foraging opportunities for birds and bats. Closely associated wildlife species include red-winged blackbird, common yellowthroat, marsh wren, amphibian species, beaver, muskrat, river otter, mink, and weasel. Refer to Section A, Wetland Inventory, for additional information on these wetland complexes.

Wildlife species associated with and present in this habitat type include 84 birds (32 closely associated, 37 generally associated, and 15 present), 33 mammals (10 closely associated, 22 generally associated, and one present), seven amphibians (all are closely associated), and nine reptiles (eight closely associated and one generally associated). A complete list of these species is located in Appendix WL-3.

4.4 Open Water

Open water habitats include waters of the state (Lake Washington, Lake Sammamish, Phantom Lake), plus Larsen Lake, Lake Bellevue, and numerous smaller ponds associated with wetland complexes or designed as storm water detention basins (Figure WL-1). Most open water habitat

areas in Bellevue are surrounded by or are closely associated with herbaceous wetlands and westside riparian-wetlands (Photo FW-6). Open water with shoreline areas where several habitat types are interspersed attract a larger diversity of wildlife species than areas with uniform shorelines. Wildlife species that are closely associated with open water habitats in the City include waterfowl, heron, eagle, beaver, muskrat, amphibian species, and turtle species.

Wildlife species associated with and present in this habitat type include 64 birds (41 closely associated, 19 generally associated, and four present), 16 mammals (six closely associated and 10 generally associated), seven amphibians (all closely associated), and four reptiles (all closely associated). A complete list of these species is located in Appendix WL-3.

Ponds less than 20 acres in size include Larsen Lake and Lake Bellevue. Other ponds are associated with Mercer Slough, Richards Creek, Yarrow Creek, and Valley Creek, and a newly created pond in the Lake Hills Greenbelt west of 148th Avenue SE. Four other ponds are mapped by the National Wetland Inventory on private property; however, these ponds could not be viewed from public rights-of-way. With the exception of Lake Bellevue, the surveyed ponds were surrounded by herbaceous and woody vegetation. Commercial buildings surround Lake Bellevue; shoreline vegetation exists only where Sturtevant Creek flows from Lake Bellevue.

Lake Bellevue and Phantom Lake have not been planted with rainbow trout by WDFW since prior to 1995. Larsen Lake was planted with 225, 800, 350, and 250 rainbow trout in 1995, 1996, 1997, and 1998, respectively. These lakes have not been planted with trout in recent years due to budget cuts and the termination of one of WDFW's brood stocks (Jackson, email communication, 2002). Warm water game fish that breed in Phantom Lake, Larsen Lake, and Lake Bellevue include bass, bluegill, sunfish, yellow perch, and bullheads (Jackson, personal communication, 2002).

4.5 Agriculture, Pasture, and Mixed Environs

Agricultural areas are located in the Mercer Slough habitat area, Kelsey Creek Park, Lake Hills Greenbelt Park, and on smaller parcels of private land, such as those in the Yarrow Creek sub-basin. These agricultural areas include cultivated croplands, pastures, and blueberry farms (Photos FW-7 and FW-8). Habitat elements in agricultural areas include, but are not limited to seeds from herbaceous plants, berries from blueberry and other shrubs, scattered trees, farm buildings, and adjacent lakes, ponds, and streams. Common wildlife species include Canada goose, American crow, European starling, mallard, swallow species, bat, mole, vole, mouse, rat, and other species adapted to human modified landscapes. As previously discussed, agricultural areas generally provide habitat for generalist species and less habitat for specialist species.

Wildlife species associated with and present in this habitat type include 110 birds (24 closely associated, 54 generally associated, and 32 present), 44 mammals (seven closely associated, 25 generally associated, and 12 present), eight amphibians (five generally associated and three present), and nine reptiles (seven generally associated and two present). A complete list of these species is located in Appendix WL-3.

4.6 Urban and Mixed Environs

Urban and mixed environs include low (10-29%), medium (30-59%), and high-intensity (60-100%) areas of impervious surface. Medium-density, single-family lots (lot sizes less than 1 acre in size) cover most of Bellevue and are the dominant habitat type in the City (Photo FW-9). Large conifer trees provide structure and a scattered urban forest canopy in many medium-density neighborhoods.

High-density commercial and residential areas are concentrated in the downtown core and adjacent to major highways, especially I-90, I-5, and SR 520 (Photo FW-10). Even in high-density areas, wildlife species are attracted to landscaping islands for food and cover. Medium-density areas are interspersed with other habitat types and can function as upland forest or riparian-wetlands if enough habitat elements are provided in undeveloped lots or as part of site landscaping. Common wildlife species observed in urban and mixed environs included Stellar's jay, golden-crowned kinglet, American crow, seagull species, house sparrow, European starling, and Eastern gray squirrel.

Wildlife species associated with and present in this habitat type include 95 birds (six closely associated, 66 generally associated, and 23 present), 43 mammals (eight closely associated, 19 generally associated, and 16 present), eight amphibians (five generally associated and three present), and nine reptiles (seven generally associated and two present). A complete list of these species is located in Appendix WL-3.

5.0 WILDLIFE HABITAT ELEMENTS

5.1 Core Areas

Air photos were used to identify the main potential wildlife habitat core areas and linkages in the City based on land use patterns and landscape features such as streams, wetlands, vegetation patches, and shorelines.

Wildlife habitat core areas are more than 10 acres in size and contain native forest, riparian, wetland, and other native habitat types. The forest structural conditions and vegetation community diversity found in core areas provides habitat to a variety of native wildlife species. Anthropogenic features in core areas are generally limited to trails, minor access roads, and utility lines.

5.2 Linkages

Five potential wildlife habitat linkages were identified in the City. These linkages extend beyond the City limits along the Lake Washington and Lake Sammamish shorelines to habitat areas in cities north and south of Bellevue and to the Cougar Mountain Regional Park south of Bellevue. Other potential habitat linkages exist along several of the City's streams. These are narrow, crossed by roads, and have some vegetation gaps. The five potential linkages include:

- The Lake Washington shoreline;
- The Lake Sammamish shoreline;
- Mercer Slough/Kelsey Creek;
- Coal Creek; and
- Lewis Creek (Figure WL-1).

Habitat areas adjacent to the shorelines of Lake Sammamish and Lake Washington include open water habitat; discontinuous areas of herbaceous, shrub-scrub, and forested wetlands; single - family residential lots; and forested slopes. These habitat areas provide linkages for migrating anadromous fish, shorebirds, and waterfowl, as well as some raptors.

East-west oriented habitat linkages in Bellevue include large wetland complexes, forested riparian areas, and City parks. The width of these east-west linkages varies widely between approximately 25 feet and 2,500 feet; in some areas, these habitat linkages are broken by roads, urban development, or vegetation gaps. Re-connection of some of these linkages, particularly those separated by major roads or higher intensity development, may not be feasible. However, enhancement of native vegetation in areas between linkages could provide stronger connections between core habitat areas, particularly for songbirds. Some of these linkage areas serve as migration corridors for anadromous fish (see the stream inventory), while some provide habitat for native songbirds and for large and small mammals that may use the linkages to move between larger habitat patches.

Numerous shorter habitat linkages in the City include riparian areas associated with smaller streams. These riparian linkage areas are relatively narrow and are constrained in many places by urban development.

Specific linkage areas and constraints are discussed under each individual basin later in this report.

6.0 SPECIAL STATUS WILDLIFE SPECIES

Special status species include species designated by federal or state government agencies (USFWS, NMFS, and WDFW) as endangered, threatened, proposed, candidate, sensitive, and monitor species and species of local importance in King County. Special status species that may exist in the City are listed in Table 1. Up to 23 special status fish and wildlife species may exist in the City; 13 of these are breeders or resident species and 10 are migrants, are rare, or have likely been extirpated in the City. Of these 23 species, 9 birds are known breeders or resident species in Bellevue. These include:

- Red-tailed hawk,
- Osprey,
- Green heron,
- Purple martin,
- Vaux's Swift,
- Pileated woodpecker, and

- Great blue heron,
- Merlin,
- Eagle

The remaining species are migrants, are rare, or have likely been extirpated from the City. In addition to these individual species, heron rookeries and large concentrations of breeding or communally roosting bats are considered priority habitat areas by WDFW. Important breeding and foraging areas for special status species overlap but are generally concentrated in:

- The Lake Washington and the Mercer Slough area (heron species, bald eagle, osprey);
- In and along Kelsey Creek and other major streams (fish species, red-tailed hawk); and
- In large forest tracts in the Lewis Creek, Small Sammamish Lake Tributaries, and Coal Creek basins (pileated woodpecker, Vaux's swift, merlin, bats).

Special status species are discussed in the following paragraphs. Chinook and coho salmon are discussed in greater detail in the stream inventory. Following this discussion, specific habitat features/conditions are discussed for each of the City's five major basins.

6.1 Common Breeders and Resident Species

The **bald eagle** is listed as a federal and state threatened species. Bald eagle nesting and foraging habitat in the City is most prevalent along Lake Washington and Lake Sammamish. Bald eagles generally perch, roost, and build nests in mature trees near water bodies. They spot prey while soaring or from perches, preying on fish, small mammals, waterfowl, and carrion (Ehrlich et al., 1988). They breed in mid-to late winter, usually returning to one of several nests located within an established nesting territory (Stalmaster, 1987). Their home range can extend up to eight miles from the nest. Eggs laid in March or April hatch within one and a half months, and the young eagles fledge in mid-summer (August).

One bald eagle nest (active in 2000) is located in Bellevue in the Chism Park area near Lake Washington (WDFW, 2002) (Figure WL-1). Other bald eagle nesting territories also extend into Bellevue from nests located nearby on Mercer Island, Yarrow Bay, and near the north and east shores of Lake Sammamish (WDFW, 2002). These territories include wetland and forest habitats adjacent to the Lake Washington and Lake Sammamish shorelines, predominantly within one mile of the lakeshores.

The **pileated woodpecker** is a state candidate species. It excavates cavities in tree snags or live trees with dead wood at least 12 inches in diameter for roost and nest sites (Rodrick and Milner, 1991). Locating specific nest sites from year-to-year is difficult because they do not usually return to the same nest tree in successive years. Pileated woodpeckers forage on large snags (>20 inches), logs (>7 inches), and stumps, primarily in forests more than 40 years old. They will also forage in riparian hardwoods and immature forest stands (Rodrick and Milner, 1991).

Pileated woodpeckers are relatively common in the City. Pileated woodpeckers and their sign were observed by Adolfson in many forested areas of the City. Although no nests have been recorded in the documents reviewed for this report, it is very likely that this species does nest in forested habitat in Bellevue. Pileated woodpeckers are most likely to be found on forested slopes and riparian areas in Bellevue, especially where large tree snags, important for foraging and nesting, are abundant.

The **Vaux's swift** is a state candidate species that may be found foraging on flying insects in forested and open water habitats in the City. Vaux's swifts usually nest in dead snags, and sometimes in chimneys. Vaux's swift is common in Seattle and suitable habitat exists in City parks and residential areas (Smith et al., 1997). Although no nests have been recorded in Bellevue, Vaux's swift is likely to forage in shoreline areas in Bellevue and it may nest in wetland or upland forests where large tree snags are present.

The **purple martin** is a state candidate species. Purple martins forage on flying insects, and they nest in colonies in natural cavities or woodpecker holes in tall dead trees, in pilings, and in constructed nest boxes (Terres, 1995). Purple martin populations in Washington declined in the 1930s when starlings and house sparrows became prevalent and displaced martins from their nest colony sites. Over 40 purple martin colonies are now known to exist in Western Washington, and they have even been found in recent years nesting in tree snags that have been retained in newly cut areas (Tirhi, personal communication, 2000). Since the 1980s, purple martins have nested in boxes on remnant pilings from an old cedar mill along the northeast shoreline of Lake Sammamish (Hunn, 1982; WDFW, 2000). In 2000, two pairs of purple martins nested in two gourd nest boxes on a single piling at the north end of Lake Sammamish (Tirhi, personal communication, 2000). Although no nest sites are known to exist in Bellevue, opportunities exist for attracting purple martins to the East Lake Washington shoreline or Mercer Slough in Bellevue, especially if nest boxes can be positioned on existing pilings and monitored by the local Audubon Society (Tirhi, personal communication, 2002).

The **merlin** is a state candidate species. Though they are rare in Washington State, merlin have been sighted in the Bellevue area, most commonly in winter (Hunn, 1982; Smith et al., 1997; Thompson, personal communication, 2000). The merlin is a falcon that nests in tree cavities and in the old nests of crow, raven, hawk, etc. (Smith et al., 1997). They forage on a variety of bird, mammal, reptile, amphibian, and insect species (Terres, 1995). No known nest sites have been recorded in Bellevue.

The **river lamprey** is a state candidate species that occurs in Mercer Slough and in City streams. The Watershed Company (2001) found river lamprey in several Bellevue streams including Kelsey Creek, East Creek, Richards Creek, and Valley Creek. Adult river lamprey are parasitic on fish such as coho salmon. They spawn in stream riffles in sand and gravel substrates, and the young feed on algae and microscopic organisms in freshwater streams. They migrate to the Pacific Ocean and then return to fresh water to spawn (Wydoski and Whitney, 1979).

Table 1. Special Status species with past or present distribution in Bellevue[1]

Common Name	Scientific Name	Federal Status	State Status	Habitat Types					
				Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water	Agricultural, Pasture, and Mixed Environs	Urban and Mixed Environs
BIRDS									
Bald eagle	*Haliaeetus leucocephalus*	Threatened	Threatened	Generally associated	Generally associated	Generally associated	Closely associated	Generally associated	Generally associated
Peregrine falcon	*Falco peregrinus*	Species of Concern	Endangered	Generally associated	Generally associated	Generally associated	Generally associated	Present	Generally associated
Common loon	*Gavia immer*	N/A	Sensitive	NA	NA	Closely associated	Generally associated	NA	NA
Pileated woodpecker	*Dryocopus pileatus*	N/A	Candidate	Generally associated	Generally associated	NA	NA	Present	Generally associated
Vaux's swift	*Chaetura vauxi*	N/A	Candidate	Generally associated	Generally associated	Generally associated	Closely associated	Present	Generally associated
Merlin	*Falco columbarius*	N/A	Candidate	Generally associated	Generally associated	Present	Generally associated	Present	Generally associated
Purple martin	*Progne subis*	N/A	Candidate	Generally associated	Generally associated	Generally associated	Closely associated	Present	Generally associated
Western grebe	*Aechmophorus occidentalis*	N/A	Candidate	NA	NA	Closely associated	Closely associated	NA	NA
Great blue heron	*Ardea herodias*	N/A	Monitor	Generally associated	Closely associated	Closely associated	Closely associated	Closely associated	Generally associated
Osprey	*Pandion haliaetus*	N/A	Monitor	Generally associated	Generally associated	NA	Closely associated	Present	Generally associated
Green heron	*Butorides striatus*	N/A	Monitor		Closely associated	Closely associated	Generally associated	NA	NA
Red-tailed hawk[2]	*Buteo jamaicensis*	N/A		Generally associated	Generally associated	Generally associated	NA	Closely associated	Present
MAMMALS									
Western big-eared bat	*Plecotus townsendii*	Species of Concern	Candidate	Generally associated	Generally associated	Generally associated	Closely associated	Generally associated	Present

Common Name	Scientific Name	Federal Status	State Status	Habitat Types					
				Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water	Agricultural, Pasture, and Mixed Environs	Urban and Mixed Environs
MAMMALS (contd.)									
Western big-eared bat	*Plecotus townsendii*	Species of Concern	Candidate	Generally associated	Generally associated	Generally associated	Closely associated	Generally associated	Present
Keen's myotis	*Myotis keenii*	N/A	Candidate	Closely associated	Generally associated	Generally associated	Generally associated	NA	NA
Long-legged myotis	*Myotis volans*	N/A	Monitor	Generally associated	Generally associated	Generally associated	Generally associated	Present	Generally associated
Long-eared myotis	*Myotis evotis*	N/A	Monitor	Generally associated	Generally associated	Generally associated	Generally associated	Present	Generally associated
AMPHIBIANS									
Oregon spotted frog	*Rana pretiosa*	Candidate	Endangered	Present	Closely associated	Closely associated	Closely associated	Present	NA
Western toad	*Bufo boreas*	Species of Concern	Candidate	Generally associated	Closely associated	Closely associated	Closely associated	Present	Present
REPTILES									
Western pond turtle	*Clemmys marmorata*	Species of Concern	Endangered	Present	Closely associated	Closely associated	Closely associated	Present	Present
FISH [3]									
Chinook salmon (Puget Sound)	*Oncorhynchus tshawytscha*	Threatened	Candidate	NA	Closely associated	NA	Closely associated	NA	NA
Bull trout	*Salvelinus confluentus*	Threatened	Candidate	NA	Closely associated	NA	Closely associated	NA	NA
Coho salmon (Puget Sound)	*Oncorhynchus kisutch*	Candidate	N/A	NA	Closely associated	NA	Closely associated	NA	NA
River lamprey	*Lampetra ayresi*	Species of Concern	Candidate	NA	Closely associated	NA	Closely associated	NA	NA

1. Habitat association information from O'Neil, T A., et. al, Matrixes for Wildlife-Habitat Relationships in Oregon and Washington. Northwest Habitat Institute. 2001. In D.H. Johnson and T.A. O'Neil Wildlife-Habitat Relationships in Oregon and Washington. Oregon State University Press. Corvallis. Oregon. 2001.
2. Species of local importance in King County
3. Information obtained from National Marine Fisheries Service and United States Fish and Wildlife Service, not from Johnson and O'Neil (2001).

Closely Associated - A species is widely known to depend on a habitat for part of all of its life history requirements.
Generally Associated - A species exhibits a high degree of adaptability and may be supported by a number of habitats.
Present - A species demonstrates occasional use of a habitat.
NA - Not associated or present in this habitat type.
N/A - Not applicable

The **great blue heron** is a state monitor species. A great blue heron colony, consisting of 14 active nests in 2001, is located near the north end of the Mercer Slough wetland complex (WDFW, 2002) (Figure WL-1). Another colony was formerly located along the southeast shore of Phantom Lake in the 1980s (City of Bellevue, 1985). Great blue herons are a relatively common sight as they forage in wetlands and along the shorelines of ponds and lakes in Bellevue. Forests near heron foraging grounds are maturing in the City, providing suitable areas for heron rookeries now and in the future. WDFW recommends that important foraging areas within 2.5 miles of a colony, and alternative forest stands (at least 10 acres in size with dominant trees at least 56 feet in height) be identified and retained in the vicinity of an existing colony (Quinn and Milner, 1999).

The **green heron** is a state monitor species. Green herons have been observed and are likely to breed in Mercer Slough (City of Bellevue, 1990). The green heron feeds on small fish and invertebrates in shoreline areas. It is a colony nester, nesting near the shoreline in shrubs or trees (Terres, 1995).

The **osprey** is a state monitor species. Osprey forage nearly exclusively on fish and are closely associated with open water habitats. Osprey nest on trees, on utility poles, or on constructed platforms near water (Terres, 1995). Osprey nests are located along the East Lake Washington shoreline (WDFW, 2002) (Figure WL-1). An osprey nest positioned on a constructed platform at Meydenbauer Marina was active in 2001 (Thompson, personal communication, 2002). Another osprey nest is located south of Bellevue along the East Lake Washington shoreline near May Creek.

King County considers the **red-tailed hawk** to be a species of local importance. They are no longer considered a special status species by WDFW because their populations are rising (Smith et al., 1997), although they are protected at the state and federal level under the federal Migratory Bird Protection Act. Red-tailed hawks prefer a mix of forest and open grassland habitats. Habitat for red-tailed hawks exists mainly in Kelsey Creek Park, Mercer Slough Open Space, and Lake Hills Greenbelt Park where there is a mix of agricultural and forest habitats. Red-tailed hawks are known to nest in Kelsey Creek Park and near Phantom Lake (MacRae, 1995; Thompson, personal communication, 2002).

6.2 Migrants, Rare, or Extirpated Species

The **Oregon spotted frog** is a state endangered and federal candidate species. Historically, this frog was not abundant in the central Puget Sound Central region, and it has not been observed in this region in recent years (Richter and Azous, 2000). Only three populations are known to exist in Washington, one in the south Puget Sound lowlands, and two in the Cascade Mountain range in south-central Washington. Another 20 populations are known in Oregon and one in British Columbia (McAllister and Leonard, 1997). These frogs are pond-dwelling species that breed in emergent wetland vegetation (Leonard et al., 1993). Although wetland habitat for the Oregon spotted frog exists in the City, it is not likely to be found here due to this frog's low historical presence and subsequent decline in this region.

The **peregrine falcon** is a state endangered species that forages along Lake Washington (Thompson, personal communication, 2002). However, no breeding has been recorded in the City. Peregrines typically nest on cliffs and on tall buildings, such as the Washington Mutual Tower in downtown Seattle. They feed primarily on doves, domestic pigeons, songbirds, shorebirds, and waterfowl (Terres, 1995).

The **western pond turtle** is a state endangered species. Although the WDFW database includes several past sightings of western pond turtles along Lake Washington and Lake Sammamish, this species is now extremely rare in Washington State and WDFW reports that it is very unlikely that this species still exists here (WDFW, 2002; Thompson, personal communication, 2000). In Washington State, only two natural populations remain in the Columbia River Gorge, and western pond turtles have recently been reintroduced at one small pond complex in Pierce County. They are still relatively abundant in undisturbed pond habitats in northern California and southern Oregon (Hays et. al, 1999).

The **western grebe** is a state candidate species and a winter migrant in Bellevue. Western grebes are relatively common in Lake Washington, Lake Sammamish, and Mercer Slough, and smaller lakes in Bellevue where they forage on fish from October through April (Hunn, 1982).

The **western (or Townsend's) big-eared bat** is a state candidate species and a federal species of concern. Western big-eared bats depend on caves, mines, abandoned buildings, and bridges for breeding, roosting, and hibernation sites (Rodrick and Milner, 1991; Perkins and Levesque, 1987). They forage in nearby forests. Only a few breeding sites have been confirmed in Washington State (Rodrick and Milner, 1991). These bats may potentially roost in abandoned buildings in the City. There are no documented observations of this species in Bellevue.

Keens myotis is a state candidate species. The Keen's myotis has the smallest geographic range of any bat in North America, ranging from Northwest Washington and western British Columbia into Alaska. This bat is associated with forested areas and roosts in tree cavities and cliff crevices. Roost and foraging habitat for this species exists in Bellevue forests.. Though not a common bat, this species is listed as being present in the Puget Sound region by Bats Northwest (http://www.batsnorthwest.org/).

Long-eared myotis and **long-legged myotis** are state monitor species. These bats forage on insects in a variety of habitat types (they are present in all of Bellevue's habitat types), although they are commonly sighted foraging over forest openings and open water. These bats will roost beneath tree bark, in buildings, caves, or mines (Christy and West, 1993). According to Bats Northwest, these species are likely to be found in the Puget Sound area, including Bellevue.

The **western toad** is a state candidate species. The western toad is no longer common in the lowlands of western Washington (Leonard et. al, 1993). Western toads, if any remain in the City, would most likely be found near wetlands with seasonal or permanent ponds. Amphibian monitoring studies conducted as part of the Puget Sound Wetlands and Stormwater Management Program found only four localities with western toads in King and Snohomish County; none of these locations were in Bellevue. No toads have been sighted during ongoing monitoring efforts since 1989 (Richter and Azous, 2000).

The **common loon** is a state sensitive species. Common loon populations declined rapidly in Washington State between 1890 and 1925. This decline was likely the result of hunting. The common loon spends winters on lakes and along the coast, but it is a rare breeder with only 8 to 10 recorded nest sites during the last 10 years in Washington State (Richardson et al., 2000). Relatively undisturbed forest lakes of at least 50 acres in size with deep bays and inlets are the preferred habitat for the common loon. Common loons have been sighted in Mercer Slough and on Lake Washington and Lake Sammamish, but there are no breeding records for Bellevue (City of Bellevue, 1988; Thompson, personal communication, 2002). They have also been observed in the winter on Phantom Lake (City of Bellevue, 1985).

6.3 Federal Species of Concern

Several species listed as federal species of concern are also likely to be found in the City. These species may be designated in the future as endangered, threatened, or candidate if this is deemed necessary for sustaining these species at the federal level. Federal species of concern include the **willow flycatcher, olive-sided flycatcher, red-legged frog, Yuma myotis,** and **Pacific lamprey**. These species may occur in riparian, wetland, and forest habitats in the City. The willow flycatcher is likely to inhabit wetland complexes in Mercer Slough, Kelsey Creek, and Lake Hills Greenbelt areas. Red-legged frogs are relatively common in King County wetland systems (Richter and Ostergaard, 1999).

7.0 HABITAT CHARACTERIZATION AND CONSTRAINTS

Habitat types in each of Bellevue's five main drainage basins--Small Lake Washington Tributaries, Kelsey Creek/Mercer Slough, Small Lake Sammamish Tributaries, Lewis Creek, and Coal Creek -- are discussed below, along with constraints to their protection. Constraints are generally associated with existing and potential future urban development. Commercial and residential urban development can result in habitat loss, continued habitat fragmentation, an increase in impervious surfaces, and other effects detrimental to wildlife as described above in 3.0-Landscape Setting. On a site-specific level, urban development may directly impact wildlife by removing vegetation during clearing and grading. Other site-specific development impacts include increased light and noise, increased "edge" effects along adjacent habitat, and increased human intrusion into adjacent habitat areas.

7.1 East Lake Washington Basin

7.1.1 Description

The Lake Washington Tributaries basin includes the East Lake Washington shoreline, Yarrow Creek, several small tributary streams, and the slopes draining directly to the Lake. The basin is characterized by medium-density urban development, with high-density development in the north portion of the basin along SR 520 and in the west downtown area. A few relatively small tracts of westside lowland forest (small and medium size trees [10-19 inches dbh], single story, moderate canopy) and westside riparian-wetlands are located in this basin, especially associated

with streams and the shoreline at Newcastle Beach Park. Pastures are present near Yarrow Creek. Bald eagle and osprey nests are located near the shoreline in this basin (WDFW, 2002). The East Lake Washington shoreline provides important foraging habitat for many water-related species including several special status species (bald eagle, osprey, and others) (Figure WL-1).

Riparian habitats in the south portion of the City, in particular along unnamed stream 0281, are surrounded by less urban development and more forest habitat. Existing riparian buffers along stream 0281 vary from approximately 50 to 200 feet in width from the stream and appear to be the widest and most intact buffers in this basin.

7.1.2 Constraints

Threats to remaining westside lowland forest and riparian-wetland habitats in this basin include continued urban development on undeveloped land, especially in remaining forest habitat near the Lake Washington shoreline, along small tributary streams, and on forested slopes. The main constraint in this basin is that these remaining habitat areas are small and surrounded by urban development, limiting opportunities to create linkages between habitat areas. Water pollution from urban sites is also a concern, as much of the surface water runoff from these areas flows directly to Lake Washington with few opportunities for water quality treatment in wetlands or other low-gradient areas because of the close proximity of development to Lake Washington.

7.2 Kelsey Creek Basin

7.2.1 Description

Important wildlife habitat areas and linkages in the Kelsey Creek-Mercer Slough basin include the Mercer Slough and Kelsey Creek riparian-wetland complexes and the Richards Creek-Sunset Creek, Goff Creek, and Valley Creek riparian areas. Smaller blocks of westside lowland forest are scattered throughout the basin and are not well linked to larger habitat areas. Some forested slopes remain, though most are separated from riparian areas by major arterial roads, which constitute barriers to non-avian wildlife movement. The landscape matrix in this basin is medium-density urban, with more forested cover in the north portion, high-density urban (commercial district) in the central portion south of SR 520, and single family residential in the south portion of the basin.

Mercer Slough is considered by the U.S. Environmental Protection Agency to be a wetland of national importance, and it is considered a shoreline of state-wide significance by the state Shoreline Management Act. It is a regionally significant wetland, the largest wetland area in Bellevue, which provides habitat to a large number of species (likely the highest diversity of species in Bellevue), many of which are special status species (City of Bellevue, 1990).

The City has protected and manages, through park master planning and site-specific natural resource plans, the Kelsey Creek Community Park and the Lake Hills Greenbelt Park for public recreation. These parks, though linked by Kelsey Creek, are not well connected with vegetated habitat on private lands due to numerous roads, urban development, and a narrow vegetated riparian area. The parks consist of a mosaic of lowland forest, riparian-wetland, herbaceous

wetland (including farmed wetland pastures), open water, and agriculture (blueberry fields and grazed pastures). This mix of structurally diverse habitats provides potential breeding and foraging opportunities for many wildlife species, especially generalist species adapted to agricultural and urban environments.

7.2.2 Constraints

Westside riparian-wetland and other habitat areas in the Kelsey Creek/Mercer Slough basin are surrounded by urban development. Roads and urban development separate large habitat areas in this basin. Many of the riparian systems, including Kelsey Creek and its tributaries, have disturbed and altered stream channels that are negatively affected by a lack of large woody debris and native vegetation cover, altered stream hydrology, and water quality problems. Substantial portions of Sturtevant Creek, Goff Creek, Valley Creek, and Sears Creek have been piped (see Section C, Stream Inventory, for additional discussion).

The basin includes the largest riparian-wetland habitat area in Bellevue, as well as a landscape matrix of high and medium intensity urban development. Large amounts of impervious surfaces in the urban matrix increases surface water runoff, causing rapid and high water level fluctuations, especially in the smaller and more constrained portions of these riparian-wetland habitats. Examples of likely problem areas include riparian-wetland habitat associated with Valley Creek, Richards Creek, or constrained portions of Kelsey Creek. Rapid water level fluctuations can be detrimental to birds and amphibians breeding in or near shallow water areas. Continued urban development in remaining lowland forest and riparian-wetland areas and stormwater runoff from existing urban areas can also contribute to water quality problems and wildlife habitat loss or degradation in this basin.

Continued urban development decreases the amount of native wildlife habitat. In addition, human disturbances in habitat areas can increase the spread of nonnative invasive plants. Invasive non-native plants already established in Kelsey Creek Park include bamboo, Japanese knotweed, Scot's broom, reed canarygrass, and Himalayan blackberry. These species can rapidly supplant natives, decreasing populations of wildlife adapted to live in native habitats. Non-native invasive plants are continuing to displace native habitats in the Mercer Slough and Richards Creek riparian areas (see Section A, Wetlands Inventory, for additional discussion).

7.3 West Lake Sammamish Basin

7.3.1 Description

Although high quality wildlife habitat is present in the Small Lake Sammamish Tributaries basin, most of the basin, including the Lake Sammamish shoreline, is covered with medium-density urban development (single-family residences). Much of the remaining westside lowland forest is located on steep slopes in this basin. Some wildlife habitat areas in the basin are located along the Lake Sammamish shoreline, at Phantom Lake, in Weowna Park, and along Lake Sammamish tributary streams including Vasa Creek, Phantom Creek, Wilkins Creek, Idylwood Creek, and others. Although areas adjacent to the Lake Sammamish shoreline are developed with single family residences and the West Lake Sammamish Parkway separates the shoreline from other

habitat areas, the immediate lakeshore still provides some habitat for generalist waterfowl and songbird species.

The westside lowland forest habitat in Weowna Park contains larger (more than 20 inches in diameter) and older trees than in other forest areas in the City. Wildlife species closely associated with large trees, such as tree cavity nesters, are likely to be more abundant in these forest areas than in other younger forest areas. State candidate species including the pileated woodpecker and Vaux's swift and state candidate and monitor bat species are more likely to forage, breed, and roost in these older forests than in the younger forests found in other City basins.

Westside lowland forest and riparian-wetland habitat areas in Weonwa Park and at Phantom Lake are linked to the Kelsey Creek riparian-wetland area, and Lake Sammamish shoreline habitat below the ordinary high water mark (Figure WL-1). Westside riparian-wetland areas associated with the small tributary streams, though discontinuous due to major road crossings (I-90 and the West Lake Sammamish Parkway), provide habitat to a variety of native wildlife species.

7.3.2 Constraints

The main constraints on the remaining westside lowland forest and riparian-wetland habitats in this basin include existing and continued urban development near the West Lake Sammamish shoreline, small tributary riparian areas, and forested slopes. Continued (or additional) loss of habitats in this basin would reduce the native forest habitat that is available for state candidate and monitor species that depend on larger trees for nesting and roosting, such as the pileated woodpecker, Vaux's swift, and several bats.

As in other basins, many of the riparian areas cross through developed residential areas and beneath roads. The threat of stream bank failure due to high peak volumes of storm water runoff is high because many stream channels are located on steep slopes and in steep-sided ravines adjacent to urban developed areas. The City has measured high turbidity and suspended solids in stormwater samples in Phantom Creek and Wilkins Creek (Bellevue Utilities Department, 1995), indicating soil erosion and possible slope stability problems in the basin. Other threats such as water quality degradation and the spread of invasive plants are similar to those found in other basins.

7.4 Lewis Creek

7.4.1 Description

The Lewis Creek basin has a relatively low amount of impervious surfaces (28% of the basin) compared to other basins in Bellevue. The amount of impervious surfaces in a watershed basin is a key indicator of wildlife habitat quality and diversity and other important watershed functions (Arnold and Gibbons, 1996). Much of the remaining westside lowland forest in this basin is located on steep slopes. The Lewis Creek riparian area is forested and has a moderate amount of large woody debris (see Section C, Stream Inventory). The Lewis Creek tributary

streams link directly to an important regional habitat area, Cougar Mountain Regional Park, where the headwaters of Lewis Creek are located. These habitat links, like the other linkages in the City, are discontinuous due to urban development and roads.

The westside lowland forest habitat in Lakemont Park, like the habitat in Weonwa Park, contains larger (more than 20 inches in diameter) and older trees than in other forest areas in the City. Wildlife species closely associated with large trees, such as tree cavity nesters, are likely to be more abundant in these forest areas than in other younger forest areas. State candidate species including the pileated woodpecker and Vaux's swift and state candidate and monitor bat species are more likely to forage, breed, and roost in these older forests than in the younger forests.

7.4.2 Constraints

The main constraint on wildlife habitat in this basin, like in the other basins, is existing and continued urban development. Much of the remaining westside lowland forest is located on steep slopes where the forest vegetation is important for slope stability and maintaining proper hydrologic functions in addition to providing high quality wildlife habitat in this basin. The potential loss of forest habitat in this basin would not only reduce forest habitat available for state status species that depend on larger trees for nesting and roosting, but could also disrupt surface water hydrology and slope stability.

As in other basins, Lewis Creek and its tributary streams cross through developed residential areas and beneath roads. The threat of stream bank failure due to high peak volumes of storm water runoff is relatively high because stream channels are located on steep slopes and in steep sided ravines adjacent to urban developed areas. Other threats such as water quality degradation and the spread of invasive plants are similar to those found in other basins.

7.5 Coal Creek

7.5.1 Description

Major habitat areas in the Coal Creek basin are associated with Coal Creek and its tributaries. The Coal Creek riparian area is part of a major wildlife habitat area that extends from Lake Washington to Cougar Mountain Regional Park, a large wildlife habitat area with regional importance and connections to the Cascades. (Figure WL-1). Upstream of I-405, the Coal Creek riparian area and many of the Coal Creek tributaries are protected as parks and native growth protection areas. Native growth protection areas are conservation easements on private land or land dedicated to the public through the subdivision process to protect valuable natural resources such as steep slopes and riparian buffers and limit vegetation clearing, human use and development activities. However, downstream of I-405 and in stream headwater areas, urban development restricts the width of riparian habitat.

The main habitat types in the Coal Creek basin in order of prevalence are medium-density urban (single family residential), westside lowland forest, and westside riparian-wetlands. Forest structural conditions consist mostly of medium sized, single canopy, moderate canopy closure forests in the Coal Creek and tributary ravines.

7.5.2 Constraints

Constraints on remaining lowland forest and riparian-wetland habitats include urban encroachment and development in riparian areas and on forested slopes. The threat of stream bank failure due to high peak volumes of storm water runoff is relatively high because stream channels are located at the base of steep-sided ravines and on steep slopes surrounded by developed areas. Storm water detention facilities, such as the one at Forest Glen Park, could help to prevent stream bank and soil erosion and improve water quality. Although forest vegetation communities are largely dominated by native species, non-native invasive plants are invading forest edges along utility corridors and near trails, roads, and other developed areas, decreasing habitat for native wildlife.

8.0 DATA GAPS

Bird survey information is available for the Mercer Slough, Kelsey Creek, and Lake Hills Greenbelt areas. However, specific survey information for most of the special status species in Bellevue is not available. A variety of surveys, including a more comprehensive field survey of wildlife habitat, surveys for bats and other small mammals, amphibian and reptile surveys, and bird surveys in other areas could be conducted to give the City a more comprehensive and detailed view of Bellevue's wildlife inhabitants. These more detailed surveys could be particularly geared towards obtaining more information about special status species discussed in Section 4.1 of this report. New data could focus policy and regulations more specifically toward goals for protecting particular species. However, if the City's goal is to increase habitat quality for a wider variety of special status and other native wildlife species, then more generalized surveys of the structure and function of native wildlife habitat, rather than individual species, would be more appropriate. This information could be geared towards protecting large patches and linkages of westside lowland forest, westside riparian-wetlands, herbaceous wetlands, and open water habitats.

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10.0 GLOSSARY

Anthropogenic Of, relating to, or resulting from the influence of humans on nature.

Candidate species: a species being considered for listing as endangered or threatened species.

Linkage: a more or less continuous connection between landmasses or habitats; a migration route that allows more or less uninhibited migration of most of the animals of one faunal region to another. In terms of conservation biology, a connection between habitat fragments in a fragmented landscape.

Habitat type: place where an animal or plant normally lives, often characterized by a dominant plant form or physical characteristic.

Landscape matrix: the most concentrated portion of the landscape, that is, the vegetation type that is most contiguous.

Sensitive species: a species not formally listed as endangered or threatened, but considered to be at risk, as evidenced by: a significant current or predicted downward trend in population numbers or density; or a significant current or predicted downward trend in habitat capability that would reduce a species; existing distribution.

Special status species: species designated by federal or state government agencies (USFWS, NMFS, and WDFW) as endangered, threatened, proposed, candidate, sensitive, and monitor species and species of local importance in King County. Federal species of concern are not included in this definition of special status species.

State monitor species: those that require management, survey, or data emphasis for one or more of the following reasons:

a. The were classified as an endangered, threatened, or sensitive species within the previous five years.
b. They require a habitat of limited availability during some portion of their life cycle.
c. They are indicators of environmental quality
d. There are unresolved taxonomic questions that may affect their candidacy for listing as endangered, threatened, or sensitive species.

Threatened species: those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future.

11.0 ACRYONMS

dbh – diameter at breast height (generally measured 4.5 feet above the ground)

NMFS – National Marine Fisheries Service

PRISM – Puget Sound Regional Synthesis Model

USFWS – United States Fish and Wildlife Service

WDFW – Washington Department of Fish and Wildlife

WDNR – Washington Department of Natural Resources

PHOTOS AND FIGURES

Photo FW-1. Westside lowland conifer forest in Weowna Park (2-12-02).

Photo FW-2. Mercer Slough wetland complex (1-28-01).

Photo FW-3. Lewis Creek riparian area in Lakemont Park (2-12-02).

Photo FW-4. Richards Creek riparian area north of I-90 and east of Robinson Road (2-12-02.

Photo FW-5. Herbaceous wetland in the Lake Hills Greenbelt west of 148th Avenue SE (1-28-02).

Photo FW-6. Pond associated with Yarrow Creek (1-28-02).

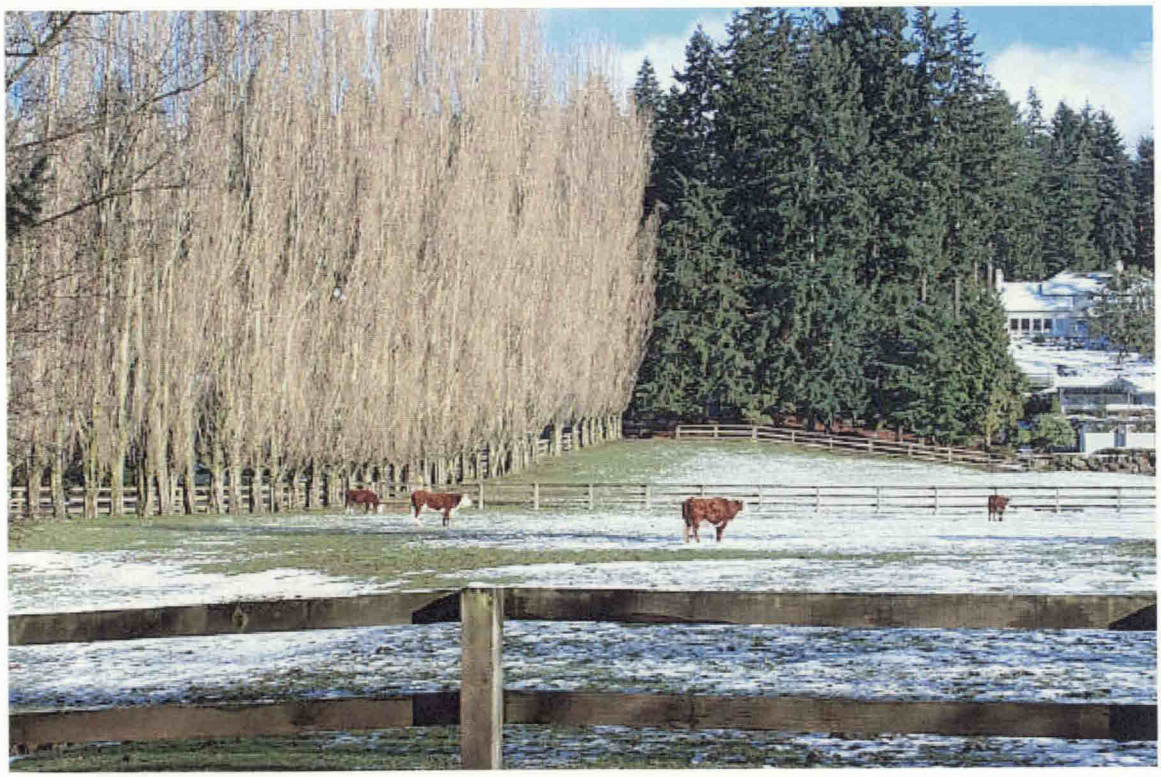

Photo FW-7. Pasture land adjacent to Yarrow Creek (1-28-02).

Photo FW-8. Blueberry farm adjacent to Larsen Lake (1-28-02).

Photo FW-9. Medium density residential area near Forest Glen Park (2-12-02).

Photo FW-10. Commercial lot north of I-90 and east of Richards Road (2-12-02).

APPENDIX WL-1: WILDLIFE LISTS FROM CITY DOCUMENTS

LIST OF AMPHIBIAN, REPTILE, AND FISH SPECIES THAT MAY OCCUR AT KELSEY CREEK PARK

Common Name	Scientific Name
Amphibians	
northwestern salamander	Ambystoma gracile
long-toed salamander	Ambystoma macrodactylum
Pacific giant salamander	Dicamptodon ensatus
ensatina	Ensatina eschscholtzi
western redback salamander	Plethodon vehiculum
roughskin newt	Taricha granulosa
western toad	Bufo boreas
Pacific treefrog	Hyla regilla
red-legged frog	Rana aurora
bull frog	Rana catesbeiana
spotted frog	Rana pretiosa
Reptiles	
western pond turtle	Clemmys marmorata
northern alligator lizard	Elgaria coerulea
rubber boa	Charina bottae
sharptail snake	Contia tenuis
western terrestrial garter snake	Thamnophis elegans
northwestern garter snake	Thamnophis ordinoides
common garter snake	Thamnophis sirtalis
Fish	
cutthroat trout	Salmo clarki
steelhead and rainbow trout	Salmo gairdneri
coho salmon	Oncorhynchus kisutch
Chinook salmon*	Oncorhynchus tshawytscha
redside shiner	Richardsonius balteatus
three-spine stickleback	Gasterosteus aculeatus
sculpin	Cottus spp.
brown bullhead	Ictalurus nebulosus
largescale sucker	Catostomus macrocheilus
western brook lamprey	Lampetra richardsoni
Pacific lamprey	Lampetra tridentata
longnose dace	Rhinichthys cataractae

* records from early 1970's, none currently in creek.

LIST OF BIRD SPECIES THAT MAY OCCUR SEASONALLY OR YEAR-ROUND AT KELSEY CREEK COMMUNITY PARK

Common Name	Scientific Name	Common	Uncommon	Migrant
Grebes				
pied-billed grebe	Podilymbus podiceps		•	
Herons and Bitterns				
American bittern	Botaurus lentiginosus		•	
great blue heron	Ardea herodias		•	
green-backed heron	Butorides striatus		•	
Waterfowl				
Canada goose	Branta canadensis	•		•
wood duck	Aix sponsa		•	•
green-winged teal	Anas crecca	•		•
cinnamon teal	Anas cyanoptera		•	•
mallard	Anas platyrhynchos	•		•
gadwall	Anas strepera	•		•
Eurasion wigeon	Anas penelope		•	•
American wigeon	Anas americana	•		•
common goldeneye	Bucephala clangula	•		•
bufflehead	Bucephala albeola	•		•
hooded merganser	Lophodytes cucullatus		•	•
ring necked duck	Aythya collaris		•	•
Vultures, Hawks, Eagles, and Falcons				
northern harrier	Circus cyaneus		•	
red-tailed hawk	Buteo jamaicensis	•		
American kestrel	Falco sparverius		•	
bald eagle	Haliaeetus leucocephalus		•	•
Grouse, Quail, and their Relations				
ruffed grouse	Bonasa umbellus	•		
ring-necked pheasant	Phasianus colchicus	•		
California quail	Callipepla californica	•		
Rails, Coots, and Cranes				
Virginia rail	Rallus limicola		•	
American coot	Fulica americana	•		
Shorebirds				
killdeer	Charadrius vociferus	•		
spotted sandpiper	Actitis macularia		•	•
common snipe	Gallinago gallinago		•	
lesser yellowlegs	Tringa flavipes		•	•
Gulls				
mew gull	Larus canus	•		•
glaucous-winged gull	Larus glaucescens	•		
Bonapart's gull	Larus philadelphia		•	
band-tailed pigeon	Columba fasciata		•	•
rock dove	Columba livia	•		

List (continued):

Common Name	Scientific Name	Common	Uncommon	Migrant
Owls				
barn owl	Tyto alba		•	
great-horned owl	Bubo virginianus		•	
western screech owl	Otus kennicottii		•	
Swifts				
black swift	Cypseloides niger		•	•
Hummingbirds				
rufous hummingbird	Selasphorus rufus	•		•
Kingfishers				
belted kingfisher	Ceryle alcyon		•	
Woodpeckers				
red-breasted sapsucker	Sphyrapicus ruber		•	
downy woodpecker	Picoides pubescens	•		
hairy woodpecker	Picoides villosus	•		
northern flicker	Colaptes auratus	•		
pileated woodpecker	Dryocopus pileatus		•	
Flycatchers and Horned Lark				
olive-sided flycatcher	Contopus borealis	•		•
western wood-pewee	Contopus sordidulus	•		•
willow flycatcher	Empidonax traillii	•		•
Hammond's flycatcher	Empidonax hammondii		•	•
western flycatcher	Empidonax difficilis		•	•
Swallows				
purple martin	Progne subis		•	•
tree swallow	Tachycineta bicolor	•		•
violet-green swallow	Tachycineta thalassina	•		•
cliff swallow	Hirundo pyrrhonota	•		•
barn swallow	Hirundo rustica	•		•
Crows, Jays, and Ravens				
Steller's jay	Cyanocitta cristata	•		
American crow	Corvus brachyrhynchos	•		
common raven	Corvus corax		•	
Chickadees, Nuthatches, etc.				
black-capped chickadee	Parus atricapillus	•		
chestnut-backed chickadee	Parus rufescens		•	
bushtit	Psaltriparus minimus	•		
red-breasted nuthatch	Sitta canadensis	•		
white-breasted nuthatch	Sitta carolinensis		•	
brown creeper	Certhia americana		•	
Wrens, Kinglets, Thrushes, and Near Relatives				
Bewick's wren	Thryomanes bewickii		•	
house wren	Troglodytes aedon	•		•

List (continued):

Common Name	Scientific Name	Common	Uncommon	Migrant
winter wren	Troglodytes troglodytes	•		
marsh wren	Cistothorus palustris	•		
American dipper	Cinclus mexicanus		•	
golden-crowned kinglet	Regulus satrapa	•		
ruby-crowned kinglet	Regulus calendula		•	
Townsend's solitaire	Myadestes townsendi		•	
Swainson's thrush	Catharus fuscescens	•		•
hermit thrush	Catharus guttatus	•		•
varied thrush	Ixoreus naevius	•		
American robin	Turdus migratorius	•		•
Pipits, Waxwings, and Starlings				
Bohemian waxwing	Bombycilla garrulus		•	•
cedar waxwing	Bombycilla cedrorum		•	
European starling	Sturnus vulgaris	•		
solitary vireo	Vireo solitarius		•	•
Vireo's, Wood Warblers, and Towhee's				
red-eyed vireo	Vireo olivaceus		•	•
orange-crowned warbler	Vermivora celata		•	•
yellow warbler	Dendroica petechia		•	•
yellow-rumped warbler	Dendroica coronata		•	•
black-throated gray warbler	Dendroica nigrescens		•	•
Townsend's warbler	Dendroica townsendi		•	•
MacGillivray's warbler	Oporornis tolmiei		•	•
common yellowthroat	Geothlypis trichas		•	•
Wilson's warbler	Wilsonia pusilla		•	•
western tanager	Piranga ludoviciana		•	•
black-headed grosbeak	Pheucticus melanocephalus		•	•
rufous-sided towhee	Pipilo erythrophthalmus	•		
Sparrows, Blackbirds, and Orioles				
chipping sparrow	Spizella passerina		•	•
savannah sparrow	Passerculus sandwichensis		•	•
fox sparrow	Passerella iliaca		•	•
song sparrow	Melospiza melodia	•		•
golden-crowned sparrow	Zonotrichia atricapilla		•	•
white-crowned sparrow	Zonotrichia leucophrys	•		•
dark-eyed junco	Junco hyemalis	•		
red-winged blackbird	Agelaius phoeniceus	•		•
Brewer's blackbird	Euphagus cyanocephalus		•	•
brown-headed cowbird	Molothrus ater	•		•

List (continued):

Common Name	Scientific Name	Common	Uncommon	Migrant
Finches, Grosbeaks, and House Sparrow				
rosy finch	Leucosticte arctoa		•	•
purple finch	Carpodacus purpureus		•	•
house finch	Carpodacus mexicanus	•		
red crossbill	Loxia curvirostra		•	
pine siskin	Carduelis pinus	•		
American goldfinch	Carduelis tristis	•		•
evening grosbeak	Coccothraustes vespertina		•	•
house sparrow	Passer domesticus	•		

LIST OF MAMMAL SPECIES THAT MAY OCCUR AT KELSEY CREEK PARK

Common Name	Scientific Name
Opossum	Didelphis marsupialis
masked shrew	Sorex cinereus
Merriam's shrew	Sorex merriami
Trowbridge's shrew	Sorex trowbridgii
vagrant shrew	Sorex vagrans
dusky shrew	Sorex obscurus
Pacific water shrew	Sorex bendirii
shrew-mole	Neurotrichus gibbsii
Townsend's mole	Scapanus townsendii
coast mole	Scapanus orarius
little brown myotis	Myotis lucifugus
long-eared myotis	Myotis evotis
California myotis	Myotis californicus
big brown bat	Eptesicus fuscus
hoary bat	Lasiurus cinereus
western big-eared bat	Plecotus townsendii
raccoon	Procyon lotor
shorttail weasel	Mustela erminea
longtail weasel	Mustela frenata
mink	Mustela vison
spotted skunk	Spilogale putorius
striped skunk	Mephitis mephitis
coyote	Canis latrans
mountain beaver	Aplodontia rufa
Townsend's chipmunk	Tamias townsendii
eastern gray squirrel	Sciurus carolinensis
deer mouse	Peromyscus maniculatus
forest deer mouse	Peromyscus oreas
redback vole	Clethrionomys gapperi
Townsend's vole	Microtus townsendii
longtail vole	Microtus longicaudus
Richardson's vole	Microtus richardsoni
Oregon vole	Microtus oregoni
muskrat	Ondatra zibethicus
Norway rat	Rattus norvegicus
house mouse	Mus musculus
Pacific jumping mouse	Zapus trinotatus
black-tailed deer	Odocoileus hemionus columbianus

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PLANTS AND ANIMALS

The following section was prepared from site visits, a review of existing literature, and personal communications with Washington Department of Game, Washington Department of Fisheries, and Bellevue Parks and Recreation Department staff members.

AFFECTED ENVIRONMENT

PLANTS

The Mercer Slough Study area is approximately 496 acres in size (including Bellefield Office Park). The vegetation within this area includes wetlands, open sloughs, agricultural fields, blueberry farms, forests, and a business park. Present vegetation communities are the result of a variety of activities. The lowering of the level of Lake Washington by nearly nine feet in 1916 established the basic hydrologic conditions which exist today. Much of the newly exposed area went into intensive agricultural development and today 33 acres still function as truck farms and blueberry farms. Wetlands are the predominant habitat type in the area. A variety of plant species are found in each habitat type.

The following lists various vegetation types found on the site:

Upland Vegetation Types:
- Forest-deciduous
- Forest-coniferous
- Forest-mixed
- Shrub
- Grassland
- Landscape
- Urban
- Disturbed

Wetland Habitat Types:
- Forested Swamp
- Shrub/scrub swamps
- Hardhack swamps
- Willow swamps
- Cultivated blueberries
- Emergent Marsh
- Wet Agriculture
- Open water

ANIMALS

Birds and Mammals

A total of 104 bird species and 24 mammals have been observed during several wildlife studies in the Mercer Slough Area. Observations have been identified and grouped into the seven habitat types mapped in the area. Over 70 species have been observed in the shrub and forested swamp habitats, and the riparian edge habitat of Mercer Slough. These communities support the greatest bird diversity due to the structural complexity of the vegetation. In addition, the edges where shrub or forested vegetation borders on open water are important for nesting and feeding by waterfowl.

Thirty species were observed in marsh habitats and 37 in the agricultural lands where they are able to forage over these habitats catching insects or preying on small mammals living in the grasses.

In forested areas, 58 species were observed. This represents a diverse group of both breeding and year-round resident birds which in these habitats. There are also seasonal spring-summer residents

some of which forage for insects through the limbs and leaves of forbs, shrubs, and trees in the forest community.

The diverse habitats found on the Bellefield Office Park support populations of 46 different species. There are open grassy areas, standing water, thick shrub/tree patches, marshes, swamp, and buildings. Most of the birds observed in the office park are adapted to human disturbance and development. The species observed in the marsh/swamp habitats are less adapted to human disturbance. There is a large number of waterfowl (23 species) that migrate or winter on open water habitats of Mercer Slough.

The area richer in wildlife than any other in the Mercer Slough study area are the ponds. A broad variety of birds and mammals are found here.

Of the mammal species observed most occurred in riparian and swamp habitats. Signs of beaver and muskrats occurred adjacent to the open water slough and drainage ditches. Coyote scats were observed throughout the Mercer Slough area along the trail system. Domestic cats and dogs, and norway rats were observed in the Bellefield Office Park. Eastern grey squirrels were seen in the upland forests.

Well protected open water provides important habitat along the migration corridor for waterfowl. Numbers and diversity of waterfowl are greatest in the winter. Marsh, shrub swamp, and tall grassy areas adjacent to open water provide suitable nesting habitat.

A number of raptors have been observed in the Mercer Slough Area, using both wetland and upland habitats while hunting for small birds and mammals. Red-tailed hawks, northern harriers, bald eagles, ospreys, great horned owls, and barn owls have been observed in the wetlands of undeveloped Mercer Slough Park.

Wetlands in the area typically have more structurally complex vegetation then the upland communities and support a diversity of passerine birds. Passerine birds are most diverse and abundant in mosaic areas where numerous habitat types, such as shrub swamps adjacent to open water, adjoin each other. The highest diversity probably occurs in late spring when both migratory and summer residents are present.

A variety of mammals are found in the study area. Furbearers such as deer, coyote, porcupine, opossum, beaver, muskrat, mink, long-tailed weasel, raccoon, red fox, skunks, and river otters are all recorded in the Slough area.

Coyotes, moles, voles, gophers, squirrels, skunk, mice, and rats use the agricultural land and uplands more frequently than the wetlands. Deciduous forests and agricultural lands contain leaf litter and organic matter to provide good foraging habitat for omnivorous and insectivorous small mammals. Coyotes occasionally hunt for these small mammals in the agriculture fields.

The bald eagle is on both the Federal and state Threatened Species Lists. Bald eagles have been observed occasionally in the mercer Slough Area. No nests have been located on the site nor are they expected. There are active nests located in the vicinity of Lake Washington, and bald eagles probably feed on fish in Mercer Slough.

The western pond turtle (Clemmys marmorata), a state threatened species, was recorded in Lake Washington in 1963. It is not known whether the western pond turtle still lives in Lake Washington. The shoreline area of Mercer Slough is considered possible habitat for the turtles. No other

threatened or endangered species are expected to use this site.

The green-backed heron, a monitor species, occur regularly in Mercer Slough, and are probably breeding within the vicinity. A pair of green-backed herons were observed at a pond and along the edge of the slough.

Fish

There are 40 species of fish in the Lake Washington drainage basin, which includes Mercer Slough and its tributaries, Mercer, Richards and Kelsey Creeks. There are 17 fish species which are reported to use the streams and drainage ditches as spawning, nursery or feeding habitat. The invertebrate community composition and abundance indicate an excellent feeding and spawning resource for spiny-ray game fish such as large-mouth bass, black crappie, pumpkinseed, and yellow perch.

A variety of anadromous salmonoids known to use the drainage basin. These species use the tributaries of the Slough primarily as spawning sites and to a lesser extent as nursery sites. The Slough itself is a transportation route for the in-migration of mature adult salmonoids and the out-migration of young salmonoids.

Amphibians and Reptiles

Some of the amphibians and reptiles are known to use the ponds, streams and lakes of the Lake Washington basin. Several of these species spend their entire life cycle in the aquatic environment. During their aquatic life stage, frogs, toads, and salamanders can be a food source for fish.

Macroinvertebrates

Aquatic macroinvertebrates observed at the site were damselflies, nymphal dragonflies, flies, and midges. Studies of the benthic communities reported several invertebrate organisms present which are considered potential biological indicator species of water quality. These species can be monitored to indicate changes in the quality of the aquatic environment over time. The species composition and diversity in the Slough area has been altered several times over the past years because of construction of various facilities along the Slough and its tributaries. The most noted change has been the increase in pollution and siltation tolerant species and the consequent decrease in pollution and siltation intolerant species. Recent studies, however, suggest an improvement in water quality and sediment conditions.

The overall aquatic species composition and diversity in the area is good. The benthic fauna is dominated by the mayflies, which are associated with high quality aquatic habitats; bloodworms are generally indicative of sedimentation; whereas blackflies, which are filter feeders, are usually associated with cold, clean streams.

SIGNIFICANT IMPACTS

This Master Plan is approached as a programmatic EIS, identifying development components but not specific actions or locations of those actions. Some actions will require further study, which have been identified and discussed in this document.

OBSERVED WILDLIFE SPECIES IN THE MERCER SLOUGH STUDY AREA

Species	Seasonality	Status	Habitat Types: Urban/ Commercial Park Area	Shrub and Forested Swamp	Marsh	Agriculture Lands	Deciduous Forest	Riparian/Edge of Mercer Slough	Open Water
BIRDS									
Loons									
Common loon	M	M							X
Grebes									
Pied-billed grebe	R	C			X			X	X
Eared grebe	M	U						X	X
Horned grebe	M	U							X
Western grebe	M	U							X
Cormorants									
Double-crested cormorant	M	U							X
Herons and Bitterns									
American bittern	R	R			X			X	
Great blue heron	R	C		X	X			X	
Green-backed heron	S	U		X				X	
Black-crowned night-heron	M	R		X	X			X	
Waterfowl									
White-fronted goose	M	R						X	C
Canada goose	R	A	X		X			X	C
Wood duck	S	R		X				X	C
Green-winged teal	M	A			X			X	C
Mallard	R	A	X	X	X	C		X	C
Northern pintail	W	U						X	C
Blue-winged teal	S	R	X		X			X	C
Cinnamon teal	S	R	X		X			X	C
Northern shoveler	M	C			X			X	C
Gadwall	W	U	X		X			X	C
American wigeon	W	C	X					X	C
Eurasian wigeon	W	R							C
Canvasback	M	R							C
Ring-necked duck	M	A							C
Greater scaup	M	U							C
Lesser scaup	M	C							C
Common goldeneye	M	C							C
Barrow's goldeneye	M	R							C
Bufflehead	M	C						X	C
Hooded merganser	W	U						X	C
Common merganser	W	U						X	C
Ruddy duck	M	U							C

Species	Seasonality	Status	Habitat Types: Urban/ Commercial Park Area	Shrub and Forested Swamp	Marsh	Agriculture Lands	Deciduous Forest	Riparian/Edge of Mercer Slough	Open Water
Vultures, Hawks, Eagles, and Falcons									
Osprey	S	R						X	
Bald eagle	W	R						X	
Northern harrier	R	U			X	X			
Sharp-shinned hawk	W	R	X	X			X		
Cooper's hawk	M	R					X		
Northern goshawk	M	R		X					
Red-tailed hawk	R	C		X	X	X	X		
American kestrel	S	U		X		X			
Merlin	W	R		X		X			
Grouse, Quail, and their Relations									
Ring-necked pheasant	R	U	X	X	X	X			
California quail	R	C	X	X		X		X	
Rails, Coots, and Cranes									
Virginia rail	R	R			X			X	
American coot	R	C	X		X			X	X
Sora	M	C			X				
Shorebirds									
Killdeer	R	C	X		X	X			
Common snipe	M	C			X				
Gulls									
Mew gull	W	U	X						
Herring gull	W	U	X						X
Glaucous-winged gull	W	U	X						X
Ring-billed gull	W	U	X					X	X
Pigeons and Doves									
Rock dove	R	C	X						
Band-tailed pigeon	S	C	X	X		X	X		
Mourning dove	S	R		X		X			
Owls									
Common barn owl	R	U		X		X			
Western screech owl	R	U		X			X		
Great horned owl	R	U		X					
Northern saw-whet owl	R	U		X	X				
Hummingbirds									
Rufous hummingbird	S	R		X				X	
Kingfisher									
Belted kingfisher	R	C						X	X
Woodpeckers									
Downy woodpecker	R	C	X	X			X	X	
Hairy woodpecker	R	U		X			X		
Northern flicker	R	C		X			X		
Pileated woodpecker	R	R		X			X		

Species	Seasonality	Status	Habitat Types: Urban/ Commercial Park Area	Shrub and Forested Swamp	Marsh	Agriculture Lands	Deciduous Forest	Riparian/Edge of Mercer Slough	Open Water
Flycatchers									
Olive-sided flycatcher	S	U	X	X			X		
Willow flycatcher	S	U		X			X		
Hammond's flycatcher	S	U	X	X				X	
Swallows									
Tree swallow	S	U		X					
Violet-green swallow	S	C	X	X	X	X		X	X
Cliff swallow	S	C			X	X		X	X
Barn swallow	S	C	X			X		X	X
Crows, Jays, and Ravens									
Steller's jay	R	C	X	X			X	X	
Common crow	R	A	X	X	X	X	X	X	
Common raven	R	U		X			X		
Chickadees, Nuthatches, etc.									
Black-capped chickadee	R	C	X	X			X	X	
Chestnut-backed chickadee	R	C	X	X			X	X	
Bushtit	R	C	X	X			X	X	
Red-breasted nuthatch	R	U					X	X	
Wrens, Kinglets, Thrushes, and Near Relatives									
Bewick's wren	R	C		X			X	X	
Marsh wren	R	U		X	X			X	
Golden-crowned kinglet	R	C		X				X	
Ruby-crowned kinglet	W	C	X	X			X	X	
Swainson's thrush	S	U	X	X			X	X	
American robin	R	A	X	X	X	X	X	X	
Varied thrush	W	U					X		
Waxwings and Starlings									
Cedar waxwing	M	C	X	X		X	X	X	
European starling	R	A	X	X	X	X	X	X	
Vireos, Wood Warblers, and Towhees									
Vireo sp.	S	U					X	X	
Yellow warbler	S	U	X					X	
Yellow-rumped warbler	S	U	X				X		
Black-throated grey warbler	S	U	X	X					
Orange-crowned warbler	S	U		X					
Common yellowthroat	S	C	X			X	X	X	
Wilson's warbler	S	U		X			X	X	
Western tanager	S	U					X		
Rufous-sided towhee	R	C	X	X			X	X	

Species	Seasonality	Status	Habitat Types: Urban/ Commercial Park Area	Shrub and Forested Swamp	Marsh	Agriculture Lands	Deciduous Forest	Riparian/Edge of Mercer Slough	Open Water
Sparrows, Blackbirds, and Orioles									
Savannah sparrow	S	U	X			X			
Song sparrow	R	A	X	X	X	X	X	X	
Golden-crowned sparrow	W	C	X						
Dark-eyed junco	R	C	X	X		X	X	X	
Red-winged blackbird	R	C	X	X	X	X		X	
Brewer's blackbird	S	C				X			
Brown-headed cowbird	S	C				X		X	
Northern oriole	S	U						X	
Finches, Grosbeaks, and House Sparrow									
House finch	R	C	X						
Purple finch	R	U	X						
Pine siskin	R	U		X			X		
American goldfinch	R	C	X	X				X	
Evening grosbeak	R	U					X	X	
Black-headed grosbeak	S	R	X	X			X	X	
House sparrow	R	A	X			X			
MAMMALS									
Marsupials									
Common opossum	A	U		X		X			
Insectivores									
Shrew sp.	R	C		X	X	X	X		
Bat									
Bat spp.				X		X	X		
Lagomorphs									
Eastern cottontail	R	C	X	X		X			
Rodents									
Mountain beaver	R	C					X		
Douglas squirrel	R	C	X	X			X	X	
Eastern gray squirrel	R	C	X				X		
Beaver	R	U		X	X		X	X	X
Deer mouse	R	C		X			X		
Townsend vole	R	C			X	X			
Muskrat	R	U		X				X	X
Norway rat	R	C	X			X			
House mouse	R	C	X			X			
Pacific jumping mouse	R	U		F					
Porcupine	R	R		?			X		

Species	Seasonality	Status	Habitat Types: Urban/ Commercial Park Area	Shrub and Forested Swamp	Marsh	Agriculture Lands	Deciduous Forest	Riparian/Edge of Mercer Slough	Open Water
Carnivores									
Raccoon	R	A		X			X	X	
Longtail weasel	R	U		X			X		
Mink	R	U		X				X	
Striped skunk	R	A		X			X		
Coyote	R	U		X	X	X	X	X	
Red fox	R	R		X					
Domestic cat		U	X	X		X	X		
Domestic dog		U	X	X		X	X		
Muskrat	R	C						X	X
Ungulates									
Black-tailed deer	R	A		X			X		
AMPHIBIANS AND REPTILES									
Garter snake spp.	R	A	X	X	X	X	X	X	X
Pacific tree frog	R	A		X	X			X	X

NOTES

Seasonality

R - Residents: present all year, although abundance may vary seasonally; presumed to also breed in area.
S - Summer: visitor only (includes spring and fall); presumed to also breed in area
M - Migrant: spring and fall only.
W - Winter - winter visitor only (includes spring and fall).

General Status in its Range

A - Abundant: very likely to be seen in large numbers every time by a person visiting its habitat at the proper season.
C - Common: may be seen most of the time or in smaller numbers under the same circumstances.
U - Uncommon: may be seen quite regularly in small numbers in the appropriate environment and season.
R - Rare: occupies only a small percentage of its preferred habitat or occupies a very specific limited habitat; it is usually found only by an experienced observer.

Sources: Ken Knecke, 1981; Rex Van Werner, 1985; Roger Moesterey, Bellevue Parks and Recreation Department, 1985; Dorothy Milligan, 1985; Dan Nelson, [illegible] Hill, 1986; Dennis Paulson, Jones & Jones, 1986; and Tina Miller, Shapiro and Associates, Inc., 1986.

APPENDIX H

FISH, AMPHIBIANS AND REPTIALS OF THE MERCER SLOUGH AREA

Ted Muller
Washington Department of Game
1985

FISH SPECIES OF THE MERCER SLOUGH AREA

Common Name	Scientific Name	Occurence	Habitat
Western brook lamprey	Lampreta richardsoni	C	S*
Pacific lamprey	Entosphenus tridentatus	U	L,S*
Rainbow trout, steelhead	Salmo gairdneri	C	L,S*
Cutthroat trout	Salmo clarki	C	L,S*
Pink salmon	Oncorhynchus gorbuscha	U	L,S*
Coho salmon	Oncorhynchus kisutch	C	L,S*
Chinook salmon	Oncorhynchus tshawytscha	C	L,S*
Sockey salmon	Oncorhynchus nerka	C	L*,S*
Chum salmon	Oncorhynchus keta	U	L,S*
Longfin smelt	Spirinchus thaleichthys	C	L,S*
Chiselmouth	Acrocheilus alutaceus	C	L,S*
Peamouth	Mylocheilus caurinus	C	L,S*
Northern squawfish	Ptychocheilus oregonensis	C	L,S*
Longnose dace	Rhinichthys cataractae	C	L,S*
Speckled dace	Rhinichthys osculus	C	S*,1
Largescale sucker	Catastomus macrocheilus	C	L,S*
Three-spine stickleback	Gasterosteus aculeatus	C	S,L*
Coast range sculpin	Cottus confuscus	C	1,S*
Shorthead sculpin	Cottus asper	C	1,S*

C = Common
U = Uncommon
R = Rare
ER = Extremely Rare

L,1 = Lake
S,s = Stream

S-L = Principal Habitat
s-1 = Secondary Habitat
* = Spawning Habitat

AMPHIBIANS AND REPTILES OF THE LAKE WASHINGTON BASIN

Common Name	Scientific Name	Principal Habitat*
Northwest salamander	Ambystoma gracile	P,L
Long-toed salamander	Ambystoma macrodactylum	P,L
Tiger salamander	Ambystoma tigrinum	P,L
Pacific giant salamander	Ambystoma tigrinum	P,L
Dunn's salamander	Plethodon vandykei	P,L
Roughskin newt	Taricha granulosa	P,L
Tailed frog	Ascaphus truei	S
Western toad	Bufo boreas	P,L
Pacific treefrog	Hyla regilla	P,L,S
Red-legged frog	Rana aurora	P,L
Common garter snake	Thamnophis sirtalis	(**)
Northwestern garter snake	Thamnophis ordinaoides	(**)

*Refers to the aquatic life stage. (Several species spend their entire life in the aquatic environment.) Frogs, toads, and salamanders can be prey species (of fish) during their aquatic life stage.

**The garter snakes reproduce on land but can swim very well and actively prey upon fish.

P = Pond L = Lake S = Stream

Table 4 Wildlife Observed In and Around Lake Hills Greenbelt

Type	Species	Notes on Habitat Preference	Occurance in Local Area
BIRDS			
Loons	Common Loon	Occasionally winters at Phantom Lake: feeds on suckers, perch, crappies, bullheads, etc.	Common in King County during Sept.-May, less common on freshwater.
Grebes	Pied Billed Grebe	On Phantom Lake, possibly Larsen Lake: feeds on carp, catfish, nyaphs, snails, frogs etc. Usually nests along ponds with such emergent vegetation. May nest on Phantom Lake.	Common, often seen, resident on freshwater lakes in King County, but at times, one of the shyest of grebes.
Cormorants	Double Crested Cormorant	Phantom Lake: feeds on crappie, perch, etc. Usually dives from surface of water to depths of 5 to 25 feet.	Common in King County, September to May
Herons	Great Blue Heron	Feeds on Larsen and Phanton Lakes and possibly wet meadows: frogs, fish, snakes, shrews, grasshoppers, mice. Fishes by night and day, most active just before dusk and dawn. Nests in colony (rookery) in large fir tree on private property at southeast shore of Phantom Lake: 1 of 18 recorded rookeries in Western Washington. May be as many as 6 nests in a season. April 1 is mean breeding date, usually 4 eggs laid March to May, eggs incubated about 28 days. Young abandon nest 61-91 days after hatching.	Common visitor in King County Area in fresh and salt water
	Green Heron	Larsen and Phantom Lakes	Uncommon or irregular visitor to King County Area.
Swans, geese, ducks	Whistling Swan	Phantom Lake	Rare or uncommon visitor in King County area.
	Trumpeter Swan	Rare visitor to Phantom Lake.	Highly unusual visitor to King County

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Canada Goose	Larsen and Phantom Lake and possibly wet meadows: grazers, feed on grasses, clovers, cattails. Nests on elevated areas, will nest in human-made nesting boxes. Eggs laid in early March, incubate 28-30 days. Within 24 hours of hatching, goslings leave nest for safety of open water. 3 pairs with goslings sighted on Phantom Lake this spring.	Common resident in King County.
	Lesser (or cackling) Canada Goose	Phantom Lake	Uncommon visitor in King County Area.
	Mallard	Throughout site, feeding and nesting along lakes, ditches and large pools of water.	Abundant resident of King County
	Gadwall	Larsen and Phantom Lakes: dabbles for vegetation in shallows.	Common resident and winter visitor in Union Bay area of Lake Washington, less common in summer.
	Green-winged Teal	Larsen and Phantom Lakes: dabbles in shallows for insects, crustaceans, plants: will go upland to feed	Abundant on freshwater lakes and in King County in winter, less common in summer.
	Blue-winged Teal	Phantom and Larsen Lakes. Skims water with bill or reaches down with head and neck to feed on favorite plant foods such as seeds of sedges, pondweeds, grasses, etc.	Uncommon to rare winter visitor or resident in King County.
	Cinnamon Teal	Phantom and Larsen Lakes. Feeds similar to Blue-winged Teal	Uncommon winter visitor and resident in King County
	American Wigeon	Phantom and Larsen Lakes and wet meadows: dabbles in shallows for vegetation, grazes in meadows.	Abundant winter visitor in King County.
	Shoveler	Phantom Lake, perhaps Larsen Lake: dabbles for food in shallows.	Common winter visitor on freshwater in King County.
	Ring-necked Duck	Phantom and perhaps Larsen Lake: dives for aquatic plants.	Uncommon winter or fall visitor in King County
	Canvasback	Phantom Lake: Feeds on roots, tubers and basal parts of underwater plants; also eats some aquatic insects, and fishes	Common winter visitor to King County, extremely wary

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Bufflehead	Phantom, possibly Larsen Lake: dives for aquatic insects, crustaceans and plants.	Abundant winter visitor to King county on freshwater lakes.
	Ruddy Duck	Phantom Lake: Dives for aquatic plants and some larvae and insects.	Common winter visitor to King County
	Common Merganser	Phantom Lake: dives for fish.	Common winter visitor in open water areas of King County, shy.
	Hooded Merganser	Phantom Lake: dives for fish.	Uncommon to common winter visitor to King County, prefers sheltered areas.
Hawks, Kites, Harriers, Eagles	Sharp-shinned Hawk	Throughout Greenbelt: Feeds mostly on small birds	Common winter visitor, uncommon resident in King County area.
	Cooper's Hawk	Throughout Greenbelt, especially wooded areas. Feeds on small mammels and birds. When nesting, does not tolerate Sharp-shinned Hawks in the same area.	Common to uncommon visitor and resident in wooded areas of King County.
	Red-tailed Hawk	Roost and nest in thick conifers, perch in deciduous trees; feeds on mice, small birds, reptiles in grass, shrub-scrub areas. Nests in tall trees, one or two nesting pairs in Lake Hills Greenbelt and around Phantom Lake.	Common resident in King County.
	Bald Eagle	Roosts in large trees.	Uncommon or rare winter visitor to King County. Rare visitor in urban areas of King County.
Ospreys	Osprey	Phantom Lake: perches overlooking lake or flies over water, then plunges for fish.	
Quails, Partridge, Pheasants	Bobwhite	Released by resident on Phantom Lake	
	California Quail	Nests and feeds in meadows, shrub-scrub areas, agricultural wetlands.	Common resident in King County: Well adapted to urban environment.
	Ring-necked Pheasant	Nests and feeds in meadows, shrub-scrub areas, and agricultural wetlands.	Common resident in King County.
Rails, Gallinules and Coots	American Coot	Phantom and perhaps Larsen Lake: dabbles in shallows or dives in deeper water for vegetation. Nests in marsh/cattail areas.	Abundant to common winter visitor and resident in King County.

Type	Species	Notes on Habitat Preference	Occurance in Local Area
Plovers, Turnstones, & Surfbirds	Killdeer	Throughout Greenbelt on lakeshores, in meadows, agricultural wetlands, parking lots and at the shoulders of roads. Eats insects from ground. Nests in slight depression on ground, lined with pebbles, grasses.	Common resident in King County
Snipe, Sandpipers	Common Snipe	Meadows and at edges of lakes, waterways. Feeds on insects, larvae, etc. by plunging beak into soft earth or mud.	Common winter resident in King County.
Gull	Unidentified Species	Phantom Lake, Larsen Lake, Truck Farms	Common to region.
Pigeons and Doves	Band-tailed Pigeon	Forested Wetlands, Nests in branches in timbered areas 8'-40' from ground. 1-2 dozen nesting in woods around Phantom Lake.	Uncommon summer resident in timbered areas of King County.
Owls	Screech Owl	Meadows, Forested Wetlands. Hunts primarily small rodents and insects over meadows and treetops soon after dusk. Nests in natural cavities in trees, hollow stumps and abandoned nesting holes.	Common resident in King County.
	Great Horned Owl	Forested Wetlands, Roosts during day in thick tops of evergreen trees. Uses old nests of herons or hawks in trees, potholes or even the ground. Tolerates a wide range of habitats from forests to open country.	Uncommon resident in King County.
Hummingbirds	Anna's Hummingbird	Urban areas, Forested wetlands, shrub-scrub. Feeds from blossoms, at hummingbird feeders, and eats insects.	Formerly uncommon summer visitor to King County, now more common.
	Rufous Hummingbird	Forested Wetlands, Scrub-Shrub, Urban. Prefers forest edges, flowering plants. Feeds off of flower nectar and tree sap. Nests in trees and large shrubs.	Common summer resident
Kingfishers	Belted Kingfisher	Phantom Lake and Larsen Lake. Perches above water to watch for then dive after small fish. Nests in burrows dug in banks. (may be quite far away from water).	Common resident in King County.

Type	Species	Notes on Habitat Preference	Occurance in Local Area
Woodpecker	Common Flicker	Evergreen and Deciduous Forested Wetlands and Urban. Nests in excavation in tree, post, building. Often feeds on the ground: insects and berries.	Common resident in lowland areas of King County.
	Pileated Woodpecker	Evergreen and Deciduous Forested Wetlands. Nests in holes excavated in dead trees or on dead branches in living trees. Feeds on insects in wood and on ground. Also on some vegetation.	Common resident in densely timbered areas of King County.
	Hairy Woodpecker	Evergreen and Deciduous Forested Wetlands. Feeds primarily on larvae of wood borers. Nests mostly in cavity excavated in dead or dying branches of living trees.	Uncommon resident of timbered areas of King County. Shyer than downy woodpecker - usually hides or flies away from human intruder.
	Downy Woodpecker	Evergreen and Deciduous Forested Wetlands and Urban. Nests in dead stubs of trees. Feeds on insects found in wood and some vegetation.	Common resident of wooded areas of King County.
Swallow	Violet-Green Swallow	Widespread habitat when foraging - nests in wooded and urban areas in a hole in trees, buildings and bird boxes. Often perches on utility wires. Feeds on insects in flight.	Common summer resident from March-Sept. in lowlands of King County.
	Barn Swallow	Open or semi-wooded and agricultural areas with water present. Feeds on insects in flight, often following farmers at plowing time to catch insects stirred up.	Common summer resident in April - early Oct. near water in King County.
Jays, Magpies, Crows	Steller's Jay	Evergreen Forested Wetland. Nests in crotch or limb of evergreen tree. Forages in treetops and on ground for pine seeds, acorns, berries and insects.	Common resident of wooded areas in King County. Bold around picnic grounds but shy in open woods.
	Common Crow	Throughout Greenbelt. Feeds on just about anything including nestlings of other birds and carrion. Nests in trees.	Common to abundant resident of King County

Type	Species	Notes on Habitat Preference	Occurance in Local Area
Titmice, Verdins, and Bushtits	Black-capped Chickadee	Evergreen Forested Wetland, Deciduous Forested Wetlands and scrub-shrub areas. Nests in rotting stump or tree. Feeds on insects, small amphibians, -and seeds of conifers and other wild fruit.	Common resident of open woods and stream bottoms in King County. Some individuals very tame.
	Chestnut-backed Chickadee	Woodlands, residential areas with trees. Feeds on insects, seeds of conifers, some fruit pulp. Nests in natural cavitity or digs ouwn in dead trees. Some times nests in loose colonies.	Was more common in King County until extensive alteration of habitat. Now uncommon.
	Common Bushtit	Scrub-shrub, trees and shrubs of residential areas. Nests in bushes or tees. Feeds off of insects and spiders on foliage and some fruit.	Common resident of the lowland belt and King County.
Creepers	Brown Creeper	Forested Areas. Feeds on larvae, insects on tree trunks.	Common resident in timbered areas of King County.
Wrens	Bewick's Wren	Shrub-scrub, Forested Areas. Forages on ground and among branches of bushes for insects. Nests in any cavity: tree, fence post, brush heap.	Common resident of brushy areas in King County
Thrushes, Bluebirds, Solitaires	Robin	Forested Wetlands, Scrub-shrub, Urban, nests usually in trees. Feeds on earthworms from lawns and meadows, other insects and fruit.	Very common resident of all of King County.
	Varied Thrush	Forested Wetlands, Scrub-shrub. Nests on horizontal branches or crotch of small trees. Feeds often on the ground on insects, worms and berries.	Commonly found from Sept.-May in lowlands of King County.
	Swainson's Thrush	Throughout Greenbelt. Feeds on insects among foliage of trees and shrubs. Nests in trees and shrubs.	Common summer resident in brushy areas of King County.
Gnatcatchers, Kinglets, Old World Warblers	Ruby-Crowned Kinglet	Evergreen Forested Wetlands and Scrub-shrub. Nests in conifers 2'-100 'up. Feeds at branch tips and on ground on insects and some fruit.	Common resident of the lowland belt of King County.

Type	Species	Notes on Habitat Preference	Occurance in Local Area
Waxwings	Cedar Waxwing	Forested Wetlands, Scrub-shrub, Urban. Nests in deciduous or coniferous trees or shrubs. Feeds on berries, sap of maples, flower petals and insects.	Common resident of lowlands of King County. Often very tame.
Starlings	Sterling	Agricultural Wetlands, Meadow, Scrub-shrub, Urban. Nests in trees, shrubs and buildings. Feeds on insects and fruit.	Common in all parts of King County. Aggressive invader - often travels in large flocks.
Vireos	Warbling Vireo	Deciduous forest areas, Tall shrub-scrub. Feeds on insects among foliage. Nests in cup suspended from branch.	Common summer resident in deciduous forest areas of King County
Wood Warblers	Yellow Warbler	Deciduous Forested Wetlands and Scrub-shrub, Urban - prefer to be near water. Nests in upright crotch of bush, sapling or large tree- Feeds on caterpillars and other insects destructive to foliage.	Very common in April-Sept. amongst deciduous plants in King County.
Weaverbirds	House Sparrow	Residential areas and throughout Greenbelt. Eats insects, seeds. Nests in birdboxes, on buildings.	Abundant resident of urban areas of King County
Meadowlarks Blackbirds, Orioles	Red-Wing Blackbird	Meadow, Scrub-shrub. Nests amongst trees and deep grasses in marshy areas. Feeds in open fields on seeds and some insects.	Common resident in March-November of marshy areas of King County.
	Hooded Oriole	One sighting in residential area.	
	Bullock's Oriole	At edge of Deciduous Woodlands. Feeds on insects, fruits and berries, Nests in woven bag suspended from branch of tree.	Common summer resident of King County.
	Brewer's Blackbird	Agricultural Wetlands, Meadow, Scrub-shrub and Phantom Lake, Urban. Nests in marshes and bushes and on the ground. Feeds on ground on insects, seeds and fruit.	Common resident of open fields in lowlands of King County.
Grosbeaks, Finches, Sparrows, Buntings	Evening Grosbeak	Forested Wetlands. Nests primarily in conifers, occasionally in deciduous trees. Feeds mainly on buds and seeds of maples and other deciduous trees and some insects in summer, on conifer buds and seeds in winter.	Commonly found March-May in lowlands of King County.

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Black-Headed Grosbeak	At edge of Deciduous woodlands, tall shrub thickets. Feeds on seeds and insects. Builds nest in deciduous tree.	Common to uncommon summer resident in deciduous forests of King County.
	House Finch	Urban, Scrub-shrub. Nests in cavaties of trees, on projections of buildings and in shrubs. Feeds mainly on weed seeds, some buds and forages crumbs and food scraps.	Common resident of urban areas of King County.
	Pine Siskin	Evergreen Woodlands. Forages in trees and on ground for seeds and insects. Usually nests in evergreen tree.	Common resident of coniferous forests in King County.
	American Goldfinch	Forested Wetlands, Scrub-shrub, Urban, Meadow. Nests in grasses, shrubs, in forks of maples or other deciduous trees. Feeds on deciduous tree seeds, weed seeds	Common resident of King County.
	Rufous-sided Towhee	Scrub-shrub, Urban. Nests on ground or in low bush. Feeds by scratching under thickets for insects, seeds and fruit.	Common resident of brushy areas of King County.
	White-crowned Sparrow	Meadows, Shrub-scrub Feeds on grounds seeds and insects. Nests on ground.	Common summer resident in open, brushy areas of King County.
	Golden-crowned Sparrow	Shrub-scrub Areas, Forages on ground for seeds or in fall, buds and flowers.	Common spring and fall migrant.
	Song Sparrow	Scrub-shrub and Meadows, Urban. Nests mainly on ground hidden amongst dead grasses or in shrubs or small trees. Feeds on ground on insects, seeds and fruits.	Very common resident in King County in brushy areas with water nearby.
MAMMALS			
	Opossum	Might be found in all vegetation types except for Lake and Pond. Dens are located in hollow trees, rock piles, under buildings and in abandoned burrows.	Very adeptaple to urban environments. Becoming more common in Seattle area.
	Eastern grey squirrel	Non-native urban dweller	

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Ground Squirrel	Found in drier evergreen woodland areas (such as Weonwa Park) around the Greenbelt.	
	Mice, voles & rats	No sightings, but habitat of meadows, shrub-scrub areas is suitable and presence of predators such as hawks, owls and coyotes suggests presence	
	Moles	Agricultural, Meadow, Urban. Burrow underground leaving hills of the excavated material behind above ground. Feed on grubs, earthworms and small invertebrate and some species feed on vegetable matter. Mainly nocturnal and almost completely subterranean. The coas/Townsand's mole prefers drier habitats, while the shrewmoles's preferred habitat is moist shady forest areas	Common in moist, grassy pastures in Puget Sound lowlands.
	Bats	Forested Wetlands, Urban. 18 species inhabit the Northwest and have different habits. In general, live in crevices, sometimes buidings. Most species feed exclusively on insects caught in flight. Hibernate during winter. Nocturnal hunters.	
	Racoons	Forested Wetland, Urban. Dens are made in hollow logs or crevices under rocks. Are omnivorous and feed on a wide variety of foods.	Common near water in the Puget Sound lowlands. Often quite tame.
	Weasels	Found in a variety of habitats. Feeds on mice, small birds	
	River Otter	Phantom Lake. Carnivorous: loves fish. Almost always seen in or near water. A pair seems to visit or live in Phantom Lake during winter.	

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Coyote	Throughout greenbelt. Feeds on small mammals and, when food is scarce, on insects. dens are located in burrows in earthen banks. Well adjusted to living with men. Often preys on chickens and house cats. A family group has been seen several times in the area of the truck farms.	Widespread throughout the Northwest, not as common within Bellevue city limits.
	Muskrats	Phantom Lake, Larsen Lake. Excavate deep burrows in the banks of lakes. Feeds on cattails, various aquatic plants, young frogs and snails.	Widely distributed in the Northwest, occurring in most lowland fresh waters.
REPTILES & AMPHIBIANS			
	Frogs	Throughout the site. Eggs are layed on sticks, grass stems, or other vegetation in shallow water. Feeds on insects.	Numerous species found throughout the Northwest near fresh waters. The Pacific tree frog is especially common throughout the region.
	Bullfrogs	Released into Phantom Lake. Formerly more common.	
	Salamanders	Throughout the greenbelt. Terrestrial salamanders live mostly under logs and tend to retreat into holes and burrows as the habitat begins to dry out. Some species require water for breeding while others prefer to be in water continually.	
	Turtles	Larsen Lake, Phantom Lake	
	Garter snake	Throughout Greenbelt	
FISH			
	Brown bullhead (catfish)	Phantom Lake, Larsen Lake. Inhabits warm water ponds and lakes. Adults generally in deeper water, but move into shallow weedy areas to spawn. Tolerant of high temperatures and low dissolved oxygen.	

Type	Species	Notes on Habitat Preference	Occurance in Local Area
	Pumpkinseed	Phantom Lake, Larsen Lake. Forage for larger fish such as bass. Inhabits warm shallow lakes.	
	Stickleback	Phantom Lake, Larsen Lake. One of the most widespread fishes in the world. Important forage fish for larger species.	
	Crappie	Phantom Lake.Feeds most actively in spring, found in weedy areas less than 10 feet deep.	
	Perch	Phantom Lake. Likes warm water but sensitive to turbidity.	
	Largemouth Bass	Phantom Lake. Tolerant of warm water. Does best in shallow weedy lakes. Prefers clear water with muddy bottom.	

The Lake Hills Greenbelt is a particularly significant wildlife habitat because it is located in a suburban/urban area and it has distinctive characteristics to support wildlife populations.

Wildlife habitat in a suburban/urban area is especially valuable. The open space, trees and shrubs are aesthetically pleasing and help to define a sense of place. In the process of respiration, the vegetation filters and cools the air. A wide variety of wildlife species can indicate ecological stability. Further, wildlife habitat can provide recreation and education benefits.

As can be seen of Table 4, a wide variety of wildlife has been observed in and around the Greenbelt. The lakes are important as resting and feeding areas for populations of wintering and migrating wildfowl including teals, widgeons and mergansers. Occasionaly, rare species such as the Trumpeter Swan have been seen on Phantom Lake in winter. River Otter, which are relatively unusual in a suburban area, also use the lake in winter.

Blue Heron habitat needs are an important aspect of the Greenbelt. A Blue Heron rookery (nesting colony) is located in a large fir tree on private property at the southeast shore of Phantom Lake. The shallow water area off the shore of the Greenbelt is a significant feeding area for nesting and fledging Blue Herons.

The shrub-scrub area adjacent to Phantom Lake in this area is also valuable as habitat for wildfowl, songbirds and small mammels.

APPENDIX WL-2: WILDLIFE HABITAT ASSESSMENT FORM

Location: **Drainage Basin:**

Habitat area size: **Date:**

GPS Points:

Photo #s:

Habitat type and dominant plants:

Structural conditions (% tree/shrub canopy; canopy layers, tree size, land cover conditions, etc.):

Habitat elements (snags, perches, downed logs, constructed features) :

Invasive plants:

Wildlife observations:

Priority species presence and habitat use:

Habitat continuity/use as a corridor:

Adjacent land uses and conditions:

Threats to habitat integrity:

Opportunities:

APPENDIX WL-3: WILDIFE-HABITAT ASSOCIATION TABLE

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
MAMMALS *							
American Beaver	*Castor canadensis*	GA/F	CA/B	CA/B	GA/R	P/F	P/F
Big brown bat	*Eptesicus fuscus*	CA/B	GA/B	GA/F	GA/F	CA/B	CA/B
Black bear	*Ursus americanus*	GA/B	GA/B	GA/F		GA/F	GA/F
Black rat	*Rattus rattus*					GA/B	CA/B
Black-tailed deer	*Odocoileus hemionus col.*	GA/B	GA/B	GA/F		GA/B	GA/B
Bobcat	*Lynx rufus*	GA/B	GA/B	GA/F		P/B	GA/B
Bushy-tailed woodrat	Neotoma cinerea	CA/B	P/B			CA/B	GA/B
California myotis	*Myotis californicus*	CA/B	GA/B	GA/F	GA/F	P/B	P/B
Coast mole	*Scapanus orarius*	CA/B	GA/B			GA/B	GA/B
Coyote	*Canis latrans*	GA/B	GA/B	GA/F		GA/B	GA/B
Creeping vole	*Microtus oregoni*	GA/B	GA/B			GA/B	P/B
Deer mouse	*Peromyscus maniculatus*	CA/B	CA/B	CA/B		CA/B	CA/B
Douglas squirrel	*Tamiasciurus douglasi*	CA/B				GA/B	GA/B
Eastern cottontail	*Sylvilagus floridanus*	GA/B				GA/B	GA/B
Eastern gray squirrel	*Sciurus carolinensis*					P/B	CA/B
European rabbit	*Oryctolagus cuniculus*	P/B				CA/B	GA/B
Hoary bat	*Lasiurus cinereus*	GA/F	GA/F	GA/F	GA/F	GA/F	GA/F
House mouse	*Mus musculus*					CA/B	CA/B
Keen's myotis	*Myotis keenii*	CA/B	GA/B	GA/F	GA/F		
Little brown bat	*Myotis lucifugus*	GA/B	GA/B	GA/F	GA/F	GA/B	GA/B
Long-eared myotis	*Myotis evotis*	GA/B	GA/B	GA/F	GA/F	P/B	GA/B
Long-legged myotis	*Myotis volans*	GA/B	GA/B	GA/F	GA/F	P/B	GA/B
Long-tailed vole	*Microtus longicaudus*	GA/B	CA/B	CA/B		GA/B	P/B
Long-tailed weasel	*Mustela frenata*	GA/B	GA/B	GA/F		GA/B	P/F
Masked shrew	*Sorex cinereus*	P/B	P/B				
Mink	*Mustela vison*	GA/F	CA/B	CA/B	CA/B	P/F	P/F
Montane shrew	*Sorex monticolus*	GA/B	P/B				
Mountain beaver	*Aplodontia rufa rufa*	CA/B	CA/B				
Mountain lion	*Felis concolor*	GA/B	GA/B	GA/F		P/F	P/F
Muskrat	*Ondatra zibethica*		CA/B	CA/B	CA/B	GA/B	P/B

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
MAMMALS ***contd.**							
Northern flying squirrel	*Glaucomys sabrinus*	CA/B	GA/B				P/B
Norway rat	*Rattus norvegicus*					GA/B	CA/B
Nutria	*Myocaster coypus*		CA/B	CA/B	CA/B	GA/B	P/F
Pacific jumping mouse	*Zapus trinotatus*	GA/B	CA/B	GA/B		GA/B	
Pacific water shrew	*Sorex bendirii*	GA/B	CA/B	GA/B			
Porcupine	*Erethizon dorsatum*	CA/B	GA/B	P/F		P/F	P/B
Raccoon	*Procyon lotor*	GA/B	CA/B	CA/F	GA/F	CA/B	CA/B
Red fox	*Vulpes vulpes*	P/B	GA/B			GA/B	GA/B
River otter	*Lutra canadensis*		CA/B	CA/B	CA/B		
Roosevelt elk	*Cervus canadensis*	GA/B	GA/B	GA/F		GA/B	P/B
Shrew mole	*Neurotrichus gibbsii*	GA/B	GA/B	GA/B		GA/B	GA/B
Silver-haired bat	*Lasionycteris noctivagans*	CA/B	GA/B	GA/F	GA/F	P/F	
Southern red-backed vole	*Clethrionomys gapperi*	GA/B	CA/B				
Striped skunk	*Mephitis mephitis*	GA/B	GA/B	GA/F		GA/B	P/B
Townsend's mole	*Scaparus townsendii*	GA/B	GA/B	GA/B		GA/B	GA/B
Townsend's big-eared bat	*Plecotis townsendii*	GA/B	GA/F	GA/F	CA/F	GA/B	P/B
Townsend's chipmunk	*Eutamias townsendii*	CA/B	GA/B				GA/B
Townsend's vole	*Microtus townsedii*	GA/B	GA/B	CA/B		GA/B	
Trowbridge's shrew	*Sorex trowbridgei*	CA/B	GA/B			GA/B	GA/B
Vagrant shrew	*Sorex vagrans*	GA/B	P/B	GA/B		P/B	P/B
Virginia opossum	*Dedelphis virginiana*	GA/B	GA/B			CA/B	CA/B
Water shrew	*Sorex palustris*	GA/B	CA/B				
Water vole	*Microtus richarsoni*	P/B	CA/B				
Western spotted skunk	*Spilogale putorius*	GA/B	GA/B			P/B	P/B
Yuma myotis	*Myotis yumanensis*	GA/B	CA/B	CA/F	CA/F	GA/B	GA/B
BIRDS							
American bittern	*Botaurus lentiginosus*			CA/B		GA/B	
American coot	*Fulica americana*			CA/B	CA/F	GA/B	GA/B
American crow	*Corvus brachyrhynchos*	GA/B	GA/B	P/F		CA/B	CA/B
American goldfinch	*Carduelis tristis*	GA/B	GA/B	GA/F		GA/B	GA/B

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
BIRDS *contd.							
American kestrel	*Falco sparverius*	GA/B	GA/B	GA/F		GA/B	GA/B
American robin	*Turdus migratorius*	GA/B	GA/B	GA/F		GA/B	GA/B
American wigeon	*Anas americana*		GA/F	CA/B	GA/F	CA/B	
Anna's hummingbird	*Calypte anna*	CA/B	P/B				GA/B
Bald eagle	*Haliaeetus leucocephalus*	GA/R	GA/B	GA/F	CA/F	GA/F	GA/B
Band-tailed pigeon	*Columba fasicata*	CA/B	CA/B			GA/F	GA/B
Barn owl	*Tyto alba*		GA/B		CA/F	CA/B	GA/B
Barn swallow	*Hirundo rustica*	GA/B	CA/B	GA/F		CA/B	GA/B
Barrow's goldeneye	*Bucephala islandica*			GA/F	CA/F		
Barred owl	*Strix varia*	CA/B	GA/B				P/B
Belted kingfisher	*Ceryle alcyon*		CA/B		CA/B		
Bewick's wren	*Thryomanes bewickii*	GA/B	GA/B	P/F		GA/B	GA/B
Black tern	*Chlidonias niger*			CA/B	GA/F	GA/F	
Black-capped chickadee	*Parus atricapilus*	GA/B	GA/B	P/F		P/B	GA/B
Black-headed grosbeak	*Pheucticus melanocephalus*	GA/B	GA/B			P/B	P/B
Black-throated gray warbler	*Dendroica nigrescens*	CA/B	CA/B			P/B	P/B
Blue-winged teal	*Anas discors*			CA/B	GA/F	CA/B	
Bonaparte's gull	*Larus philadelphia*				GA/F	GA/F	GA/F
Brewer's blackbird	*Euphagus cyanocephalus*		GA/B	GA/B		CA/B	GA/B
Brown creeper	*Certhia americana*	GA/B	GA/B			P/B	GA/B
Brown-headed cowbird	*Molothrus ater*	GA/R	GA/B	GA/B		CA/B	GA/B
Bufflehead	*Bucephala albeola*		GA/B	CA/F	CA/F		
Bullock's oriole	*Icterus bullockii*		CA/B			GA/B	GA/B
Bushtit	*Psaltriparus minimus*	GA/B	GA/B			GA/B	GA/B
California gull	*Larus californicus*			GA/B	CA/B	GA/F	GA/F
California quail	*Callipepla californica*	GA/B	GA/B			GA/B	GA/B
Canada goose	*Branta canadensis*		P/B	CA/B	CA/F	CA/F	
Canvasback	*Aythya valisineria*				CA/F		
Cassin's Vireo (Solitary Vireo)	*Vireo cassinii (Vireo solitarius)*	GA/B				P/F	P/B

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
BIRDS contd.*							
Cedar waxwing	*Bombycilla cedrorum*	GA/B	GA/B	P/F		P/B	GA/B
Chestnut-backed chickadee	*Parus rufescens*	GA/B	GA/B			P/F	GA/B
Cinnamon teal	*Anas cyanoptera*			CA/B	GA/F	CA/F	
Clark's grebe	*Aechmophorus clarkii*				CA/B		
Cliff swallow	*Petrochelidon pyrrhonota*	GA/B	CA/B	GA/F	CA/F	GA/B	GA/B
Common goldeneye	*Bucephala clangula*			P/F	CA/F		
Common loon	*Gavia immer*			CA/B	GA/B		
Common merganser	*Mergus merganser*	CA/R	GA/B		CA/F		
Common snipe	*Gallinago gallinago*			CA/B		CA/B	
Common yellowthroat	*Geothlypis trichas*	GA/B	GA/B	CA/B		GA/B	P/B
Cooper's hawk	*Accipiter cooperii*	GA/B	GA/B	GA/F		P/F	GA/B
Dark-eyed junco	*Junco hyemalis*	GA/B	GA/B			GA/B	GA/B
Double-crested cormorant	*Phalacrocorax auritus*		P/B	GA/R	CA/B		GA/R
Downy woodpecker	*Picoides pubescens*	GA/B	CA/B			GA/B	GA/B
Dunlin	*Calidris alpina*			CA/F	CA/F	CA/F	
Eared grebe	*Podiceps nigricollis*			CA/B	CA/B		
Eurasian wigeon	*Anas penelope*			GA/F	CA/F	GA/F	
European starling	*Sturmus vulgaris*	GA/B	CA/B	GA/F		CA/B	CA/B
Evening grosbeak	*Coccothraustes vespertinus*	GA/B	GA/B				GA/F
Fox sparrow	*Passerella iliaca*	GA/F	GA/F			P/F	P/F
Gadwall	*Anas strepera*			CA/B	CA/F	GA/B	
Glaucous gull	*Larus hyperboreus*			GA/F	CA/F		GA/F
Glaucous-winged gull	*Larus glaucescens*				P/B		CA/B
Golden-crowned kinglet	*Regulus satrapa*	CA/B	GA/B				GA/B
Golden-crowned sparrow	*Zonotrichia atricapilla*	GA/F	GA/F	GA/F		GA/F	GA/F
Great blue heron	*Ardea herodias*	GA/R	CA/B	CA/F	CA/F	CA/F	GA/B
Great horned owl	*Bubo virginianus*		GA/B	GA/F		GA/B	GA/B
Greater scaup	*Aythya marila*				CA/F		
Green heron	*Butorides virescens*		CA/B	CA/F	GA/F		
Green-winged teal	*Anas crecca*		GA/F	CA/B	GA/F	GA/B	

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
BIRDS contd.*							
Hairy woodpecker	*Picoides villosus*	GA/B	GA/B			GA/B	GA/B
Hammond's flycatcher	*Empidonax hammondii*	GA/B					
Harlequin duck	*Histrionicus histrionicus*		CA/B		CA/F		
Herring gull	*Larus argentatus*			GA/F	CA/F	GA/F	GA/F
Hooded merganser	*Lophodytes cucullatus*	CA/R	CA/B	GA/F	CA/F		
Horned grebe	*Podiceps auritus*			CA/B	CA/B		
House finch	*Carpodacus mexicanus*	P/B	P/B	P/F		CA/B	CA/B
House sparrow	*Passer domesticus*					CA/B	CA/B
House wren	*Troglodytes aedon*	GA/B	GA/B			P/B	GA/B
Hutton's vireo	*Vireo huttoni*	GA/B	GA/B			P/B	P/B
Killdeer	*Charadrius vociferous*	P/B	GA/B	GA/B	GA/B	CA/B	GA/B
Least sandpiper	*Calidris minutilla*			CA/F	GA/F	GA/F	
Lesser scaup	*Aythya affinis*			CA/B	CA/F		
Long-billed dowitcher	*Limnodromus scolopaceus*			CA/F	GA/F	CA/F	
MacGillivray's warbler	*Oporornis tolmiei*	GA/B	GA/B			P/B	
Mallard	*Anas platyrhynchos*		CA/B	CA/B	GA/F	GA/B	GA/B
Merlin	*Falco columbarius*	GA/B	GA/B	P/F	GA/F	P/F	GA/F
Mourning dove	*Zenaida macroura*	GA/B	CA/B			CA/B	GA/B
Northern flicker	*Colaptes cafer*	GA/B	GA/B			GA/B	GA/B
Northern harrier	*Circus cyaneus*		P/B	GA/B		GA/B	P/B
Northern pintail	*Anas acuta*				CA/F	GA/F	
Northern pygmy owl	*Glaucidium gnoma*	CA/B	GA/B	P/F		P/F	P/F
Northern rough-winged swallow	*Stelgidopteryx serripennis*			CA/F	CA/B	P/F	P/B
Northern shoveler	*Anas elypeata*			CA/B	CA/F	GA/R	
Northern shrike	*Lanius excubitor*			P/F		CA/F	
Olive-sided flycatcher	*Contopus borealis*	CA/B	GA/B				
Orange-crowned warbler	*Vermivora celata*	GA/B	GA/B			P/B	P/B
Osprey	*Pandion haliaetus*	GA/R	GA/B		CA/F	P/R	GA/R
Peregrine falcon	*Falco peregrinus*	GA/B	GA/F	GA/F	GA/F	P/F	GA/B
Pied-billed grebe	*Podilymbus podiceps*		GA/B	CA/B	GA/B		

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
BIRDS contd.*							
Pileated woodpecker	*Dryocopus pileatus*	GA/B	GA/B			P/F	GA/B
Pine siskin	*Carduelis pinus*	GA/B	GA/B	P/F		P/F	GA/B
Purple finch	*Carpodacus purpureus*	GA/B	CA/B			P/F	GA/B
Purple martin	*Progne subis*	GA/B	GA/B	GA/F	CA/F	P/B	GA/B
Red-breasted merganser	*Mergus serrator*				P/F		
Red-breasted nuthatch	*Sitta canadensis*	GA/B	GA/B			P/B	GA/B
Red-breasted sapsucker	*Sphyrapicus ruber*	GA/B	GA/B			P/B	P/B
Red-eyed vireo	*Vireo olivaceus*	P/B	CA/B				
Red-necked grebe	*Podiceps nigricollis*			CA/B	CA/B		
Red-tailed hawk	*Buteo jamaicensis*	GA/B	GA/B	GA/F		CA/B	P/B
Red-winged blackbird	*Agelaius phoenicens*		GA/B	CA/B		GA/B	P/F
Ring-billed gull	*Larus delawarensis*			GA/B	CA/B	GA/B	GA/F
Ring-necked duck	*Aythya collaris*		CA/B	GA/B	GA/F		
Ring-necked pheasant	*Phasianus colchicus*	GA/F	GA/B	GA/F		CA/B	GA/B
Rock dove	*Columba livia*					CA/B	CA/B
Rough-legged hawk	*Buteo lagopus*	P/F	P/F	GA/F		GA/F	P/F
Ruby-crowned kinglet	*Regulus calendula*	GA/F	GA/F	P/F		GA/F	GA/F
Ruddy duck	*Oxyura jamaicensis*				CA/F		
Ruffed grouse	*Bonasa umbellus*	CA/B	CA/B			GA/B	
Rufous hummingbird	*Selasphorus rufus*	GA/B	GA/B	P/F		GA/B	GA/B
Sanderling	*Calidris alba*				P/F		
Savannah sparrow	*Passercullus sanwichensis*		GA/B	GA/B		CA/B	GA/B
Sharp-skinned hawk	*Accipeter striatus*	GA/B		GA/F		P/F	P/B
Short-billed dowitcher	*Limnodromus griseus*				GA/F	GA/F	
Song sparrow	*Melospiza melodia*	GA/B	GA/B	GA/B		GA/B	GA/B
Spotted sandpiper	*Actitis macularia*		CA/B	GA/B	GA/B	GA/F	
Spotted towhee	*Pipilo erythrophthalmus*	GA/B	GA/B			GA/B	GA/B
Steller's jay	*Cyanocitta stelleri*	GA/B	GA/B			P/B	GA/B
Surf scoter	*Melanitta perspicillata*				P/F		
Swainson's thrush	*Catharus ustulatus*	GA/B	GA/B			P/B	P/B

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
BIRDS contd.*							
Thayer's gull	*Larus thayeri*			GA/F	CA/F	GA/F	GA/F
Townsend's warbler	*Dendroica townsendii*	GA/B	GA/B			P/F	GA/F
Tree swallow	*Tachycineta bicolor*	P/B	CA/B	CA/F	CA/F	GA/B	GA/B
Trumpeter swan	*Cygnus buccinator*			CA/B	CA/F	CA/F	
Turkey vulture	*Cathartes aura*	GA/B	GA/B	GA/F		GA/B	P/B
Varied thrush	*Ixoreus naevius*	CA/B				GA/F	GA/F
Vaux's swift	*Chaetura vauxi*	GA/B	GA/B	GA/F	CA/F	P/F	GA/B
Violet-green swallow	*Tachycineta thalassina*	GA/B	GA/B	GA/F	GA/F	GA/B	GA/B
Virginia rail	*Rallus limicola*			CA/B		GA/B	
Warbling vireo	*Vireo gilvus*		CA/B			P/B	P/B
Western bluebird	*Sialia mexicana*	CA/B				GA/B	GA/B
Western grebe	*Aechmophorus occidentalis*			CA/B	CA/B		
Western sandpiper	*Calidris mauri*			CA/F	CA/F	GA/F	
Western screech-owl	*Otus kennicotti*	GA/B	CA/B	P/F		GA/B	GA/B
Western tanager	*Piranga ludoviciana*	CA/B	GA/B				P/B
Western wood pewee	*Contopus sordidulus*	GA/B	GA/B			GA/B	GA/B
White-crowned sparrow	*Zonotrichia leucophrys*	GA/B	GA/B	GA/F		GA/B	GA/B
Willow flycatcher	*Empidonax trailli*	GA/B	CA/B			P/B	P/B
Wilson's warbler	*Wilsonia pusilla*	CA/B	CA/B			P/B	P/B
Winter wren	*Troglodytes troglodytes*	CA/B	GA/B				P/B
Wood duck	*Aix sponsa*	GA/R	CA/B	P/F	CA/F	GA/F	
Yellow-rumped warbler	*Dendroica coronata*	GA/B	GA/B	P/F		GA/F	GA/F
Yellow warbler	*Dendroica petechia*		CA/B				
REPTILES AND AMPHIBIANS							
Bull frog	*Rana catesbeiana*	GA/F	CA/B	CA/B	CA/B	GA/F	GA/F
Common garter snake	*Thamnophis sirtalis*	GA/B	CA/B	CA/B		GA/B	GA/B
Ensatina	*Ensatina eschscholtzii*	CA/B	GA/B			P/B	P/B
Long-toed salamander	*A. macrodactylum*	GA/B	CA/B	CA/B	CA/B	GA/B	GA/B
Northern alligator lizard	*Gerrhontus coeruleus*	GA/B	GA/B				GA/B

* Refer to key at end of table

VERTEBRATE SPECIES		Westside Lowlands Conifer-Hardwood Forest	Westside Riparian-Wetlands	Herbaceous Wetlands	Open Water – Lakes, Rivers, Streams	Agriculture, Pastures, and Mixed Environs	Urban and Mixed Environs
REPTILES AND AMPHIBIANS contd.*							
Northern red-legged frog	*Rana aurora aurora*	CA/F	CA/B	CA/B	CA/B	GA/B	P/F
Northwestern garter snake	*T. ordinoides*	GA/B	GA/B			GA/B	GA/B
Northwestern salamander	*Ambystoma gracile*	GA/F	CA/B	CA/B	CA/B	P/F	P/F
Pacific chorus frog	*Hyla regilla*	GA/B	CA/B	CA/B	CA/B	GA/B	GA/B
Pacific giant salamander	*Dicamptodon tenebrosus*	GA/F	CA/B				P/F
Painted turtle	*Chrysemys picta*		GA/B	CA/F	CA/F	P/B	P/B
Red-eared slider turtle	*Trachemys scripta*		GA/B	CA/F	CA/F	GA/R	GA/R
Rough-skinned newt	*Taricha granulosa*	GA/F	CA/B	CA/B	CA/B	GA/F	P/F
Rubber boa	*Charina bottae*	GA/B	GA/B			GA/B	GA/B
Snapping turtle	*Chelydra serpentina*		GA/B	CA/F	CA/F	GA/R	GA/R
Western fence lizard	*Sceloporus occidentalis*	GA/B				GA/B	GA/B
Western pond turtle	*Clemys marmorata*	P/B	CA/B	CA/F	CA/F	P/B	P/B
Western redbacked salamander	*P. vehiculum*	GA/B	GA/B				
Western terrestrial garter snake	*T. elegans*		GA/B	GA/F		GA/B	GA/B
Western toad	*Bufo boreas*	GA/F	CA/B	CA/B	CA/B	P/F	P/F

Adapted from the CD Matrix provided in: Johnson, D.H. and T.A. O'Neil. 2001. *Wildlife-Habitat Relationships in Oregon and Washington.* Oregon State University Press. Corvallis, Oregon.

Definitions:

CA: Closely Associated – A species is widely known to depend on a habitat for part of all of its life history requirements.

GA: Generally Associated – A species exhibits a high degree of adaptability and may be supported by a number of habitats.

P: Present – A species demonstrates occasional use of a habitat.

B: Breeds and feeds

F: Feeds only

R: Reproduces only

O: Other, such as roosting, resting, hibernacula, or cover.

* Refer to key at end of table