INVENTORY OF NATURAL, SCENIC AND OPEN SPACE RESOURCES FOR MULTNOMAH COUNTY UNINCORPORATED URBAN AREAS

Part of the Multnomah County-Portland
Unincorporated Urban Areas
Functional Plan Compliance Project

Final Report

Prepared for:

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Adopted by Multnomah County Board of Commissioners October 11, 2001
Effective January 1, 2002

Amended by Multnomah County Board of Commissioners XXXX XX, 2022 Effective October XX, 2022

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INVENTORY OF NATURAL, SCENIC AND OPEN SPACE RESOURCES

FOR MULTNOMAH COUNTY UNINCORPORATED URBAN AREAS

FINAL REPORT

Adopted by Multnomah County Board of Commissioners October 11, 2001
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County Ordinance No. 967

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INTRODUCTION

This project is part of a region-wide planning effort to manage long-term growth. Metro, the regional planning agency, has responsibility for managing growth within the 24-city and 3-county metropolitan region. Metro estimates that more than 131,000 new people have arrived during the first half of the 1990s. Population and job growth are expected to continue into the future. In 1992, voters directed Metro to actively manage the metropolitan area's growth management process. All cities and counties within the region are required to prepare for future population and job growth.

This project, known as the Multnomah County-Portland Unincorporated Urban Areas Functional Plan Compliance Project, includes those areas of unincorporated Multnomah County that are within both the city's Urban Services Boundary and the metropolitan regional Urban Growth Boundary. All areas within our regional Urban Growth Boundary are required to complete these long-term growth management plans.

"Region 2040" is the name of Metro's long-term planning effort that includes tools for managing growth of the region for the next several decades. Extensive citizen outreach and feedback given to Metro staff early in the process was used to develop an overall "Growth Concept." The *2040 Growth Concept* provides the "blueprint" for future regional growth and will guide the regional growth management process. All cities and counties must comply with the requirements of the *Urban Growth Management Functional Plan*. The *Functional Plan* provides the details and requirements necessary to fulfill the *2040 Growth Concept*.

Under a jointly adopted intergovernmental agreement between Multnomah County and the City of Portland, the City provided the County Board of Commissioners with a compliance report and set of recommendations designed to meet the requirements of the Urban Growth Management Functional Plan. As part of this process, the City is implementing measures to comply with Statewide Planning Goal 5, which requires all Oregon cities and counties "to conserve open space and protect natural and scenic resources."

Statewide Planning Goal 5 and Metro Title 3

The Goal 5 Administrative Rule requires local governments to follow a three-step planning process. An inventory of resources is the first step. The inventory involves determining the location, quantity and quality of the resources present within the planning area. If a resource is not important, it may be excluded from further consideration for purposes of local land use planning, even though state and federal regulations may apply. At the conclusion of this process, all remaining sites must be included in the inventory and are subject to the remaining steps in the Goal 5 process.

The Goal 5 Inventory of Multnomah County Urban Areas is the subject of this report.

Subsequent steps in the Goal 5 process include the identification of conflicting uses. If there are no conflicting uses for an identified resource, a jurisdiction must adopt policies and regulations to ensure that the resource is preserved. Where conflicting uses are identified, the economic, social, environmental and energy (ESEE) consequences of resource protection must be

determined. The final step is adoption of a program or plan to protect significant resources. Based on the inventory and analysis, a jurisdiction must decide whether to allow, limit or prohibit conflicting uses and adopt measures to implement its decisions.

This inventory has also considered Metro designated Title 3 lands. Title 3 is one of eleven titles of Metro's Urban Growth Management Functional Plan. Local jurisdictions within Metro's boundary must adopt policies and regulations to comply with the requirements of the Functional Plan. Title 3 establishes regional requirements for water quality, flood management, and fish and wildlife conservation..

Title 3 lays out separate performance standards for 1) flood management; 2) erosion and sediment control; and 3) water quality. The Functional Plan requires local jurisdictions to amend their Comprehensive Plans and implementing ordinances to "substantially comply" with Title 3's requirements. One goal of this project is to achieve substantial compliance with the water quality performance standards of Title 3.

Inventory Sites

Unincorporated Multnomah County lands included in this study are located in six distinct areas along the perimeter of the Portland City Limits. Based on an initial on-site field survey and review of background information, four of the six areas were found to contain Goal 5 resources and designated Title 3 lands. No designated Title 3 lands or Goal 5 resources were found at the NE 162nd and Halsey area, and at the Brentwood Darlington (SE 72nd and Harney) area. The four sites included in the resource inventory are Johnson Creek, Linnton, Sylvan, and Dunthorpe. These sites, shown in Figure 1, include the following unincorporated areas (UIA): Johnson Creek (UIA #16, 18), Linnton (UIA #2), Sylvan (UIA #0, 5, 7, 8, 10, 11, 35, 38), and Dunthorpe (UIA #31).

Review of Existing Information

The inventory included two levels of investigation for each site: a review of existing background information and a field investigation of present resource conditions. The project team reviewed existing literature, maps, and air photos, and contacted resource agency staff and other resource specialists to identify Goal 5 resources at each site. Sources of information consulted included:

- United States Geological Survey (7.5 minute) Topographic Maps;
- Federal Emergency Management Agency Flood Maps;
- National Wetland Inventory (U.S. Fish and Wildlife Service);
- Soil Survey of Multnomah County, Oregon (Natural Resource Conservation Service);
- Multnomah County Area, Oregon Comprehensive Hydric Soils List (Natural Resources Conservation Service 1995);
- Oregon Natural Heritage Program, including the ONHP database and historic vegetation mapping;
- Rare, Threatened and Endangered Plants and Animals of Oregon (Oregon Natural Heritage Program 1998);
- Oregon Water Resources data on wells, water rights, groundwater;
- Oregon Department of Forestry stream classification maps;

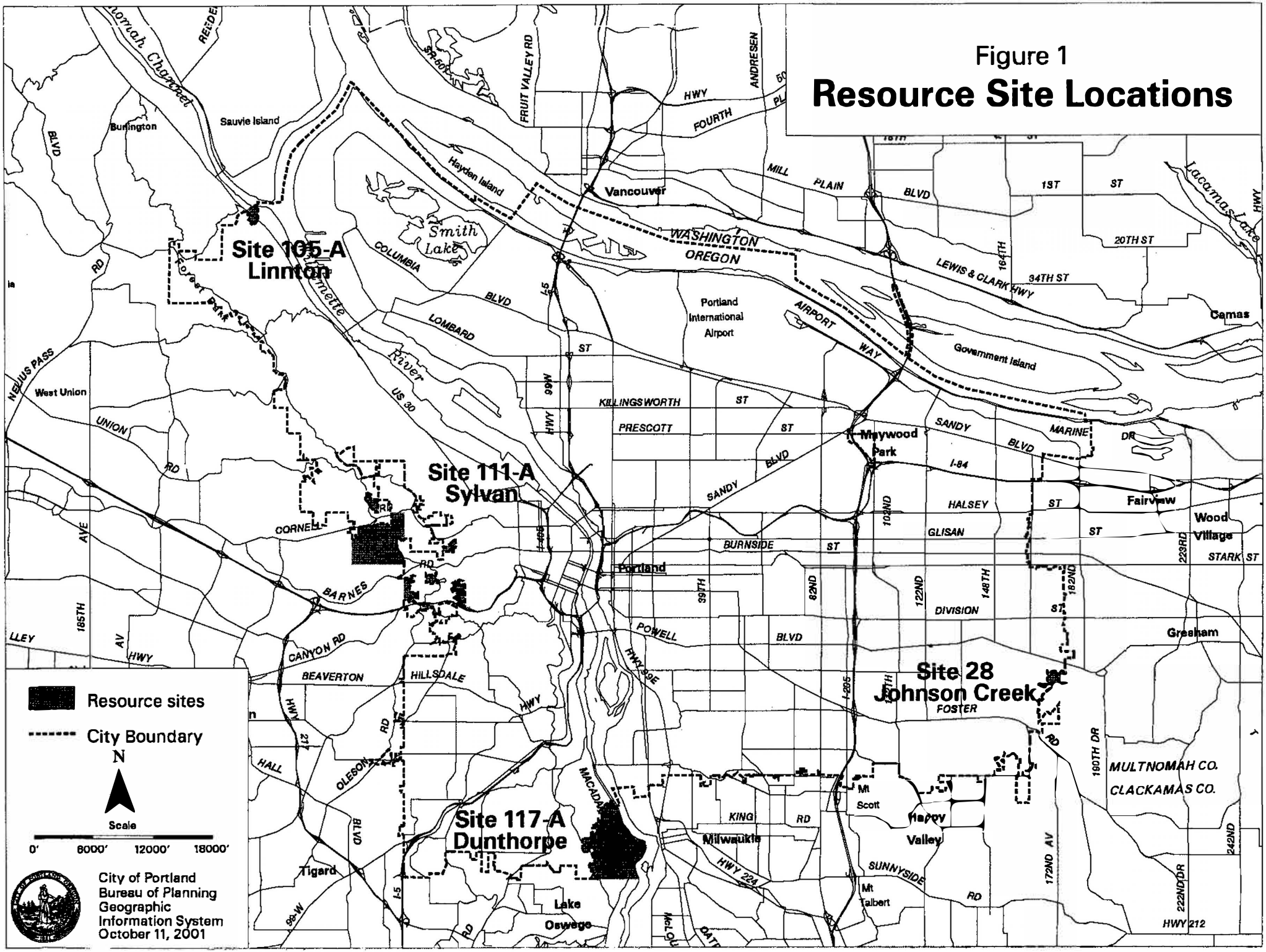


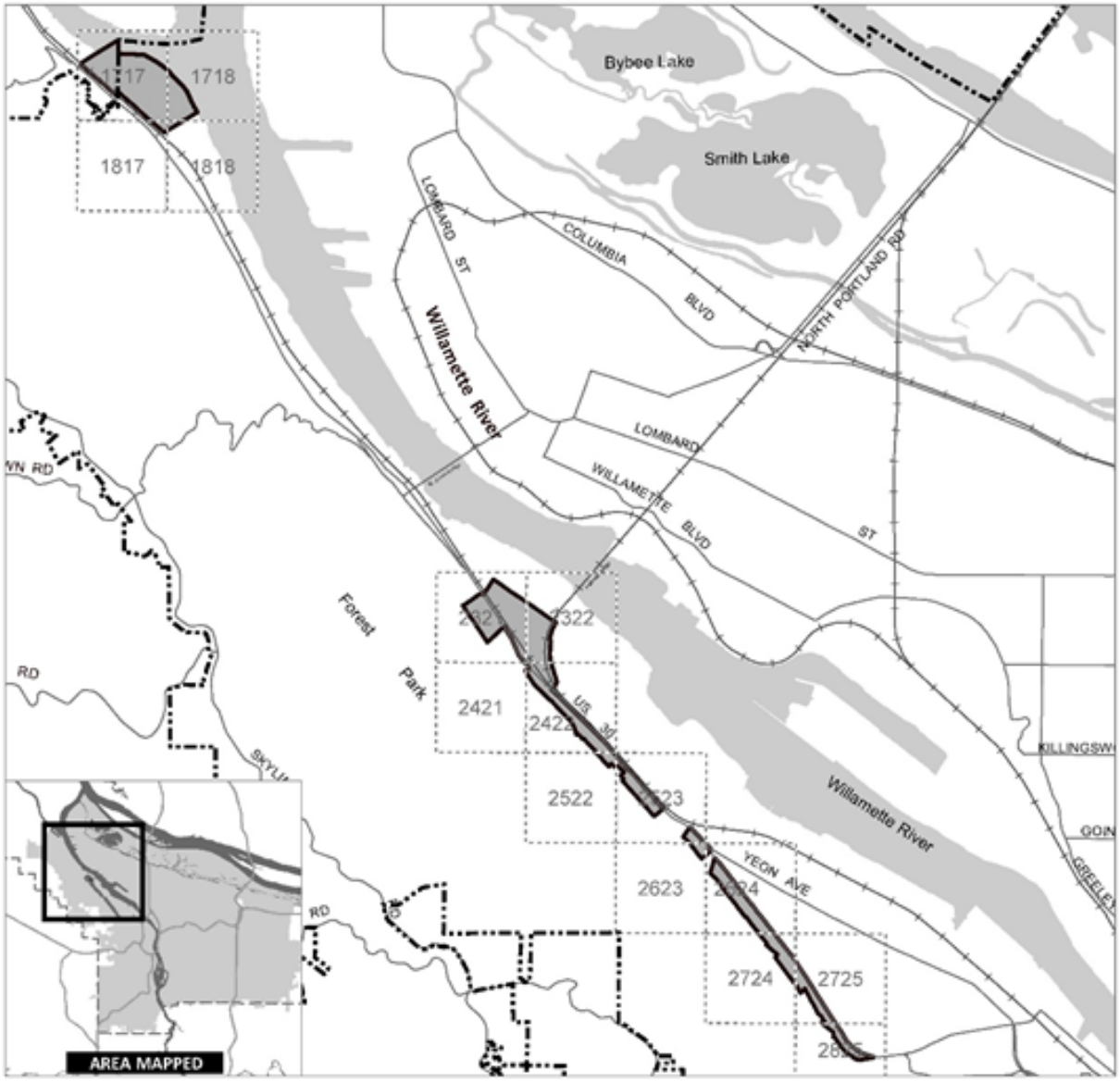
Figure 1
Resource Site Locations
Site 105-A
Linnton
Site 111-A
Sylvan
Site 117-A
Dunthorpe
Site 28
Johnson Creek
Resource sites
City Boundary
N
Scale
0'
6000'
12000'
18000'
City of Portland
Bureau of Planning
Geographic
Information System
October 11, 2001
Columbia River
Willamette River
Smith Lake
Vancouver
Portland
Portland International Airport
Government Island
Sauvie Island
Burlington
Hayden Island
Maywood Park
Fairview
Wood Village
Troutdale
Gresham
Mt Scott
Happy Valley
Mt Talbert
Milwaukie
Lake Oswego
Tigard
Beaverton
Hillsdale
West Union
Camas
WASHINGTON
OREGON
MULTNOMAH CO.
CLACKAMAS CO.

The Inventory of Natural, Scenic and Open Space Resources for Multnomah County Unincorporated Urban Areaas has been amended. The chapters that applied to all resource sites that were included in the original plan have been deleted from this volume except for resource site 105-A Linnton. The deleted chapters are now covered by Volume 2 Part A1, Volume 2 Part A2, Volume 2 Part C, Volume 2 Part D, and Volume 2 Part F of the Environmental Overlay Zone Map Correction Project. Map 430-5 shows the locations where the resource inventories and ESEE decisions of this document still apply.

Northwest Hills Natural Areas Protection Plan Area

Map 430-5

Map Revised Xxxxx X, 202X



City Boundary

Plan Area

Map Note: Small numbers within boxes represent Portland quarter section index

NORTH

0 3,000 6,000

Scale in Feet

Bureau of Planning and Sustainability
Portland, Oregon

- Oregon Department of Fish and Wildlife's fish habitat maps, winter range maps, aquatic inventory data, and information from local and regional biologists;
- Division of State Land's essential indigenous salmonid habitat maps, DSL Wetlands Program publications, and local data and reports contained in DSL permit case files;
- Local inventories and land use cases;
- State Geologic Survey maps;
- Portland Physiographic Inventory maps (Redfern 1976);
- Historic maps (e.g., survey, parcel and land use maps);
- City, County and Metro GIS maps; and
- Metro and City of Portland aerial photographs (1996).

Several resource agencies were consulted, including:

- U.S. Fish and Wildlife Service;
- National Marine Fisheries Service;
- Oregon Department of Fish and Wildlife;
- Oregon Water Resources Board;
- Oregon Water Resources Commission;
- Oregon Department of Forestry;
- Oregon Division of State Lands; and
- U.S. Army Corps of Engineers.

Additional references used during the development of the plan inventory are cited in the References section of this report. These references include studies of cultural, scenic, educational, and recreational resources within the planning area.

On-Site Investigation

Field inventory work was conducted in the planning area between 1997 and 1998. Some sites were previously evaluated in the 1986 city inventory, the Metro Urban Greenspaces Inventory (1990-1991), or by local biologists. Information on the location, quantity and quality of resources within each site was collected. This information included data on plant communities, wetland and water resources, fish and wildlife habitat, special status species, soils and geology, resource impacts, and current and historic land uses.

To evaluate the relative significance of a resource, several factors were considered. Consistent with previous City and County significance determinations, these factors are based on the functional values of particular resources. Two types of significance factors were used in this evaluation: decision factors and contributing factors (see Appendix F). Significance factors were evaluated for each site using data collected on-site and compiled from existing data sources.

Inventory Format and References

The following narrative discussion for each resource site begins with an inventory summary page, reviews resource characteristics, and concludes with a significance determination. Each inventory includes a Resource Site Map and a Significant Resource Area Map.

Site numbers were selected based on the numbering of adjacent City Goal 5 sites; for example, Site 111-A borders existing Site 111. Alpha codes (e.g., THPL) used in the discussion represent a dominant species within the plant community: the first two letters are the first letters of the genus (TH for Thuja) and the last two letters are the first letters of the species (PL for plicata). Special status species acronyms (e.g., SoC) are described in the footnotes to Tables 2, 5, 8, 11, and A-1. As previously noted, UIA refers to "Unincorporated Area."

The natural resource inventory and ESEE decisions that apply to Resource Site 28: Circle Ave Wetland have been repealed and replaced by the Environmental Overlay Zone Map Correction Project. Resource Site 28 has been renumbered. It is now signified as Resource Site JC27. The natural resource inventory and protection decisions that apply to JC27 can be found in *Volume 2 Part F - Johnson Creek Natural Resource Inventory and Protection Decisions*.

RESOURCE SITE 105-A: LINNTON UIA NO: 2

Summary Information

Resource Site Size: 40 acres

Site Location: On both sides of NW St. Helens Road, between Harborton Drive and Newberry Road intersections; Miller Creek flows through site past Fred's Marina to Multnomah Channel near junction with Willamette River.

Legal Description: T2N, R1W, Sections 33, 34

Quarter Sections: 1716, 1717

USGS Quadrangle: Linnton

County Zoning: RR, MUA-20

Proposed City Zone: RF, R10

Existing Land Uses: Residential, Fred's Marina

Landscape Setting: Set at the base of the West Hills, upland coniferous forests on steep east-facing slopes meet deciduous (riparian) forests on flat Willamette River bottomlands at the confluence of Miller Creek and Multnomah Channel.

Inventory Date: April 24, 1998 (previous surveys in 1986 and 1991)

Resource Types: Perennial and seasonal streams, palustrine wetlands, upland and riparian forest, fish and wildlife, special status species, groundwater, open space

Functional Values: Primary: water quality, flood attenuation/storage, fish and wildlife habitat (incl. special status species), slope stabilization/soil anchoring, groundwater recharge and discharge, water supply. Secondary: sediment trapping and pollutant/nutrient removal, storm drainage, land use buffering, recreation and scenic amenities.

Terrestrial Habitat: Slopes: coniferous forest (PSME-THPL/ACCI-COCO/POMU); Bottomlands: broadleaf deciduous (riparian) forest (FRLA-PHAR)

Aquatic Habitat: Perennial and seasonal streams; FRLA-PHAR wetlands

- Riverine, Tidal, Open Water, Permanent (Willamette River)
- Riverine, Unconsolidated Bottom, Permanently Flooded
- Riverine, Intermittent Streambed, Seasonally Flooded
- Palustrine, Forested, Scrub-Shrub and Emergent, Seasonally Flooded

Habitat Rating: 88 (Range for all City and County sites: 6 – 106)

Special Status Species: Plants: *Montia howellii* (SoC/C) (federal status/state status; see Table 5 notes), *Wolffia columbiana* (ONHP list 2); Fish: *Lampetra tridentata* (SoC/SV), *Onchorhynchus clarki clarki* (PT/SC), *O. keta* (T/SC), *O. kisutch* (C/SC), *O. mykiss* (T/SC), *O. tshawytscha* (T/SC); Molluscs: *Anodonia californiensis* (SoC/-), *Fisherola nuttalli* (ONHP list 2), *Fluminicola columbiana* (SoC/-); Wildlife: *Agelaius tricolor* (SoC/ P/NR), *Chrysemys picta* (-, SC), *Clemmys marmorata marmorata* (SoC/SC),

Coccyzus americanus (-, SC), *Contopus cooperi* (SoC/SV), *Corynorhinus townsendii townsendii* (SoC/SC), *Dryocopus pileatus* (-, SV), *Empidonax traillii* (SoC/SV), *Falco peregrinus annatum* (-/E), *Haliaeetus leucocephalus* (T/T), *Myotis evotis* (SoC/SV), *M. thysanodes* (SoC/SU), *M. volans* (SoC/SV), *Rana aurora aurora* (SoC/SV)

Significant? Yes

Location

This site is set at the base of the West Hills, where the steep forested slopes of the residential Harborton community meet the flat Willamette River bottomlands at Fred's Marina. From the bottomlands, generally located at 10 feet mean sea level (msl), the slopes rise at an average gradient of 35 percent to nearly 300 msl. St. Helens Road and the Burlington Northern railway cross through the middle of the site, at the base of the hillside slopes. The site is located between St. Helens Road intersections with NW Harborton Drive and NW Newberry Road.

The site is roughly triangular, extending south as far as NW Creston and NW Hocking Roads, at the northeast corner of Forest Park. Miller Creek borders the site to the northwest near NW Newberry Road and Multnomah Channel forms the northern point in the triangle. The southern tip of Sauvie's Island is located across the Multnomah Channel, and the Willamette River is approximately 1,500 feet to the west.

Figure 4 shows site boundaries and major resource features. This site borders City Resource Sites 104, 105, and 106 (City of Portland 1991b) which contain additional information on area resources.

Quantity and Quality

This 40-acre site sits at the confluence of the Multnomah Channel and Miller Creek, a free-flowing, fish-bearing stream with a basin size of approximately 770 acres. In addition to Miller Creek, the site includes two smaller intermittent streams that originate in Forest Park. The site is located near the Willamette River-Multnomah Channel junction and approximately three miles south of the Columbia River.

Approximately one-half (20 acres) of the site is on the hillside south of the Burlington Northern railway, and one-half is on the bottomlands north of the railway. Roughly 75 percent (15 acres) of the hillside lands are developed with low to moderate density, single-dwelling residential homes and improved streets. The remaining five acres consist of forested slopes and ravines.

The bottomlands consist of approximately 15 acres of forested wetlands, riparian forest and the lower Miller Creek corridor. The remaining five acres includes Fred's Marina, Marina Way and fill areas.

Vegetation

Two distinct plant communities are present at this site, a coniferous upland forest and a deciduous floodplain forest. On the hillside slopes to the west, the forest consists of 50- to 150-year old second growth in a mid-seral, *conifer topping hardwood* stage of succession. Douglas

City of Portland
Bureau of Planning
Geographic
Information System
October 11, 2001

Figure 4

RESOURCE SITE MAP: SITE 105-A, LINNTON

Resource Site Boundary

INFORMATION SOURCES:

Taxlots: Originally produced by Oregon Dept. of Revenue. Modified and updated by Multnomah County Assessment & Taxation and Portland Dept. of Transportation. Updated through Jan. 2002. Accuracy - +/- .1 feet.

Aerial Orthophotographs:
Digital Orthophotography from flights in May, 1996. Photograph has been rectified to adjust for curvature of the earth. 4'x4' pixel size. Not registered to taxlot base map.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

The information on the map was derived from digital databases on the City of Portland, Bureau of Planning GIS. Care was taken in the creation of this map but it is provided "as is". The City of Portland cannot accept any responsibility for error, omissions, or positional accuracy, and therefore, there are no warranties which accompany this product. However, notification of any errors will be appreciated.

N

Scale

0 300 600 1200

fir, western red cedar and western hemlock are common associates in the upland forest community. In several areas, these conifers have reached a closed canopy condition overtopping earlier succession deciduous trees such as bigleaf maple and red alder, which are in decline. Dominant shrubs include vine maple and western hazel, with salmonberry typically occurring along the hillside streams. Other upland forest shrubs include Oregon grape (both native species), Indian plum, red elderberry, snowberry, blue currant, western serviceberry and western wahoo. The forest ground layer is diverse, with sword fern as the characteristic dominant. English ivy, a non-native species, has established itself in certain parts of the upland forest, particularly near homes and roadways.

At the base of the hillside, a mature Oregon ash forest covers most of the Willamette River bottomlands. Other trees in the overstory include black cottonwood, Pacific willow and black hawthorn. The shrub layer is relatively sparse with less than five percent canopy closure. Red osier dogwood, Sitka willow and Scouler's willow occur in the wetland areas, while Indian plum, red elderberry, snowberry and Himalayan blackberry are more common in the uplands. Herbaceous wetland plants within the ash forest include water-starwort, little western and Pennsylvania bittercress, and several grass species, including the invasive reed canarygrass.

Columbia watermeal is a rare aquatic plant documented several miles east of the Linnton site in a sheltered area along the Columbia River (ONHP 1998). The Linnton site contains potential habitat for this species, including freshwater marsh and ponded areas with water starwort, a common associate of Columbia watermeal.

Appendix C contains a complete list of plant species observed during the April 1998 field reconnaissance.

Fish and Wildlife

Two major wildlife habitats are present within this site. Northeast of St. Helens Road is Willamette River floodplain forest. Native bottomland forest is increasingly rare due to land use alterations, development and manipulation of water levels within riverine areas. On the steep slopes southwest of St. Helens Road is coniferous forest similar to habitat found within nearby Forest Park. The location of the site, close Multnomah Channel, suggests that migratory wildlife that use the Willamette and Columbia Rivers as a travel corridor would regularly seek refuge within the site.

Miller Creek traverses both portions of the study site. Sea-run cutthroat trout and Lower Columbia River coho salmon reside in the creek. The location of the creek, within steep forested ravines, provides wildlife with a protected travel corridor that extends from the Willamette River floodplain to Forest Park. Waterbodies within the site provide refuge from high summer temperatures and a permanent source of water.

Populations of Lower Columbia River steelhead, coho, chum and chinook salmon, sea-run cutthroat trout and Pacific lamprey are among the many species of fish that inhabit the Willamette River. Based on the critical habitat proposed by the National Marine Fisheries Service, it appears that a significant portion of this site will be considered critical habitat for Lower Columbia River steelhead, Lower Columbia River chinook, and Columbia River chum salmon (see March 9 and 10, 1998 and February 5, 1999 Federal Registers). This site is

particularly important because it provides off-channel rearing areas and contains a free-flowing salmonid stream that is directly connected to the Willamette River.

Other wildlife that use the river include numerous songbird and waterfowl species, herons, river otter and beaver. This area is generally within the Pacific Flyway and serves as a potential resting area for large flocks of migratory waterfowl and birds such as sandhill cranes.

Birds encountered during field surveys of the site included mourning dove, great blue heron, common yellowthroat and song sparrow. The area is also potential foraging ground for birds of prey such as peregrine falcons, bald eagles and osprey. Amphibians and reptiles, including western red-backed salamanders, Pacific giant salamanders, red-legged frogs and garter snakes inhabit the site. Snags and tree cavities serve as foraging, roosting and nesting sites for a wide range of species, including bats, voles, weasels, raccoons and cavity-nesting birds such as black-capped chickadees and downy woodpeckers. The yellow-billed cuckoo, a species listed as sensitive by the state, was once common in bottomland floodplain forests, and the loss of such habitat has been attributed to this species' decline. Olive-sided flycatcher and little willow flycatcher also favor the bottomland forest habitat at this site. Both of these species are federally listed species of concern.

The Columbia white-tailed deer is an endangered subspecies that is known to inhabit the floodplain of the Lower Columbia River between Karlson Island at river mile 32 and Wallace Island at river mile 50. However, during recent years, there is speculation that large scale flooding such as that which occurred in 1996 may have resulted in migration of some individuals. Presence of this species within the Linnton parcel is possible and deer tracks were noted during field investigations. Abundant cover in close proximity to forage habitat is essential for the survival of this species.

Although scattered homes occur throughout the upland portion of the site, native vegetative cover is high and impervious surface coverage is relatively low. Thick riparian forests protect the creeks and the integrity of their banks, and influence the quality of habitat located within Multnomah Channel. Adjacent large tracts of forest influence wildlife use of the area.

Characteristic vegetation, wildlife habitat, streams and wetlands within Linnton were identified using the City's Wildlife Habitat Assessment (WHA) survey forms. Field reconnaissance conducted in April 1998 supplements previous City surveys of the area in 1986 and 1991. The WHA form attributes a habitat "score" to each site so that relative functional values of a site may be determined on a local level. For comparison purposes, the range of habitat scores within the City of Portland and Multnomah County is 6 to 106, and the range of scores for West Hills sites is 17 to 98. The Linnton site, with a WHA score of 88, provides relatively high quality habitat compared to other sites in the West Hills. Table 4 provides a summary of the relative habitat values for the Linnton site. See Appendix D and Appendix E for the WHA data form and rating summary discussion, respectively.

Table 4. Site 105-A Habitat Rating Summary

Wildlife Habitat Score:	**88**	**Range for City/County Sites:**	**6 - 106**
Water:	High	**Range for West Hills Sites:**	**17 - 98**
Food:	High		
Cover:	High		
Interspersion:	High		

Uniqueness:	Medium
Disturbance:	Low

Special Status Species

The City requested and received information on sensitive species occurrence from the USFWS and ONHP. In addition, published information on sensitive plants and animals was consulted. Appendix A provides a detailed review of the requirements and known occurrence of each identified species. Table 5 summarizes identified species, their federal and state status, and their occurrence within the Linnton site.

Table 5. Status of Species of Special Interest within the Linnton site

Scientific Name	Common Name	Federal Status	State Status	Presence
Plants				
Montia howellii	Howell's montia	SOC	C	P
Wolffia columbiana	Columbia watermeal	-	-	P
Fish and Wildlife				
Agelaius tricolor	Tri-colored blackbird	SOC	P/NR	P
Anodonia californiensis	California floater (mussel)	SOC	-	P
Chrysemys picta	Painted turtle	-	SC	P
Clemmys marmorata marmorata	Northwestern pond turtle	SOC	SC	P
Coccyzus americanus	Yellow-billed cuckoo	-	SC	P
Contopus cooperi	Olive-sided flycatcher	SOC	SV	P
Dryocopus pileatus	Pileated woodpecker	-	SV	P
Empidonax traillii brewsteri	Little willow flycatcher	SOC	SV	P
Falco peregrinus annatum	American peregrine falcon	Delisted	E	P
Fluminicola columbiana	Columbia spire snail	SOC	-	P
Fisherola nuttalli	Shortface lanx	-	-	P
Haliaeetus leucocephalus	Bald eagle	T	T	P
Lampetra tridentata	Pacific lamprey	SOC	SV	Yes
Myotis evotis	Long-eared myotis	SOC	SU	P
Myotis thysanodes	Fringed myotis	SOC	SV	P
Myotis volans	Long-legged myotis	SOC	SU	P
Oncorhynchus clarki clarki	Coastal cutthroat trout (Southwestern WA/ Columbia River ESU)	PT	SC	Yes
Oncorhynchus keta	Chum salmon (Columbia River ESU)	T	SC	P
Oncorhynchus kisutch	Coho salmon (Lower Columbia River/Southwest WA ESU)	C	SC	Yes
Oncorhynchus mykiss	Steelhead (Lower Columbia River ESU)	T	SU	Yes
Oncorhynchus tshawytscha	Chinook salmon (Lower Columbia	T	SC	Yes

	River ESU)			
Rana aurora aurora	Northern red-legged frog	SOC	SU	Yes

Table 5 Notes:
ESU: Evolutionarily Significant Unit (a distinctive group of Pacific salmon, steelhead, or sea-run cutthroat trout)
Federal Status: E=Endangered, T=Threatened, P=Proposed, C=Candidate, SOC= Species of Concern
State Status: E=Endangered, T=Threatened, SC= Sensitive-Critical, SV=Sensitive-Vulnerable, SU=Sensitive-Undetermined Status, C=Candidate for listing, P/NR= Peripheral or Naturally Rare
Presence: P=Potential occurrence based on assessment of habitat and range, Yes=Detected within site

Geology and Soils

On the flat bottomlands between the Willamette River and the Burlington Northern railway, the predominant soil type is Sauvie silt loam. This hydric or wetland, soil is a very deep, poorly drained soil located on a floodplain. The soil formed from recently deposited silty alluvium. Runoff is slow and permeability is moderately slow. Erosion hazard is high because of frequent flooding from December to June.

Uphill from the Burlington Northern tracks on the mild upland slopes is a narrow strip of Haplumbrepts soil. This soil formed from silica-rich volcanic ash and basalt mixed with wind-blown silt, volcanic silt and alluvial material. Permeability is moderate to slow, runoff is slow to medium, and erosion hazard is generally low. However, the low strength, high clay characteristics of this soil severely limit the suitability of this soil for building sites.

Continuing uphill is a deep, well-drained Urban-Quatama complex. Quatama soils developed from loamy alluvium, and in this case are mixed with soils disturbed by urban development. Slow runoff and other characteristics combine to keep the hazard of erosion slight. However, steep slopes and soil wetness limit its suitability for building and sanitary sites.

In the southeast corner of the site is the deep, moderately well-drained Goble silt loam. At depths of 30 to 48 inches is a fragipan, a compacted layer of soil that creates a hard, impervious layer difficult for water and roots to penetrate. The fragipan is up to one foot thick. Unlike the adjacent Quatama complex, this soil exhibits rapid runoff and a high erosion hazard. The steep slope, wetness and poor percolation of the soil creates severe limitations for building sites and sanitary facilities.

The steep slopes of the hills near this site have a history of landslides and other types of mass movement. The Metro Slope Hazard map classifies the southwest part of this site as having a moderate slope hazard while the northwest part has a low slope hazard rating. Recorded earthquakes near the site include the 1964 Sauvie Island quake; at a magnitude of 5.3, this was one of the ten largest in Oregon history (Jacobson 1986). A 3.7-magnitude quake with an epicenter on the southeast tip of Sauvie Island was recorded in 1978 (Riccio 1978). On July 22, 1991, a series of 3.5-magnitude quakes were centered in the Tualatin Mountains (Orr et al. 1992). Despite this and a history of landslides, earthquake hazard is rated low on Metro's Relative Earthquake Hazard Map.

Groundwater Resources

The Columbia River Basalt underlying the upland slopes produces low yields based on the single well record within the site (Oregon Water Resource Board 1998). During drilling of the well, located on Mountain View Road, water was first found at a depth of 179 feet. At its completed

depth of 320 feet, the well yielded only 12 gallons per minute. Groundwater from this area is moderately hard to hard with occasional high chloride content. Recharge occurs principally through infiltration and migration from neighboring formations (Redfern 1976).

The Troutdale Formation underlying the alluvial floodplain (Willamette bottomlands) is known to provide an excellent aquifer. However, no well logs or other data are available from this site. Groundwater recharge generally occurs through infiltration and migration from the Willamette River and neighboring terraces. Groundwater is moderately hard to hard with occasional high chloride content.

In addition to the well record, two 1932 water rights—one for domestic use and one for power - are recorded on Miller Creek (Oregon Water Resource Board 1998).

Cultural Resources

The floodplain, river terraces and upland aspects of this site make it ideally suited as a potential prehistoric site. The lowland areas along Multnomah Channel probably provided resources such as wapato and other food plants, fish and game animals. Hunting and other subsistence activities would also have taken place in the upland areas. Prehistoric upland sites, though unusual, are reported in the Tualatin Mountains west of Linnton. Projected density for such sites is one site for each 130 acres of land, with projected density increasing to one site every 40 acres along streams and wetlands (Ellis 1992).

The township of Linnton, located south of this site, was first settled in 1843. The town competed with Portland as a shipping center. No records of historic sites were found within this site; most of the activity associated with early settlements took place to the south.

Scenic and Educational Resources

The Willamette River Scenic Waterway, as designated by the City of Portland, extends into Multnomah Channel to a point just beyond the Linnton site (City of Portland 1989). This waterway extends from Elk Rock Island near Dunthorpe to Kelly Point Park to the north. Multnomah County identifies the river channel as a key viewing corridor. In addition, the east face of the Tualatin Mountains is recognized as an outstanding scenic backdrop (Multnomah County, West Hills Rural Area Plan).

One of the country's largest urban parks, Forest Park, borders this site to the southwest. Trail access to the park is available at the end of Creston Road where Firelane 12 begins. Portland Parks and Recreation has recently acquired two lots in the Linnton site, and one lot just outside of the site, to be used as natural areas. Both lots are located on Mountain View Road, one near Miller Creek, the other on near the Hampton Road intersection. Another recreational use at this site is Fred's Marina, which provides moorage for numerous boats on the Multnomah Channel.

Significance Determination

The object of the inventory is to establish the location, quantity and quality of resources within the Linnton site. To evaluate the relative significance of a resource, several factors are considered. Significance factors are divided into two groups. Decision factors are those factors which, on their own, are important and establish the significance of a resource. Contributing

factors may have limited or moderate importance on their own, but when combined with other decision or contributing factors for the same resource, that resource is deemed significant. Appendix F contains a summary of significance factors.

The following table summarizes significant resources at the Linnton site.

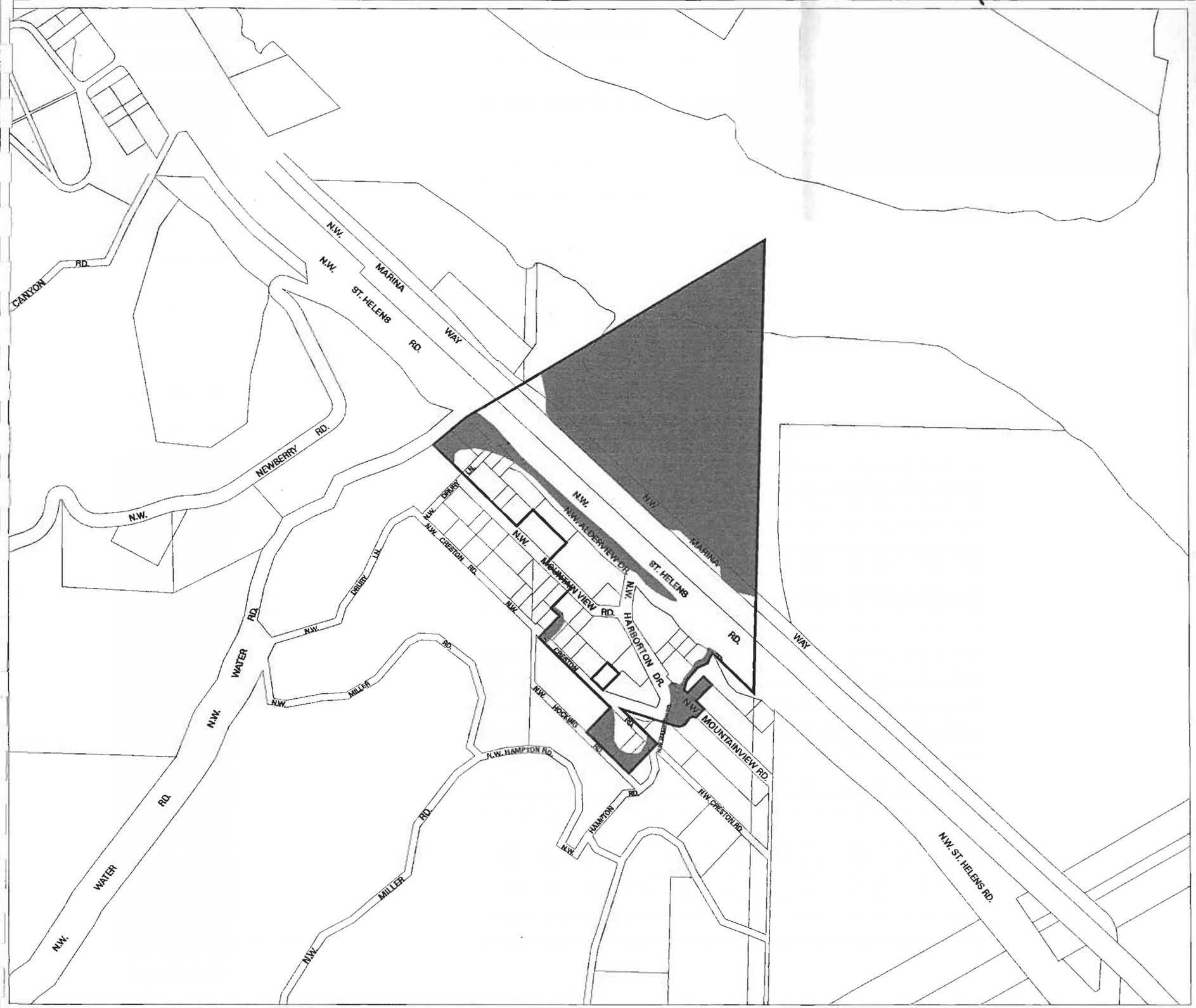
Table 6. Linnton Significance Factors

Decision Factors	**Resources**
Water quality	Streams, wetlands, riparian vegetation
Flood attenuation/storage	Willamette floodplain, bottomland wetlands
Fish and wildlife habitat	Bottomland wetlands, Multnomah Channel, Miller Creek, other streams, forest vegetation
Slope stabilization/soil anchoring	Riparian and upland vegetation, soils
Groundwater recharge and discharge	Willamette River, streams, wetlands, springs, upland soils
Water supply	Miller Creek, groundwater
Contributing Factors	**Resources**
Sediment trapping and pollutant/nutrient removal	Wetlands, riparian vegetation, Miller Creek and other streams
Storm drainage	Miller Creek and other streams
Recreation	Connections to Forest Park
Scenic amenity	Willamette River, forests, wetlands and streams
Land use buffering	Forest vegetation

Conclusion

This site contains significant natural resources. All water resources are significant, including the bottomland wetlands, Multnomah Channel, Miller Creek and two smaller streams, hillside springs and groundwater resources. All wetland and riparian forest vegetation, and all upland vegetation that is not managed residential landscaping, is significant. These resources provide important functional values associated with water quality, flood attenuation and storage, fish and wildlife habitat, slope stabilization and soil anchoring, groundwater recharge and discharge, and water supply. They also provide auxiliary benefits in the form of sediment trapping and nutrient removal, storm drainage, recreational and scenic amenities, and land use buffering.

Figure 5 shows the location of significant resources in Site 105-A.



City of Portland
Bureau of Planning
Geographic
Information System
October 11, 2001

Figure 5

RECOMMENDED SIGNIFICANT RESOURCES MAP: SITE 105-A, LINNTON

Site Boundary

Significant Resources

INFORMATION SOURCES:

Taxlots: Originally produced by Oregon Dept. of Revenue. Modified and updated by Multnomah County Assessment & Taxation and Portland Dept. of Transportation. Updated through Jan. 2002. Accuracy - +/- .1 feet.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

The information on the map was derived from digital databases on the City of Portland, Bureau of Planning GIS. Care was taken in the creation of this map but it is provided "as is". The City of Portland cannot accept any responsibility for error, omissions, or positional accuracy, and therefore, there are no warrantics which accompany this product. However, notification of any errors will be appreciated.

N

Scale

0 200 400 800 1200

The natural resource inventory and ESEE decisions that apply to Resource Site 111-A Sylvan have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 111-A has been renumbered. It is now signified as Resource Sites FP25, SK9, SK10, SW2, FP40, FP39, FC1, and SW4. The natural resource inventory and protection decisions that apply to these Resource Sites can be found in *Volume 2 Part A2, Volume 2 Part B, Volume 2 Part C, and Volume 2 Part D* of the *Environmental Overlay Zone Map Correction Project*.

The natural resource inventory and ESEE decisions that apply to Resource Site 117-A: Dunthorpe have been repealed and replaced by the *Environmental Overlay Zone Map Correction Project*. Resource Site 117-A has been renumbered. It is now signified as Resource Site SW23 and portions of Resource Site 117-A have been added to Resource Site SW17. The natural resource inventory and protection decisions that apply to these Resource Sites can be found in *Volume 2 Part C - Tryon Creek and Southwest Hills Natural Resource Inventory and Protection Decisions*.

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APPENDIX A:

SPECIES OF SPECIAL INTEREST

APPENDIX A
SPECIES OF SPECIAL INTEREST

This appendix reviews information on species of special interest within the Multnomah County study areas. Species of special interest for the purposes of this review include state and federal listed, proposed and candidate species, and federal "species of concern" and state "sensitive" species. Using existing species records and recent field investigations, consultants evaluated the potential occurrence of each of these species with in the study areas is evaluated.

During spring and summer of 1998, City staff and project consultants conducted field surveys within the study areas. The project team recorded observations of species of special interest and the availability of suitable habitat during the surveys, but a formal sensitive species survey was not completed.

In response to the City's request, the U.S. Fish and Wildlife Service (USFWS) identified species that are listed, proposed for listing, candidates for listing, or federally designated species of concern that may potentially use or inhabit the project area. Additionally, the City requested information from the Oregon Natural Heritage Program (ONHP) database. Table A-1 lists those species identified by USFWS (1998) and ONHP (1998a). The table identifies the federal and state status of the species and their known or potential presence. Following the table is a brief review of the habitat and life cycle requirements of each species and a discussion of their potential occurrence within the study area. In the discussion, species are grouped in accordance with their federal status under the Endangered Species Act.

Table A-1. Status of Species of Special Interest within the planning area

Scientific Name	Common Name	Federal Status	State Status	Presence
Plants				
Aster curtus	white top aster	SOC	T	N
Castilleja levisecta	golden paintbrush	T	E	N
Cimicifuga elata	tall bugbane	SOC	C	P-J,S
Delphinium leucophaeum	white rock larkspur	SOC	E	P-D
Delphinium pavonaceum	peacock larkspur	SOC	E	N
Erigeron decumbens var. decumbens	Willamette daisy	PE	E	N
Howellia aquatilis	howellia	T	E	N
Lomatium bradshawii	Bradshaw's lomatium	E	E	N
Lupinus sulphureus var. kincaidii	Kincaid's lupine	PT	T	N
Montia howellii	Howell's montia	SOC	C	P-D,J,L,S
Sullivantia oregana	Oregon sullivantia	SOC	C	P-D
Wolffia columbiana	Columbia watermeal	-	-	P-D,L
Fish and Wildlife				
Agelaius tricolor	tricolored blackbird	SOC	P/NR	P-L
Anodonta californiensis	California floater (mussle)	SOC	-	P-D,L
Ascaphus truei	tailed frog	SOC	SV	N
Chrysemys picta	painted turtle	-	SC	P-L

Scientific Name	Common Name	Federal Status	State Status	Presence
Clemmys marmorata marmorata	northwestern pond turtle	SOC	SC	P-L
Coccyzus americanus	yellow-billed cuckoo	-	SC	P-L
Contopus cooperi	olive-sided flycatcher	SOC	SV	P-D,J,L,S
Corynorhinus townsendii townsendii	Pacific western big-eared bat	SOC	SC	P-D,J,S
Dryocopus pileatus	pileated woodpecker	-	SV	Yes-D,S; P-J,L
Empidonax traillii brewsteri	little willow flycatcher	SOC	SV	P-D,J,L,S
Falco peregrinus anatum	American peregrine falcon	Delisted	E	P-D,J,L,S
Fisherola nuttalli	Great Columbia River limpet	-	-	P-L
Fluminicola columbiana	Columbia spire snail	SOC	-	P-D,L
Haliaeetus leucocephalus	bald eagle	T	T	P-D,L
Lampetra tridentata	Pacific lamprey	SOC	SV	Yes-D,L
Myotis evotis	long-eared myotis	SOC	SU	P-D,J,L,S
Myotis thysanodes	fringed myotis	SOC	SV	P-D,J,L,S
Myotis volans	long-legged myotis	SOC	SU	P-D,J,L,S
Odocoileus virginianus leucurus	Columbian white-tailed deer	E	SV	P-L
Oncorhynchus clarki clarki	Coastal cutthroat trout (Southwestern WA/Columbia River ESU)	PT	SC	Yes-D,J,L
Oncorhynchus keta	Chum salmon (Columbia River ESU)	T	SC	P-D,L
Oncorhynchus kisutch	Coho salmon (Lower Columbia River/Southwest WA ESU)	C	SC	Yes-D,J,L
Oncorhynchus mykiss	Steelhead (Lower Columbia River ESU)	T	SU	Yes-D,J,L
Oncorhynchus tshawytscha	Chinook salmon (Lower Columbia River ESU)	T	SC	Yes-D,J,L
Rana aurora aurora	northern red-legged frog	SOC	SU	Yes-J; P-D,L,S
Rana cascadae	Cascades frog	SOC	SV	N

Notes:
ESU: Evolutionarily Significant Unit (a distinctive group of Pacific salmon, steelhead, or sea-run cutthroat trout)
Federal Status: E=Endangered, T=Threatened, P=Proposed, C=Candidate, SOC= Species of Concern
State Status: E=Endangered, T=Threatened, SC= Sensitive-Critical, SV=Sensitive-Vulnerable, SU=Sensitive-Undetermined Status, C=Candidate for listing, P/NR= Peripheral or Naturally Rare
Presence: P=Potential occurrence based on assessment of habitat and range, Yes=Detected within site

Federally Listed Species

Plants

Golden Indian Paintbrush

Golden Indian Paintbrush (*Castilleja laevisecta*) is a regionally endemic endangered species that occurs in low elevation meadows and prairies from Vancouver Island, British Columbia throughout the Puget Trough and Willamette Valley (Hitchcock and Conquist, 1973). This species was once common in the Willamette Valley in Linn, Marion and Multnomah Counties, but is believed extirpated in Oregon (Eastman, 1990). Possible contributions to the decline of this species include loss of habitat due to housing development, grazing, agriculture and park maintenance (WNHP, 1981).

The ONHP database did not identify records for this species within the study area (ONHP, 1998a). Because the species occurs in undisturbed open meadows and the majority of the study area is either forested or disturbed, occurrence of this species within the study area is unlikely.

Howellia

Howellia (*Howellia aquatilis*) is an endangered species that is an aquatic annual plant in the bellflower family. This regional endemic was first discovered in Oregon; however, the species is believed extirpated in Oregon and California. Small populations still exist in three widely disjunct areas in the states Washington, Idaho and Montana (Lesica et al., 1988). Howellia occurs only in ponds, sloughs and other marshy areas that are dry or nearly dry late in the growing season and is not found in sites that are submerged throughout the entire year (Lesica et al., 1988).

According to ONHP (1998b), howellia once occurred in Marion, Clackamas and Multnomah Counties but is presumed to be extirpated. The ONHP database search for this project did not locate records for this species in the study area (ONHP 1998a). No individuals of this species were detected within the study area during field investigations. Although potential habitat for this species occurs within the Johnson Creek and Linnton sites, species occurrence is unlikely.

Bradshaw's Lomatium

Bradshaw's lomatium (*Lomatium bradshawii*) is an endangered species that is endemic to wet prairies of western Oregon and Washington. This species was once widespread in the Willamette and Umpqua Valleys, however much of the former range of this species has been highly altered in association with settlement, agriculture, and development. The species is most typically found in wet, seasonally-flooded prairies that are common around creeks and small rivers in the Willamette Valley. Currently, the species is known to occur in only a few locations within Marion, Benton, Linn, and Lane Counties.

According to ONHP, this species is not known to occur in Multnomah County (ONHP 1998b). The ONHP database search did not locate records for this species within or near the study area (1998a). No individuals of this species were detected during field investigations within the study area. In addition, no wet prairie or meadow habitat suitable for this species was found within the study area. Thus, occurrence of this species within the study area is unlikely.

Fish and Wildlife

Bald eagle

Bald eagles (*Haliaeetus leucocephalus*), a species federally listed as threatened, are known to breed throughout the Pacific Northwest and winter from the Alaska panhandle southward. In 1997, there were 308 known occupied breeding territories in Oregon, many of which were concentrated within the Klamath Basin. Thus far in 1998, 25 new breeding sites have been identified in Oregon (Isaacs, personal communication, 1998). Eagles in some parts of the country remain on their territory year-round while others, found further north where waters often freeze, may migrate south to seek better food supplies. Most or all of Oregon's breeding bald

eagles are believed to remain in the state for the winter; however, many wintering eagles from Alaska and Canada join the resident population (Marshall et. al, 1996).

ONHP reports an unverified historic nesting location for Powell Butte, however the validity of the record is in question (ONHP, 1998a). No bald eagle nests are currently known to occur within the study area, however, several nests are currently occupied along the Willamette and Columbia Rivers within Multnomah County. The Columbia and Willamette Rivers both provide a potential source of food for eagles and likely travel corridors for both wintering and migrating birds. Habitat within portions of the study area includes scattered large trees that could serve as perching, roosting, or nesting habitat for bald eagles. It is likely that the birds make use of the riparian forest at Linnton, which is located along the Willamette River and near Sauvie's Island nest sites. Bald eagles are also likely to use the forests in the Dunthorpe site, which has nearly two miles of Willamette River frontage and is close to the eagle nest on Ross Island.

Columbia white-tailed deer

The Columbia white-tailed deer (*Odocoileus virginianus leucurus*) is an endangered subspecies that originally occurred throughout the Umpqua, Willamette, and Lower Columbia valleys, but is now confined to two remaining remnant populations. One population is located in the floodplain of the Lower Columbia River between Karlson Island at river mile 32 and Wallace Island at river mile 50, and the other within the Umpqua Drainage in Douglas County (Matthews et al, 1996). Habitat consists mainly of lowland forested riparian zones that provide cover and have forage consisting of forbs and grasses nearby. The Columbia River population is estimated to contain 800-1,000 individuals (Matthews et al, 1996).

According to the ONHP database this species occurs within Multnomah County (ONHP, 1998b) and two adults were observed in Burlington Bottoms in 1991. Flooding in 1996 may have resulted in additional migration of some individuals. Presence of this species within the Linnton site is possible and deer tracks were noted during field investigations.

Chum salmon (Columbia River ESU)

Chum salmon (*Oncorhynchus keta*) is an anadromous fish that spends most of its life cycle in the Pacific Ocean and enters freshwater streams and rivers just before spawning. Consequently, most spawning runs are short; adults are strong swimmers but poor jumpers, thus are restricted to spawning below even relatively minor barriers (ODFW, 1995). Juveniles are intolerant of prolonged exposure to freshwater and migrate just after emergence to estuarine rearing areas.

Oregon is near the southern limit of the species North American distribution. Historically, the species was abundant in the lower Columbia River, however, recently Lower Columbia River chum was proposed as a threatened species. Columbia basin populations are known to occur only as far east as Columbia County, and may be extirpated (Matthews et al, 1996), thus this species is unlikely to occur in the study area.

Steelhead (Lower Columbia River ESU)

Steelhead (*Oncorhynchus mykiss*) is the anadromous form of "rainbow" or "redband" trout. The species occurs as marine adults and spawns primarily within coastal streams from Alaska to

California and tributaries of the Columbia River basin. Steelhead within the Lower Columbia Evolutionary Significant Unit (ESU) were listed as threatened on March 18, 1998. This listing includes only naturally spawned populations of steelhead and their progeny residing below naturally and man-made impassible barriers (Federal Register, 1998).

Lower Columbia River steelhead are known to occur within the Portland metro area (ONHP 1998a). A remnant steelhead population persists along main stem of Johnson Creek and migrates through the Johnson Creek site (City of Portland 1991a). Steelhead also migrate along the Willamette River, passing the Dunthorpe and Linnton sites. The creeks flowing west from Dunthorpe are tributaries of Tryon Creek, which also is a documented steelhead stream (City of Portland 1992). The streams, wetlands and forest areas within each of the sites contribute generally cool, clean water to Johnson and Tryon Creeks, and to the Columbia and Willamette Rivers, which are used as migratory corridors by steelhead.

Chinook salmon (Lower Columbia River ESU)

Chinook salmon (*Oncorhynchus tshawytscha*) is an anadromous fish that once inhabited all Columbia and Snake River subbasins and all coastal streams below natural barriers. Due to dramatic declines in the numbers of this species that began in the last century and have increased in recent years, the species was recently proposed as a threatened species. Oregon chinook exhibit a wide range of life history patterns. Columbia Basin populations, however, generally rear from the North Oregon Coast to southeast Alaska and begin entering the Columbia River in February and spawn in the fall.

ONHP did not report records of this species in the database results for this study, however, the ONHP database does not yet include all anadromous fish records (ONHP, 1998a). According to ODFW (1995), Lower Columbia River chinook occur within the Columbia, Willamette, and Clackamas Rivers. The species has also been recorded in Johnson Creek (City of Portland 1991a). Although no spawning habitat for this species was documented, forested areas, wetlands and streams within the study area help determine the water quality of Johnson Creek and the Columbia and Willamette Rivers, which are used as migratory corridors by this species.

Proposed Species

Plants

Willamette daisy

Willamette daisy (*Erigeron decumbens* var. *decumbens*) is a perennial plant in the composite family that is proposed as an endangered species and is endemic to the Willamette Valley prairies and grasslands. Once a very common plant, populations of the species had significantly declined by the 1930's due to conversion of habitat to agricultural and developed lands (Eastman, 1990).

According to ONHP (1998b), the species is not known to occur in Multnomah County and the database did not identify records for this species within the study area (ONHP, 1998a). Because the species occurs in undisturbed wetland prairies and the majority of the study area is either forested or disturbed, occurrence of this species within the study area is unlikely.

Kincaid's lupine

Kincaid's lupine (*Lupinus sulphureus* var. *kincaidii*) is proposed as a threatened species and is one of three varieties of *Lupinus sulphureus* known from Oregon (Eastman, 1990). It occurs in dry upland habitat, usually associated with Roemer's fescue grasslands.

Kincaid's lupine is not reported to occur within Multnomah County and the ONHP database search (1998a) did not locate records for this species within the study area. No individuals of this species and no Roemer's fescue grasslands were detected during field investigations; thus, occurrence of this species within the study area is unlikely.

Fish

Coastal cutthroat trout (Southwestern WA/Columbia River ESU)

Cutthroat trout (*Oncorhynchus clarki clarki*) occur as both anadromous and resident forms. They are distributed along the Pacific coast from Northern California to Prince William Sound, Alaska. In Oregon, the species extends to the crest of the Cascade Mountains. Although formally abundant, dramatic declines in the anadromous form of this species have taken place; resident forms are present in healthy numbers. Lower Columbia River groups are present in Columbia River tributaries from Skipanon Creek upstream to Hood River, and in the Willamette River to Willamette Falls (Marshall et al, 1996).

Cutthroat trout migrate along the Willamette River, passing the Dunthorpe and Linnton sites. Cutthroat spawning and early juvenile rearing generally occurs in small streams. The species has been recorded in both Johnson Creek and Miller Creek (at Linnton) and their tributaries (City of Portland 1991a, 1991b). The creeks flowing west from Dunthorpe are tributaries of Tryon Creek, which also is a documented cutthroat stream (City of Portland 1992). The streams, wetlands and forest areas within each of the sites contribute generally cool, clean water to Johnson and Tryon Creeks, and to the Columbia and Willamette Rivers, which are used as migratory corridors by cutthroat.

Candidate Species

Coho salmon (Lower Columbia River/Southwest WA ESU)

Coho salmon *(Oncorhynchus kisutch)* is an anadromous fish that inhabits waters along the Pacific Coast from Alaska to northern California. Coho generally spawn from November through February. Juveniles emerge in the spring and usually spend one year in freshwater before migrating to the ocean. Overwintering habitat, in the form of off-channel areas and pools with cover, is believed to be critical to the survival of juveniles in freshwater. Several factors have been linked to the declines of coho salmon populations in Oregon. These include habitat loss, passage barriers at dams and other barriers, excessive sedimentation resulting from timber harvest, and competition with non-native and hatchery fish.

Coho salmon has been recorded in both Johnson Creek and Miller Creek (at Linnton) (City of Portland 1991a, 1991b). The creeks flowing west from Dunthorpe are tributaries of Tryon Creek, which also is a documented coho stream (City of Portland 1992). The streams, wetlands

and forest areas within each of the sites contribute to water quality in Johnson and Tryon Creeks, and in the Columbia and Willamette Rivers, which are used as migratory corridors by coho.

Species of Concern

Plants

White Top Aster

White top aster (*Aster curtus*), a diminutive member of the composite family, is native to the prairies of western Washington and portions of Oregon (Hitchcock and Cronquist, 1973). Eastman (1990) reports that white top aster grew in the native grasslands that were once common from the Willamette Valley to Vancouver Island, British Colombia.

According to ONHP (1998b), white top aster occurs in Multnomah County; however, the ONHP database did not identify records for this species in the project vicinity (ONHP, 1998a). No individuals of this species were detected during field investigations. Because the species occurs in undisturbed open meadows and the majority of the study area is either forested or disturbed, occurrence of this species within the study area is unlikely.

Tall Bugbane

Tall bugbane (*Cimicifuga elata*) is found in mature, low-elevation forests composed of a mix of coniferous and deciduous trees. The species occurs west of the Cascade Mountains, from the Olympic Peninsula to northwest Oregon (Hitchcock and Cronquist, 1973). This large (one to two meters tall), woodland plant is a member of the buttercup family. When it is not flowering, this species is difficult to detect because of its resemblance to salmonberry and other native plants with compound leaves. It is a herbaceous perennial that grows from a woody rootstock and it produces a terminal raceme of small white flowers from June to August.

According to ONHP (1998b), tall bugbane occurs in Multnomah County. The ONHP database records a sighting of the species on Powell Butte in 1980; however, no information regarding exact location or number of individuals is available (ONHP, 1998a). Additionally, the species is known to occur in forested areas within Forest Park, in the vicinity of the Sylvan site (Titus, personal communication, 1998). Given the abundance of suitable habitat available within the study area and known occurrences nearby, the presence of the species within the study area is likely.

Pale Larkspur

Pale larkspur (*Delphinium leucophaeum*), also known as white rock larkspur, is a member of the buttercup family and is a narrow regional endemic that grows on cliffs and ledges along the lower Willamette and Columbia Rivers. The flowering stalks, which are twelve to thirty inches tall, typically appear in early June.

According to the ONHP database (1998a), the species occurs in several locations near the study area. One record is located within the Dunthorpe site. Rock ledges and bluffs along the Willamette River that are found in Dunthorpe may provide suitable habitat for this species

Peacock Larkspur

Peacock larkspur (*Delphinium pavonaceum*), a showy member of the buttercup family, is endemic to meadowland in the central Willamette Valley (Eastman, 1990). Hitchcock and Cronquist (1973) describe the species' habitat as roadsides and dry hillsides, found chiefly near Corvallis, Oregon.

Although peacock larkspur is listed by ONHP as occurring within Multnomah County (ONHP, 1998b), no records for this species were identified within the study area (ONHP 1998a). No individuals of this species were detected during field investigations. Because the majority of the study area is either forested or disturbed, occurrence of this species within the study area is unlikely.

Howell's Montia

Howell's montia (*Montia howellii*) is a small annual that has tiny, seldom seen flowers that appear from April to May. This species grows in moist woods in lowland areas west of the Cascade Crest from British Columbia to northwest California. The most recently documented populations have been found in disturbed areas.

Howell's montia is reported to occur within Multnomah County (ONHP, 1998b), although no specific occurrences were reported for the study area (ONHP, 1998a). No individuals of this species were detected during field investigations; nonetheless, potential habitat for the species is available within the Johnson Creek, Linnton, Dunthorpe and Sylvan sites.

Oregon sullivantia

Oregon Sullivantia (*Sullivantia oregana*) is a member of the Saxifrage Family and is endemic to the west end of the Columbia Gorge. It grows on shaded, perpetually wet, rocky areas, usually within the spray zone of a waterfall (Eastman, 1990).

ONHP (1998a) reported an occurrence of this species on a rock outcrop within the Willamette River that is relatively close to the Dunthorpe site. No individuals of this species were detected during field investigations, however, not all portions of the area were accessible. Potential habitat for this species exists within the Dunthorpe, Linnton and Sylvan sites.

Fish and Wildlife

Columbia spire snail

Columbia spire snail (*Fluminicola columbiana*) is a freshwater snail known only from the Columbia River drainage in Oregon, Washington, Idaho and Montana. The snail is found in cold, well-oxygenated rivers with a permanent flow and cobble-boulder substrate. It typically lives on and under the rocks and vegetation in slow to rapid currents of the river. Adult and immature snails are believed to be present throughout the year, but are inactive in winter and may be burrowed into the river substrate.

According to ONHP (1998b), the spire snail occurs within Multnomah County and was identified in the Columbia River in the vicinity of Tomahawk Island in 1982, however no

individuals were detected during a 1988 survey of the same area (ONHP 1998a). The ONHP database record notes that stream size is evidently not a factor if the stream is relatively unpolluted. Thus this species may be present but undetected in small streams within the study area where water quality is good.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) breeds and winters primarily along the coast and valleys of central and southern California, although local breeding colonies occur in Oregon. (Marshall *et al.*, 1996). Historically, the species was a summer resident of Klamath County, however, since the 1980s and early 1990s, colonies have been documented in locales far removed form traditional sites (Gilligan *et al.*, 1994). Predicting the location of tricolored colonies can be difficult as the birds relocate nesting areas at unknown frequencies. Most reported Oregon colonies have been associated with cattail *(Typha latifolia)* marshes or Himalayan blackberry *(Rubus discolor)* stands that border wetlands.

Tricolored blackbirds have been documented at the Smith and Bybee Lakes natural area and at the nearby Heron Lakes Golf Course. The colony was observed in an area characterized by dense Himalayan blackberries adjacent to a slough with sparse tree cover along its margins. At the time, this colony was about 250 miles north of the nearest known nesting area in the Rogue River Valley. No occurrences of this species were reported within the study area by ONHP (1998a). No tricolored blackbirds were detected in the study area during field investigations, although presence of the species within the Linnton site is possible.

California floater

The California floater (*Anodonta californiensis*) is a freshwater mollusk that that requires clean, well-oxygenated waters and abundant plankton at all life stages. Larval stages require healthy host fish, to which they adhere, and newly metamorphosed clams require gravel beds with clean, aerated water. Adult clams need lakes or slow moving rivers with soft mud or sand (Larsen et al., 1995). ONHP indicates that the species may be threatened or endangered in Oregon or throughout its range.

According to ONHP (1998b), the species is known to occur within Multnomah County, however, the database does not contain documentation of this species' occurrence within the study area (ONHP, 1998a). Nonetheless, ONHP lists this species as one that requires further study, thus distribution of the species within the county may be poorly understood. Potential habitat for this species occurs within Johnson Creek and the Willamette River (at the Linnton and Dunthorpe sites).

Tailed frog

The tailed frog (*Ascaphus truei*) is a federal species of concern that occurs in forested mountain ranges from Southern British Columbia to northern California. The species is a stream-breeding amphibian that inhabits fast-flowing, permanent streams from sea level to timberline. They require cold clear streams and may suffer from loss of riparian vegetation and sedimentation (Csuti et al, 1997). Larvae require several years to metamorphose and forage on algae and

diatoms found on rocks in the stream. Adults emerge from streams at night to forage for insects in nearby forests.

According to ONHP, this species occurs within Multnomah County (1998b), although no occurrences were reported for the study area (1998a). No individuals of this species were detected during field investigations; however, detailed examination of streams for this species were not conducted. Potential habitat for this species occurs within the Sylvan site; however, sedimentation is likely to limit the quality of the habitat.

Northwestern pond turtle

The northwestern pond turtle (*Clemmys marmorata marmorata*) occurs from Puget Sound, Washington to Baja, California and is found chiefly west of the Sierra-Cascade crest. In Oregon, most records occur in the major drainages of the Klamath, Rogue, Umpqua, Willamette and Columbia River systems. The northwestern pond turtle occurs in a wide variety of both permanent and ephemeral wetlands including lakes, ponds, streams, rivers, and altered habitats including reservoirs, stock ponds, and sewage treatment plants (Holland, 1994). In most habitats, a variety of basking areas and emergent vegetation is present; refugia include undercut banks, submerged vegetation, rocks or logs. Nearby terrestrial habitats are used for egg laying, overland dispersal, and overwintering (Holland, 1991).

According to ONHP (1998b), the northwestern pond turtle is known to occur in Multnomah County, but no records for this species are identified in the vicinity of the study area (ONHP, 1998a). No turtles were detected during field investigations within the study area, though wetlands associated with the Columbia and Willamette River, and Johnson Creek may provide suitable habitat.

Olive-sided flycatcher

The olive-sided flycatcher (*Contopus cooperi*) is a migratory species that arrives in Oregon in mid-May and breeds in moist coniferous forests. By October, the breeding season is complete and the species migrates south for the winter. Major prey items include bees, ants, flies and other flying insects. The species is believed to be in decline throughout the west (Csuti et al, 1997).

According to ONHP (1998b), the species is found in the Willamette Valley and Columbia River ecoregions. Suitable habitat for the species exists throughout the study area and the species' occurrence at any of the study sites is possible.

Pacific Western Big-eared Bat

Pacific western big-eared bats (*Corynorhinus townsendii townsendii)* are found from British Columbia south through the western United States to Mexico. This species inhabits humid coastal forest as well as arid pine forest and scrub areas where it feeds on moths and other insects. This bat typically uses caves, mines, and buildings for its separate day and night roost sites. Caves and mines are known winter hibernacula. They hang free from ceilings and walls and do not enter crevices like other bats. Maternity colonies also tend to be in relatively exposed

areas. The young are born in June and July and maternity colonies disperse in August (van Zyll de Jong 1985; Nagorsen and Brigham 1993).

ONHP (1998b) lists this species as one that is known to occur in Multnomah County but the database search (ONHP, 1998a) did not locate records for this species within the study area. No bats were observed during the field investigations. Though no caves or mines were found within the study area, there are buildings with exposed walls that could potentially be used by the Pacific western big-eared bat. Stumps, snags, and large trees with loose bark may also provide temporary roosts for foraging individuals.

Little Willow Flycatcher

The little willow flycatcher (*Empidonax trailii brewsteri*) is an occasional summer resident west of the Cascade crest in Oregon and inhabits willow thickets bordering streams and lakes, woodland edges, young alder forests, and tall brush at the margins of fields (Gilligan et al., 1994). Migrants typically begin arriving in mid-May, but migration may be as late as early June in some years.

According to ONHP (1998b), the little willow flycatcher is known to inhabit Multnomah County. No records for this species were identified in the study area (ONHP, 1998a) and the species was not detected during field investigations. Nonetheless, suitable habitat for this species is found along streams and rivers within each of the sites in the study area.

Pacific lamprey

Pacific lamprey (*Lampetra tridentata*) is an anadromous species found in coastal streams from the Gulf of Alaska south through California. Adult lamprey return to fresh water from July to October. They spawn the following spring in depressions carved from small gravels of their natal streams. The larvae, which remain in the stream for up to six years, inhabit fine silt deposits in slack water areas and filter feed. Once they metamorphose, they outmigrate to the Pacific in the spring. The adults are parasitic on fish (Wydoski and Whitney, 1979).

Although the ONHP database search for this project did not locate records for this species within the project area (ONHP, 1998a), this species is known to migrate up the Columbia and Willamette Rivers to spawning grounds. Thus the species passes through waters adjacent to the Linnton and Dunthorpe sites.

Long-eared Myotis

Long-eared myotis (*Myotis evotis*) is found from southern British Columbia south to Baja. These bats are known to inhabit coniferous forest and arid grasslands, in a wide elevational range. They feed primarily on moths and beetles. They use buildings, bark and rock crevices for day roosts, and caves and mine entrances for night roosts. Maternity colonies are known to occur in buildings. The single offspring is born in late-June and early-July (van Zyll de Jong, 1985; Nagorsen and Brigham, 1993).

Marshall (1996) identifies the long-eared myotis as occurring in Multnomah County. The ONHP database search for this project did not locate records for this species within the study area (ONHP, 1998a). No bats were observed during the field investigations in the study area;

however, survey times and methods were not necessarily optimal for the detection of bats. The long-eared myotis may occasionally occupy areas such as the crevices found on bridges or temporarily roost in trees and snags in the forested portions of the study area. No maternal colonies, hibernacula or permanent roosts are known to occur in the project area.

Fringed Myotis

Fringed myotis (*Myotis thysanodes*) are found from the Okanagan Valley in British Columbia south through the western United States to Mexico. This species is known to roost in caves, mines, snags, rock crevices, bridges, buildings, and under bark (Christy and West, 1993). It hunts at night, usually between one and two hours after sunset. Young are born in June and July and are attended by several females throughout the night while the majority of females are foraging.

Marshall (1996) identifies the fringed myotis as occurring in Multnomah County. The ONHP database search did not locate records for this species within the study area (ONHP, 1998a). No bats were observed during the field investigations; however, the fringed myotis may visit areas such as the crevices found on the area's bridges. No maternal colonies, hibernacula or permanent roosts are known to occur in the project area.

Long-legged Myotis

Long-legged myotis (*Myotis volans*) is found from western Canada south through the western United States to Mexico. Coniferous forests are the primary habitat for this bat, but it also occurs in riparian and desert habitats in some areas. It uses rock crevices, buildings, fissures in bark, or the ground for day roosts, and emerges early in the evening to feed. It feeds primarily on moths, but termites, spiders, flies, beetles, and other insects are also part of its diet. Maternity colonies are found in attics, fissures, and under bark. In winter, the long-legged myotis hibernates in caves and mines. Long-legged myotis mate in the fall prior to hibernation, and the single young is born the following summer in June or July (van Zyll de Jong, 1985; Nagorsen and Brigham, 1993).

Marshall (1996) identifies the long-legged myotis as occurring in Multnomah County. The ONHP database search for this project did not locate records for this species within the study area (ONHP, 1998a). No bats were observed during the limited field investigations within the study area. However, the long-legged myotis may visit areas such as the crevices found on the area's bridges. No maternal colonies, hibernacula or permanent roosts are known to occur in the project area.

Northern Red-legged Frog

The northern red-legged frog (*Rana aurora* var. *aurora*) is found in wetlands and slow moving streams from southwest British Columbia to northern California (Leonard et al. 1993). Unlike spotted frogs, red-legged frogs are highly terrestrial and forage in forests near water. Egg-laying begins in January or February in marshes, ponds, lakes and slow moving streams. Eggs are weakly attached to stems of emergent vegetation or submerged branches below the surface of the water, and float to the surface as eggs mature (Leonard et al., 1993). Tadpoles metamorphose over a period of four to five months.

Ten red-legged frogs, mostly juveniles, were detected during field investigations of the Johnson Creek site. Sloughs and small ponds located near Johnson Creek provide suitable breeding habitat for this species. These ponds and the forested ravines that traverse the study area provide important habitat for this species. Numerous red-legged frogs have also been reported along Miller Creek in the Linnton site (City of Portland 1991b). The lowlying portions of Dunthorpe, near the Willamette River, and certain streams within the Sylvan site may also support red-legged frogs.

Cascades Frog

The cascades frog (*Rana cascadae*) inhabits wetland meadows, marshes and the edges of small pools, ponds and lakes in the Cascade and Olympic mountain ranges above 2, 600 feet (Marshall et al, 1996). They breed in shallow water when snow and ice have melted. Tadpoles may metamorphose in fall of the same year or may transform during their second summer.

Although wetlands are present within the study area, the study area lies well below the elevations at which this species is known to occur. Cascades frogs are known to occur within Multnomah County (ONHP, 1998b), however, these occurrences are most likely in higher elevations in the eastern portions of the county. Based on the known range of this species, occurrence within the study area is highly unlikely.

State Listed Species

Painted turtle

The painted turtle (*Chrysemys picta*) and the western pond turtle are the only turtles that are native to the Pacific Northwest. Red or yellow lines on the sides of the head, throat, legs, tail and red ventral shell distinguish the painted turtle. In Oregon, this species is found only within the Willamette Valley and in wetlands along the Columbia River. They inhabit slow-moving or still, shallow waters with soft bottoms, basking sites and abundant aquatic vegetation.

According to ONHP (1998a), this species has been documented at Burlington Bottoms, Peninsular Drainage Canal, and Smith and Bybee Lakes. No individuals were noted during field investigations. The Linnton site is located near sites known to support this species; however, this site is mostly forested and does not offer basking sites that are typical of preferred habitat. Nonetheless, portions of the site may serve as foraging or dispersal habitat.

Yellow-billed cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is state-listed as sensitive (critical category), which indicates that state listing as threatened or endangered is pending or deemed appropriate if immediate conservation actions are not taken. Although the species was formerly a common breeding species along the Columbia River (Jobanek and Marshall, 1992), it has declined in the western U.S. since the 1930s. The species is not to known to consistently breed in Oregon at present (Marshall *et al.*, 1996).

According to ONHP (1998a), a population of at least 12 birds was recorded in 1923-25 along the Columbia River bottomlands from the mouth of the Willamette River east to the current site of

the Portland Airport. Two sightings occurred in bottomland locations on Sauvie Island in the late 1970's (Gilligan *et al*, 1994), and one bird was observed in 1940 and one was heard in 1985 between Smith and Bybee Lakes (ONHP, 1998a). The species has not been reported in the Portland area since that time.

The yellow-billed cuckoo was not detected during field investigations within the study area. The yellow-billed cuckoo inhabits large riparian forests, particularly those with cottonwood canopies and dense willow understories. The portion of the study area that best fits this description is the Linnton site.

Pileated Woodpecker

The pileated woodpecker *(Dryocopus pileatus)* inhabits both coniferous and deciduous forests containing mature, productive stands. This species is listed as sensitive by the state (vulnerable category). Threatened or endangered listing may be avoided through habitat protection and monitoring. Critical habitat components include large trees and snags, dense forest stands and high snag densities. Stumps, logs and tall shrub cover also are important habitat components. The pileated woodpecker's nest cavity is large and located high in the snag so snags of at least 20 inches in diameter and 31 feet in height are optimum (Marshall et al. 1996). Pileated woodpeckers have the strongest year-round pair bond of any North American woodpecker, and pairs generally occupy the same location (though different snags) each year.

Numerous signs (recent excavations) pileated woodpeckers were observed during field investigations at both the Sylvan and Dunthorpe sites. Certain parts of these sites provide suitable forage, roost and breeding habitat for resident woodpeckers and are located near to water sources such as creeks, ponds and wetlands. Suitable habitat for the species also exists at the Linnton and Johnson Creek sites and the species' occurrence at either of these sites is possible.

Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) was federally delisted on August 20, 1999 but remains on the state endangered species list. The U.S. Fish and Wildlife Service will continue to prohibit take of the bird until management guidelines are developed in coordination with the states. The peregrine also remains protected under the Migratory Bird Treaty Act.

The peregrine historically occurred throughout most of North America. A dramatic decline in the population took place during the 1940s, which was attributed to reproductive failure associated with eggshell thinning (Pacific Coast American Peregrine Falcon Recovery Team (PCAPFRT), 1982) along with widespread use of organochloride contaminants (Pagel and Jarman, 1991). Additional factors contributing to the decline of the species include other pollutants, disturbance caused by human activities, loss of nesting and foraging habitats, shooting, and collisions with transmission lines and associated supporting structures (PCAPFRT, 1982). By the late 1960s, the peregrine falcon was no longer a breeding species in Oregon. Since the ban on DDT and the efforts at reintroduction began in the 1970s, the number of peregrine falcons in the state has slowly increased. As of June 1999, there were 78 known peregrine falcon eyries in Oregon (Pagel, personal communication, 1999). Probably the best known of these is the one located beneath the Fremont Bridge in downtown Portland.

Peregrines typically nest on cliffs that are greater than 75 feet in height with a ledge surface greater than 500 sq. cm. and generally in close proximity to riparian, lacustrine, or marine habitats (Pagel 1997). They also nest on tall buildings and bridges. They feed on avian prey including passerines, waterfowl, and shorebirds (Ehrlich *et al.* 1988). During the breeding season, peregrine falcons may forage within an area as large as 40 square miles. In light of this extensive foraging range, it is likely that this species would forage within or pass through one or more portions of the study area from time to time, particularly those where avian prey is abundant. In the southeastern corner of the Dunthorpe site, the cliffs along the Willamette River across from Elk Rock Island are nearly 200 feet in height with a variety of ledge surfaces. These cliffs provide potential nesting habitat for peregrines, although no known nests exist.

Other Sensitive Species

Great Columbia River limpet

The Great Columbia River limpet (*Fisherola nuttalli*) is a large freshwater mollusk that ranges throughout almost the entire Columbia River basin. The chestnut brown shell is ovate with conspicuous growth lines and an anterior apex. The species requires relatively unpolluted, cold, and well-oxygenated water with permanent flow and a cobble-boulder substrate (Neitzel and Frest 1990). The organisms occur on diatom covered rocks and feed by scraping algae and diatoms from rock surfaces. They lay eggs from spring to autumn in gelatinous capsules attached to plants, stones or other objects. Although the species can survive low temperatures in winter months, they are relatively inactive.

According to ONHP (1998b), the Great Columbia River limpet occurs within Multnomah County and was documented in Burlington Bottoms in 1982 and 1985; however, no individuals were detected during a 1988 survey of the same area (ONHP 1998a). The ONHP database record notes that stream size is evidently not a factor if the stream is relatively unpolluted and more research is needed to confirm the species presence throughout the Columbia River basin. Thus, this species may be present but undetected in small streams within the study area where water quality is good.

Columbia Water Meal

Columbia water meal (*Wolffia columbiana*) is small member of the duckweed family consists entirely of a rootless, ovoid to subglobose thallus and produces microscopic flowers on the upper surface. The plants float just below the surface of water, are often found along with *Wolffia punctata,* and are often associated with other aquatic plants such as lesser duckweed (*Lemna*), greater duckweed *(Spirodela)* and waterfern *(Azola)* (Hitchcock and Cronquist, 1973).

Although Columbia watermeal is widely distributed in North and South America, it is rare in the Portland area and has been documented only within the Willamette Valley. It occurs in freshwater marshes, lakes, ponds, pools and sloughs (Guard, 1996). This species has been documented several miles east of the Linnton site in a sheltered area along the Columbia (ONHP, 1998a). Columbia water meal was not detected during field surveys, although ponded areas often contained lesser duckweed and water starwort (*Callitriche* spp.) and appear to be suitable habitat for water meal as well.

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APPENDIX B:

USFWS POTENTIAL SPECIES LETTER

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon State Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 FAX: (503) 231-6195

Reply To: 1-7-98-SP-230
File Name:

June 4, 1998

Tom McGuire
City of Portland
1120 S.W. 5th, Room 1002
Portland, OR 97204-1966

Dear Mr. McGuire:

This is in response to your letter, dated April 28, 1998, requesting information on listed and proposed endangered and threatened species that may be present within the area of the Goal 5 Study Area Project in Multnomah County. The U.S. Fish and Wildlife Service (Service) received your letter on May 1, 1998.

We have attached a list (Attachment A) of threatened and endangered species that may occur within the area of the Goal 5 Study Area Project. The list fulfills the requirement of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). City of Portland requirements under the Act are outlined in Attachment B.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems on which they depend may be conserved. Under section 7(a)(1) and 7(a)(2) of the Act and pursuant to 50 CFR 402 *et seq.*, City of Portland is required to utilize their authorities to carry out programs which further species conservation and to determine whether projects may affect threatened and endangered species, and/or critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) which are major Federal actions significantly affecting the quality of the human environment as defined in NEPA (42 U.S.C. 4332 (2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to the Biological Assessment be prepared to determine whether they may affect listed and proposed species. Recommended contents of a Biological Assessment are described in Attachment B, as well as 50 CFR 401.12.

If City of Portland determines, based on the Biological Assessment or evaluation, that threatened and endangered species and/or critical habitat may be affected by the project, City of Portland is required to consult with the Service following the requirements of 50 CFR 402 which implement the Act.

Attachment A also includes a list of candidate species under review for listing. The list reflects changes to the candidate species list published February 28, 1996, in the Federal Register (Vol. 61, No. 40, 7596) and the addition of "species of concern." Candidate species have no protection under the Act but are included for consideration as it is possible candidates could be listed prior to project completion. Species of concern are those taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

If a proposed project may affect candidate species or species of concern, City of Portland is not required to perform a Biological Assessment or evaluation or consult with the Service. However, the Service recommends addressing potential impacts to these species in order to prevent future conflicts. Therefore, if early evaluation of the project indicates that it is likely to adversely impact a candidate species or species of concern, City of Portland may wish to request technical assistance from this office.

Your interest in endangered species is appreciated. The Service encourages City of Portland to investigate opportunities for incorporating conservation of threatened and endangered species into project planning processes as a means of complying with the Act. If you have questions regarding your responsibilities under the Act, please contact Laura Todd or Angie Hernandez at (503) 231-6179. (For questions regarding anadromous fish, please contact National Marine Fisheries Service, 525 NE Oregon St., Suite 500, Portland, Oregon 97232, (503) 230-5400.) All correspondence should include the above referenced file number.

Sincerely,

Gary L. Miller

for Russell D. Peterson
State Supervisor

Attachments
SP 230
cc: PFO-ES
ODFW (nongame)

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES, CANDIDATE SPECIES AND SPECIES OF CONCERN THAT MAY OCCUR THE GOAL 5 STUDY AREA 1-7-98-SP-230

LISTED SPECIES[1/]

Mammals		
~~Columbian~~ white-tailed deer	*Odocoileus virginianus leucurus*	E
Birds		
Peregrine falcon	*Falco peregrinus*	E
Bald eagle	*Haliaeetus leucocephalus*	T
Fish		
Steelhead (Lower Columbia River)[3/]	*Oncorhynchus mykiss*	**T
Plants		
Golden paintbrush[5/]	*Castilleja levisecta*	T
Howellia	*Howellia aquatilis*	T
Bradshaw's lomatium	*Lomatium bradshawii*	E

PROPOSED SPECIES

Fish		
Chum salmon (Lower Columbia River)[6/]	*Oncorhynchus keta*	**PT
Chinook salmon (Lower Columbia River)[8/]	*Oncorhynchus tshawytscha*	**PT
Plants		
Willamette daisy[9/]	*Erigeron decumbens* var. *decumbens*	PE
Kincaid's lupine[9/]	*Lupinus sulphureus* var. *kincaidii*	PT

CANDIDATE SPECIES

Fish		
Sea-run cutthroat trout	*Oncorhynchus clarki clarki*	**CF
Coho salmon (Lower Columbia River)[10/]	*Oncorhynchus kisutch*	**CF

SPECIES OF CONCERN

Mammals	
~~Pacific~~ western big-eared bat	*Corynorhinus (=Plecotus) townsendii townsendii*
Long-eared myotis (bat)	*Myotis evotis*
Fringed myotis (bat)	*Myotis thysanodes*
Long-legged myotis (bat)	*Myotis volans*

Yuma myotis (bat)	*Myotis yumanensis*
Birds	
Tricolored blackbird	*Agelaius tricolor*
Olive-sided flycatcher	*Contopus cooperi (=borealis)*
Little willow flycatcher	*Empidonax traillii brewsteri*
Amphibians and Reptiles	
Tailed frog	*Ascaphus truei*
Northwestern pond turtle	*Clemmys marmorata marmorata*
Northern red-legged frog	*Rana aurora aurora*
Cascades frog	*Rana cascadae*
Fish	
Pacific lamprey	*Lampetra tridentata*
Invertebrates	
~~California floater~~ (mussel)	*Anodonta californiensis*
Great Columbia River spire snail	*Fluminicola columbianus*
Plants	
White top aster	*Aster curtus*
Tall bugbane	*Cimicifuga elata*
Pale larkspur	*Delphinium leucophaeum*
Peacock larkspur	*Delphinium pavonaceum*
Howell's montia	*Montia howellii*
Oregon sullivantia	*Sullivantia oregana*

(E) - Listed Endangered *(T) - Listed Threatened* *(CH) - Critical Habitat has been designated for this species*
(PE) - Proposed Endangered *(PT) - Proposed Threatened* *(PCH) - Critical Habitat has been proposed for this species*

Species of Concern - Taxa whose conservation status is of concern to the Service (many previously known as Category 2 candidates), but for which further information is still needed.

(CF) - Candidate: National Marine Fisheries Service designation for any species being considered by the Secretary for listing for endangered or threatened species, but not yet the subject of a proposed rule.

** *Consultation with National Marine Fisheries Service required.*

1/ *U. S. Department of Interior, Fish and Wildlife Service, August 20, 1994, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12.*

2/ *Federal Register Vol. 63, No. 53, March 19, 1998, Final Rule-West Coast Steelhead*

3/ *Federal Register Vol. 62, No. 112, June 11, 1997, Final Rule-Castilleja levisecta*

4/ *Federal Register Vol. 63, No. 46, March 10, 1998, Proposed Rule - Columbia River Chum Salmon*

5/ *Federal Register Vol. 63, No. 45, March 9, 1998, Proposed Rule - West Coast Chinook Salmon*

6/ *Federal Register Vol. 63, No. 17, January 27, 1998, Proposed Rule-Erigeron decumbens var. decumbens, Lupinus sulphureus ssp. kincaidii and Fender's blue butterfly.*

7/ *Federal Register Vol. 62, No. 87, May 6, 1997, Final Rule-Coho Salmon*

APPENDIX C:

PLANTS OBSERVED DURING 1998 RECONNAISSANCE

Appendix C. Plants Observed during 1998 Reconnaissance

SCIENTIFIC NAME	COMMON NAME	Johnson Creek	Linnton L) Lowlands H) Hillside	Sylvan 1) East, 2) West, 3) Towers, 4) Miller/Barnes	Dunthorpe
Trees					
Abies grandis	Grand Fir		H	1,2,3,4	X
Acer macrophyllum	Big-leaf Maple	X	H	1**,2**,3**,4**	X** (Berry)
Alnus rubra	Red Alder	X	H	2,3,4	X**(stream)
Arbutus menziesii	Madrone				X**(southeast)
Cornus nuttallii	Pacific Dogwood	X		2,4	
Crataegus douglasii	Black Hawthorn	X	L		
Crataegus monogyna	European Hawthorn*	X		2,3	X
Fraxinus latifolia	Oregon Ash	X	L**	4	X
Ilex aquifolium	English Holly*		H	1,2,3,4	X
Populus trichocarpa	Black Cottonwood		L	2	X
Prunus emarginata	Bitter Cherry	X		2,3,4	X
Pseudotsuga menziesii	Douglas Fir	X**	H**	1**,2**,3**,4**	X**
Quercus garryana	Garry Oak				X**(southeast)
Rhamnus purshiana	Cascara	X	H		X
Salix lucida lasiandra	Pacific Willow	X	L	4	X
Sorbus sitchensis	Sitka Mountain-ash*			2	X
Taxus brevifolia	Pacific Yew				X
Thuja plicata	Western Red Cedar	X**	H**	1,2,3,4**(Miller)	X
Tsuga heterophylla	Western Hemlock	X	H**	1,2,4	X
Shrubs					
Acer circinatum	Vine Maple	X	H**	1**,2,3**,4**	X**
Amelanchier alnifolia	Western Serviceberry		H	2,3,4	X(cliff by 43)
Berberis aquifolium	Tall Oregon Grape		H	1,2,3	X
Berberis nervosa	Dull Oregon Grape	X	H	1,2,3,4	X
Cornus sericea sericea	Red Osier Dogwood	X	L**		X
Corylus cornuta	Western Hazel	X	H**	2,3,4	X

SCIENTIFIC NAME	COMMON NAME	Johnson Creek	Linnton	Sylvan	Dunthorpe
Clematis ligusticifolia	Western Clematis				X**(Rwd,cliff)
Cytisus scoparious	Scot's Broom*				X
Euonymus occidentalis	Western wahoo		H		X
Gaultheria shallon	Salal	X		3,4	X
Holodiscus discolor	Ocean-spray	X		1,2,4	X
Lonicera ciliosa	Trumpet Vine				X
Lonicera involucrata	Black Twinberry	X			
Oemleria cerasiformis	Indian Plum	X	L/H	1,2**,3,4	X
Philadelphus lewisii	Mockorange				X
Physocarpus capitatus	Pacific Ninebark	X			
Prunus laurocerasus	English Laurel*				X
Ribes bracteosum	Blue Currant		H		
Ribes divericatum	Wax Currant	X			
Ribes sanguineum	Red-flowering Currant				X
Rosa gymnocarpa	Baldhip Rose			4	X
Rosa nutkana	Nootka Rose			3	X
Rosa pisocarpa	Swamp Rose	X		2,3,4	
Rubus discolor	Himalayan Blackberry*	X	L	1,2	X**
Rubus lasiococcus	Dwarf Bramble*				X
Rubus parviflorus	Thimbleberry	X	H	1,2,3	X
Rubus spectabilis	Salmonberry	X	H**(Miller Cr)	2	X
Rubus ursinus	Trailing Blackberry	X		2,3,4	X
Salix scouleriana	Scouler's Willow		L	4	
Salix sitchensis	Sitka Willow	X	L		
Sambucus mexicana	Blue Elderberry	X			
Sambucus racemosa	Red Elderberry		L/H	1,2,3	X
Spiraea douglasii	Douglas' Spiraea	X			
Symphoricarpos albus	Common Snowberry	X**	L/H	1,2,3	X
Toxicodendron diversilobum	Poison Oak				X
Vaccinium ovatum	Evergreen Huckleberry				X
Vaccinium parvifolium	Red Huckleberry	X		4	X**(Berry)
Viburnum edule	Moosewood Viburnum				X

SCIENTIFIC NAME	COMMON NAME	Johnson Creek	Linnton	Sylvan	Dunthorpe
Groundcovers					
Achlys triphylla	Vanillaleaf		H	3,4	X
Actaea rubra	Baneberry	X			
Adenocaulon bicolor	Pathfinder		H	3,4	X
Adiantum pedatum	Northern Maidenhair Fern		H	4	X
Aquilegia formosa	Red Columbine		H	4	X
Aruncus sylvester	Goatsbeard		H		X
Asarum caudatum	Wild Ginger			4	
Asperula odorata	Sweet Woodruff*				X
Athyrium filix-femina	Lady Fern	X	H	1,2,3,4	X
Blechnum spicant	Deer Fern				X
Callitriche heterophylla	Water-starwort		L		
Cardamine oligosperma	Little Western Bittercress		L		
Cardamine pensylvanica	Pennsylvania Bittercress		L		
Carex deweyana	Dewey's Sedge	X		2,4	X**(w of Terw)
Carex hendersonii	Henderson's Wood Sedge	X	H	4	
Circaea alpina	Enchanter's Nightshade			4	
Circium arvense	Canada Thistle*			4	
Claytonia sibirica	Siberian Miner's-Lettuce	X	H	2,3,4	
Clematis ligusticifolia	Western Clematis			4	X
Conium maculatum	Poison Hemlock			2	
Dicentra formosa	Pacific Bleedingheart	X			
Disporum hookeri	Hooker Fairy-bell	X	H	1,2,3,4	X
Dryopteris austriaca	Spreading Wood Fern		H	4	X
Epilobium angustifolium	Fireweed			2,4	
Epilobium watsonii	Watson's Willow-herb			2	
Equisetum arvense	Common Horsetail			1,2,3,4	X**(stream)
Equisetum telmatiea	Giant Horsetail				X
Erodium cicutarium	Crane's Bill*			2,4	X
Erythronium oregonum	Giant Fawn-lily				X
Fragaria vesca	Wood Strawberry			4	X

SCIENTIFIC NAME	COMMON NAME	Johnson Creek	Linnton	Sylvan	Dunthorpe
Galium aparine	Cleavers	X	L	1,2,3,4	
Galium triflorum	Sweetscented Bedstraw	X		3	
Geranium robertianum	Robert's Geranium*		H	4	
Geum macrophyllum	Large-leaved Avens	X		4	X
Glecoma hederacea	Ground-ivy*	X			X
Glyceria elata	Tall Mannagrass			2,3,4	
Hedera helix	English Ivy*	X	H	1**(nr 26),2,3,4	X**
Heracleum lanatum	Cow-parsnip	X			
Hydrophyllum tenuipes	Pacific Waterleaf	X		2,3,4** (Miller)	X
Hypericum perforatum	Common St. John's-wort				X
Impatiens capensis	Orange Balsam	X	L		
Iris pseudacorus	Yellow-flag*	X			
Juncus effusus	Common Rush			4	
Lapsana communis	Nipplewort*			4	X
Lilium columbianum	Columbia Lily			3,4	X
Luzula parviflora	Small-flower Woodrush			4	
Lysichitum americanum	Skunk Cabbage	X			X
Maianthemum dilatatum	False Lily-of-the-valley	X		4	
Mitella pentandra	Mitrewort	X			
Monotropa uniflora	Indian-pipe				X
Nemophila parviflora	Small-flowered Nemophila	X			
Nymphaea spp.	Water-lily*				X
Oenanthe sarmentosa	Pacific Water-parsley	X		2	
Osmorhiza chilensis	Mountain Sweet-cicely			4	
Oxalis oregona	Wood Sorrel				X
Petasites frigidus	Sweet Coltsfoot			4	
Phalaris arundinacea	Reed Canarygrass*	X	L		
Plantago major major	Common Plantain*			4	X
Polygonum persicaria	Lady's Thumb			3	
Polygonum sachalinense	Giant Knotweed*			3	
Polypodium glycyrrhiza	Licorice Fern	X	L/D	2,4	X
Polystichum munitum	Sword Fern	X**	H**	1**,2**,3**,4**	X**

SCIENTIFIC NAME	COMMON NAME	Johnson Creek	Linnton	Sylvan	Dunthorpe
Pteridium aquilinum	Bracken Fern	X	H	1,2,3,4	X
Ranunculus repens	Creeping Buttercup*			1,2,3,4	X
Ranunculus scelerata	Celery-leaved Buttercup		L		
Ranunculus uncinatus	Little Buttercup		H		
Rumex occidentalis	Western Dock	X	L	2,4	X
Smilacina racemosa	Western False Solomon's Seal	X	H	1,2,3,4	X**
Smilacina stellata	Starry False Solomon's Seal		H	4	
Solanum dulcamara	Bittersweet*	X	L	2	X
Stachys cooleyae	Cooley's Hedge-nettle	X	H	4	
Streptopus amplexifolius	Twisted-stalk	X	H		
Synthyris reniformis	Snow Queen				X
Tellima grandiflorum	Fringecup	X**	H	1,2,4	X
Thalictrum occidentale	Western Meadowrue				X
Tiarella trifoliata	Foamflower		H	4	
Tolmiea menziesii	Pig-a-back Plant		H	4	X
Trientalis latifolia	Western Starflower		H		
Trifolium spp.	Clover*			4	
Trillium ovatum	Western Trillium	X	H	2,4	X
Typha latifolia	Common Cattail				X
Urtica dioica	Stinging Nettle	X	L/H	2,4	X
Vancouveria hexandra	White Inside-out Flower	X	H	1,3**(towers),4	X
Veronica americana	American Brooklime		L		
Vicia americana	American Vetch			4	
Vicia sativa v. angustifolia	Common Vetch*		L		X
Vinca major	Vinca*	X		2	
Viola glabella	Stream Violet		H	2,3,4	

* Non-native species
** Dominant in statum

APPENDIX D:

WILDLIFE HABITAT ASSESSMENT FORM

WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

SITE LOCATION	FIELD DATES	FIELD OBSERVERS

GENERAL COMMENTS

	HABITAT COMPONENT	DEGREE PRESENT			SCORE EXISTING	SCORE ENHANCED	SPECIFIC COMMENTS
WATER	QUANTITY & SEASONALITY	NONE 0	SEASONAL 4	PERENNIAL 8			
	DIVERSITY STREAMS, PONDS, ETC.	ONE 2	TWO 4	THREE 8			
	PROXIMITY TO COVER	NONE 0	NEAR 4	ADJACENT 8			
	QUALITY FLUSHING FREQUENCY	STAGNENT 0	SEASONAL 3	CONTINUOUS 6			
FOOD	QUANTITY & SEASONALITY	NONE 0	LIMITED 4	YEAR ROUND 8			
	VARIETY	LOW 0	MEDIUM 4	HIGH 8			
	PROXIMITY TO COVER	NONE 0	NEAR 4	ADJACENT 8			
COVER	STRUCTURAL DIVERSITY	LOW 0	MEDIUM 4	HIGH 8			
	VARIETY	LOW 0	MEDIUM 4	HIGH 8			
	SEASONALITY	NONE 0	LIMITED 2	YEAR ROUND 4			
	NESTING DENNING, ETC.	LOW 0	MEDIUM 2	HIGH 4			
	ESCAPE	LOW 0	MEDIUM 2	HIGH 4			
OTHER VALUES	PHYSICAL DISTURBANCE	PERMANENT 0	TEMPORARY 2	NONE 4			
	HUMAN DISTURBANCE	HIGH 0	MEDIUM 2	LOW 4			
	INTERSPERSION WITH OTHER HABITATS	LOW 0	MEDIUM 3	HIGH 6			
UNIQUE FEATURES	HABITAT TYPE	0	-	4			
	FLORA	0	-	4			
	FAUNA	0	-	4			

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WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

WEATHER ON DAY OF FIELD OBSERVATION			
PRECIPITATION PRESENT		WIND SPEED	
KIND OF PRECIPITATION		WIND DIRECTION	
CLOUD COVER	%	TEMPERATURE	°F

PHYSICAL ENVIRONMENT	
GENERAL DESCRIPTION OF TOPOGRAPHY	
ORIENTATION OF SLOPE	
DEGREE OF SLOPE	°
TYPE OF WATER FEATURES PRESENT	
PORTION OF SITE INUNDATED BY WATER	%
MAJOR STRUCTURES OR ROADS PRESENT	

VEGETATION			
LIST OF HERB SPECIES			
LIST OF SHRUB SPECIES			
LIST OF TREE SPECIES			
TYPES OF PLANT COMMUNITIES			
SERIAL STAGES OF PLANT COMMUNITIES			
GENERAL HEALTH AND VITALITY OF PLANT COMMUNITIES			
CANOPY CLOSURE IN HERB ZONE: %	SHRUB ZONE: %	TREE ZONE: %	
ESTIMATED NUMBER OF SNAGS PER ACRE:	DIAMETER OF LARGEST SNAGS IN FEET:		
AQUATIC VEGITATION FLOATING: %	EMERGENT: %	INUNDATED: %	

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WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

FISH AND WILDLIFE

INVERTEBRATE SPECIES OBSERVED	
FISH SPECIES OBSERVED	
AMPHIBIAN SPECIES OBSERVED	
REPTILE SPECIES OBSERVED	
BIRD SPECIES OBSERVED	
MAMMALIAN SPECIES OBSERVED	
SPECIES NOT OBSERVED BUT KNOWN TO BE PRESENT AND SOURCE OF INFORMATION	

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WILDLIFE HABITAT ASSESSMENT
for sites with surface water features

SITE NUMBER	TOTAL HABITAT SCORE AS EXISTING	POTENTIAL HABITAT SCORE IF ENHANCED	TOTAL ACRES

HABITAT FUNCTIONS	
FOOD SOURCES	
ROOSTING PLACES	
PERCHING PLACES	
NESTING PLACES	
OTHER FUNCTIONS	
RARE SPECIES	
SENSITIVE SPECIES	
PROTECTED SPECIES	
UNIQUE FEATURES	

HUMAN USES	
HUMAN USES	
ANIMAL USES	
PROXIMITY TO RESIDENCES	
EXISTING COMPATABLE USES	
EXISTING CONFLICTING USES	
INTERSPERSION WITH OTHER NATURAL AREAS	

MANAGEMENT MEASURES THAT COULD BE CARRIED OUT TO IMPROVE HABITAT VALUES

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APPENDIX E:

HABITAT RATING SUMMARY

APPENDIX E: HABITAT RATING SUMMARY

The habitat ratings contained in the inventory (see Tables 1, 4, 7 and 10) summarize the relative quality of wildlife habitat within a particular resource site. The summary includes the range of habitat scores for the City and County, in addition to the range for the local natural system (e.g., Johnson Creek).

The summary then rates the functional value of the three principal habitat components, water, food and cover, from "low" to "high" based on the following Wildlife Habitat Assessment (WHA) scores:

	Low	Moderately Low	Medium	Moderately High	High
Water	2 - 7	8 -12	13 - 18	19 - 24	25 - 30
Food	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24
Cover	0 - 5	6 - 11	12 - 16	17 - 22	23 - 28

The three remaining WHA categories, interspersion, uniqueness and disturbance, are classified in a similar fashion using "low," "medium" and "high." *Uniqueness* is a combination of the site's special features (habitat type, flora and fauna); *disturbance* is a combination of physical and human disturbance (note: a high score corresponds to "low" disturbance); *interspersion* is assessed directly from interspersion score.

	Low	Medium	High
Interspersion	0 - 1	2 - 4	5 - 6
Uniqueness	0 - 3	4 - 7	8 - 12
Disturbance	8 - 6	5 - 3	2 - 0

APPENDIX F:

SIGNIFICANCE FACTORS

APPENDIX F: SIGNIFICANCE FACTORS

To evaluate the relative significance of a resource, several factors are considered. These significance factors, or criteria, are based on similar criteria established by both Multnomah County and the City of Portland for other Goal 5 resource sites.

Significance factors are divided into two groups. Decision factors are those factors which, on their own, are important and establish the significance of a resource. Contributing factors may have limited or moderate importance on their own, but when two or more contributing factors for the same resource are met, the resource is deemed significant.

Resource Value	Decision Factors	Resource
Water Quality Value	- wetlands and springs, rivers and perennial or intermittent streams; or - 75% of water feature length has >25% riparian vegetation cover	Water feature/vegetation
Flood Attenuation and Storage	- land in FEMA 100-year floodplain; or - creek channel, floodplain or adjacent wetlands reduce intensity of floods	Floodplain/wetland/ other
Fish/Wildlife Habitat	- habitat for threatened, endangered or sensitive species; or - Wildlife Habitat Assessment score is 45 points or more; or - viable travel corridor connecting nearby significant habitats	Terrestrial or aquatic habitat/corridor/other
Slope stabilization/ Soil Anchoring	- slopes >50% have minimum 50% woody vegetative cover; or - slopes <50% have minimum 75% woody vegetative cover	Vegetation, soil
Groundwater Recharge/Discharge	- groundwater recharge/discharge sustains summer water levels in streams or wetlands, or supports domestic use	Soils/seep/ wetland/ stream/other
Water Supply	- groundwater use (recorded well logs); or - surface water use (recorded water rights)	Stream/groundwater
Heritage	- unique or locally-rare natural or cultural value	Archeological site, etc

Resource Value	Contributing Factors	Resource
Water Quality	- intermittent streams with <100 acre basin; or - 50% of water feature length has >25% riparian vegetation cover	Water feature/vegetation
Flood Attenuation and Storage	- land in FEMA 500-year floodplain; or - infiltration measurably reduces storm runoff, flood peaks and land meets Groundwater Recharge decision factor	Floodplain/wetland/ other
Fish/Wildlife Habitat	- positive off-site influence on habitat for threatened, endangered or sensitive species; or - Wildlife Habitat Assessment score between 35 and 44	Terrestrial or aquatic habitat/other
Slope Stabilization	- slopes >50% have minimum 20% vegetative cover; or - slopes <50% have minimum 30% vegetative cover; or	Vegetation/soil
Groundwater Recharge	- uplands (pervious area >25 ac.) permit groundwater recharge	Vegetated uplands/seep/ wetland/stream/other
Storm Drainage	- watercourse conducts runoff, sediments, nutrients	Water feature
Education	- current or potential public educational uses; or - ecologically or scientifically significant area	Vegetation/water feature/ other
Recreation	- open space area, public park or right-of-way; and - potential for recreational use without significant impacts	Forest/water feature/ other
Scenic Amenity	- City or County listed scenic resource; or - provides amenity value for nearby park, development or road	Forest/water feature/ other
Land Use Buffering	- physical, visual or auditory buffer bet/neighborhoods, land uses	Forest/water feature/ other
Water Supply	- groundwater or surface water use within ¼ mile of site	Stream/groundwater
Heritage	- unique or locally-rare natural or cultural values within ¼ mile	Archeological site, etc