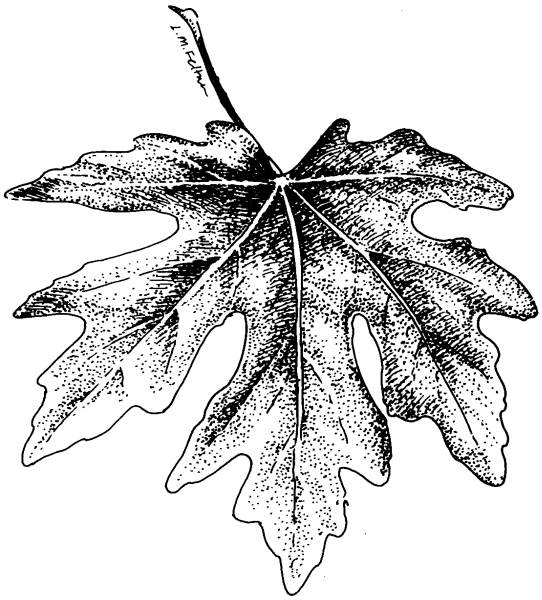
PETERSON LAKE PARK NATURAL AREA

Site Management Plan



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King County Park System

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Acknowledgments

Foresight on the part of the King County Open Space Citizen Oversight Committee (COC), the Metropolitan King County Executive and Council, King County staff, and a diverse group of county residents has made the Waterways 2000 program, and subsequent protection of critical waterways throughout the county, a success.

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Italics indicate staff who contributed to the site planning process.

Waterways 2000

Waterways 2000 was initiated in 1993 by the Metropolitan King County Executive and Council as a pilot program to establish a system of connected habitat lands and waterways within the County for the protection of salmon and wildlife habitat. Under the leadership of the COC, the County's most critical waterways were identified and methods for their cost-effective acquisition were outlined. The majority of properties were purchased in fee; with others, conservation easements were acquired or they were enrolled in the Public Benefit Ratings System (PBRS), which allows property owners tax reductions for land left in open space. As a result, over 1,600 acres throughout King County now provide:

- Protection of high quality aquatic systems and habitat lands for salmonids and wildlife
- Preservation of properties of cultural, scenic, and historic importance
- Educational and passive recreational opportunities
- Opportunities for public participation in natural area stewardship

The Waterways 2000 partnership between King County, landowners, and the community has proven to be effective in acquisition and stewardship of valuable natural areas. Public support will continue to be critical in the long-term protection of waterways and the expansion of protection to other basins, and the Waterways program will provide a successful guide for those efforts. As our population grows, so will our need for viable wildlife habitat, healthy stream systems, and clean water. Future generations of residents and wildlife will benefit from this important effort.

EXECUTIVE SUMMARY

Peterson Creek (WRIA # 08.0328) was targeted by the Waterways program as one of the highest quality, salmonid-bearing tributaries in the Cedar River Basin. Peterson Lake is located southeast of Seattle in rural King County just west of the Urban Growth Area (UGA) boundary. The 153.21 acres comprising the Peterson Lake Park Natural Area contain a mosaic of coniferous and deciduous forested land, 5.59 acres of open water, scrub-shrub and forested wetlands, and several year-round and seasonal tributaries. Downstream of Peterson Lake, a corridor of largely intact, privately owned forested land connects the Peterson Lake Park Natural Area to the Cedar River and a larger network of important Cedar River habitat lands. The listing of wild Puget Sound Chinook salmon and bull trout under the federal Endangered Species Act (ESA) will likely result in increased protection and restoration activities within the Cedar River system, and this Natural Area will be an important asset in those efforts.

Natural Area management will focus on the protection and enhancement of the natural systems onsite: its fish and wildlife habitats, corridors, and scenic character. Where public use does not compromise these systems, the Natural Area will provide low-impact passive recreational, interpretive and educational opportunities. The following site plan goals reflect the goals of the Waterways 2000 program as well as KC Parks' management of natural areas within the Parks system:

- Preserve, protect and restore natural systems for fish and wildlife habitat
- Preserve the rural nature of the site in keeping with the surrounding community
- Eliminate incompatible uses which degrade sensitive site resources
- Provide site improvements to direct public use in appropriate areas
- Provide interpretive experiences to the community and foster public involvement in site stewardship
- Comply with restrictions resulting from the listings of salmonids and other species under ESA
- Implement recommendations in phases according to priority order and available funding

Significant resources at the Peterson Lake Park Natural Area include:

- A King County Class 1 Wetland for size, diversity of vegetation, open water component, and uncommon plant species
- Peterson Creek (WRIA # 08.0328), a King County Class 2 salmonid-bearing system supporting five species of salmonids including coho, sockeye and Chinook salmon, steelhead, and cutthroat trout.
- High quality, diverse habitat for a variety of resident and migratory bird species
- Habitat for numerous terrestrial and aquatic wildlife, including native amphibian species
- A relatively quiet, natural environment in the midst of a rapidly growing area of King County

The following general planning, design and implementation elements are recommended for the Peterson Lake Park Natural Area:

- Maintain and enhance stream and riparian systems for salmonids and wildlife with native species plantings in degraded areas as well as in buffer zones
- Eliminate or reroute social trails through sensitive areas
- Potential stream and riparian corridor restoration projects
- Minimize and redirect existing informal uses at lake and forested wetland areas by providing low-impact alternatives such as reconfigured, pedestrian-only footpaths and floating structures where feasible
- Designate site uses: nature observation, passive water access, hiking, photography, interpretation and education, and (pending) catch and release only fishing
- Periodically monitor general site conditions for dumping, illegal access, and resource degradation
- Utilize existing County programs (as funding allows) to periodically monitor for water quality, habitat values, and restoration efforts onsite in order to gauge the success of protection and enhancement activities
- Coordinate with neighbors, community groups, and schools to steward the property in partnership with KC Parks
- Pursue future acquisitions and tax incentives within the basin to add buffers to the Natural Area, improve connection between the natural area and other resource lands, and generally preserve habitat corridors to the Cedar River

Part I - INTRODUCTION

Foreword

From its beginnings in the Cascade Mountains to its outlet at Lake Washington, the Cedar River provides an important fish and wildlife migration corridor as well as many recreational opportunities within its approximately 60 river miles. The river system supports the largest run of sockeye salmon in the lower 48 states as well as providing nearly half of King County's entire water supply. Within the Cedar River Basin, Waterways 2000 has acquired 260 acres and has negotiated more than 60 acres in current-use taxation agreements. Peterson Creek, a sub-basin of the Cedar River system, was targeted by the program for the habitat it provides to five species of salmonids that ascend the river to spawn. In the future, the Cedar River system and the Peterson Lake Park Natural Area will play an important role in the region's effort to protect, restore, and increase public awareness of threatened salmon runs and the habitats that sustain them (*Figure 1*).

Purpose

The purpose of this document is to provide a record of existing features and to create guidelines for future management of a King County Park Natural Area at Peterson Lake. This plan reflects: 1) a site inventory and analysis of existing natural resources and land uses; 2) Waterways 2000 program goals; 3) King County Parks (KC Parks) land classifications; 4) legal and land use restraints; 5) regional connection to other public lands; 6) King County agency recommendations and staff review; 7) public input; and 8) development costs. Resource information in this plan is a summation of the Technical Appendix prepared for the site. All other information was gathered through interagency cooperation, research and field visits. Collectively this data forms the basis for resource management and public use recommendations for the Natural Area. Once approved by KC Parks, design and cost elements will be refined and phased implementation of recommendations will begin.

Site Plan Goals

Natural Area management will focus on the protection and enhancement of the natural systems onsite: its fish and wildlife habitats, corridors, and scenic character. Where public use does not compromise these systems, the Natural Area will provide low-impact passive recreational, interpretive and educational opportunities. The following site plan goals reflect the goals of the Waterways 2000 program as well as KC Parks' management of natural areas within the Parks system:

- Preserve, protect and restore natural systems for fish and wildlife habitat
- Preserve the rural nature of the site in keeping with the surrounding community
- Eliminate incompatible uses which degrade sensitive site resources
- Provide site improvements to direct public use in appropriate areas
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- Implement recommendations in phases according to priority order and available funding

Location

The Peterson Lake Park Natural Area is comprised of 153.21 acres located in the middle of the Peterson Creek basin of the Cedar River watershed. It is southeast of Seattle between the cities of Renton and Maple Valley**.** The majority of the site is bordered by 196th Avenue SE to the west, SE Petrovitsky Road to the southwest and the Seattle Public Utilities (SPU) Lake Youngs Supply Lines 4&5 (also known as the "Cedar River Pipeline") and SE Pipeline Road to the south. A small, 10.53-acre forested parcel adjoins Peterson Creek west of 196th Avenue SE, and another approximately six acres within a triangular-shaped wetland parcel is bound by SE Petrovitsky Road to the northeast and 196th Avenue SE to the west *(Figure 2).*

[insert Fig. 1]

[insert Fig. 2]

Description

The majority of the site is comprised of forested land. Peterson Lake itself comprises 5.59 acres of open water habitat surrounded by scrub-shrub and forested wetland and receives drainage from several tributaries and ditches west and north of the lake. Peterson Creek flows into and out of the lake along the southern boundary, and receives water from other (on or off-site) hillside seeps and small tributaries. A Bonneville Power Administration (BPA) transmission line traverses the eastern portion of the site directly over Peterson Lake, and two transmission towers are located within the easement. Seattle Public Utilities' Lake Youngs Supply Lines and SE Pipeline Road traverse the southern edge of the site. A gravel road cuts across the site's SE corner from SE Pipeline Road and leads to private residences on the eastern property line. Forest land extends south, east, and north of the site and agricultural and forest land lie to the west, with residences scattered throughout adjoining forest lands. The Urban Growth Area (UGA) boundary line falls just to the west of Peterson Lake, and the Cedar River Trail is located to the east. The broad, low-lying valley encompassing the lake and middle reaches of the creek is flanked by steep slopes. Downstream of the lake the creek increases in gradient and flows through a steep, narrow, forested ravine to its confluence with the Cedar River. The site was surveyed and boundaries posted in the Spring of 1998 *(Figures 2 & 3).*

Conservation Significance

Peterson Creek, a King County Class 2 salmonid-bearing stream, is one of the highest quality, salmonid-bearing tributaries in the Cedar River system. This level of quality is due to its forested basin and forested riparian corridor, as well as extensive, relatively undisturbed wetland and lake complexes in its upper and middle reaches. Peterson Creek's watershed area (which includes Lower Cedar River 14 and 15 as well as Spring Lake and Lake Desire) and the mid reach at Peterson Lake are largely within public ownership. A larger network of roughly 1500 acres of County-owned land throughout the Cedar River system includes 370 acres at Spring Lake/Lake Desire Park and 98 acres at Rock Creek, also a Waterways 2000 (and Cedar River Legacy) purchase.

The wetland system at Peterson Lake (Lower Cedar River 42) is rated as Class 1 for its size, diversity of vegetation, open water component, and presence of Labrador tea. These wetland habitats, as well as upland forests at the Natural Area, provide habitat for resident and migratory bird species, terrestrial and aquatic mammals, fish, amphibians, and reptiles. Several salmonid species supported by the Peterson Creek system have been or may be proposed for listing as threatened under the Federal Endangered Species Act (ESA). Chinook and bull trout may be listed as early as March and June (respectively) of 1999, and coho and steelhead are likely to be proposed for listing in the near future. Peterson Creek provides high quality habitat for coho throughout the system and for Chinook and steelhead in the lower reaches. Maintaining the Peterson Lake system and its surrounding habitat lands in a productive and healthy state will help to preserve the system's water quality for fish and wildlife and contribute to the larger biological health of the Cedar River.

Passive Recreational and Educational Significance

Public understanding and appreciation of the Natural Area will be an asset to the County's efforts to restore salmonids under ESA, as well as essential to local public involvement in stewardship. More than 18,000 acres of parks and open space lands, including more than 200 miles of Regional trails, are maintained by the King County Department of Parks and Recreation. The Natural Area is in the vicinity of King County parks, trails and open space lands, including Spring Lake/Lake Desire Park, the 17.2-mile Cedar River Trail, Lake Youngs Trail, and Petrovitsky Park. A proposed connection linking the Cedar River, Snoqualmie Valley, Lake Youngs, Soos Creek and Green River Trails to Cougar Mountain Regional Wildland Park would extend along Petrovitsky Road directly south of the Natural Area. This trail would potentially increase the visibility and use of the site, presenting opportunities and creating challenges to long-term natural area management.

Currently, the Natural Area is used for a variety of informal recreational activities concentrated at the lake and adjacent forested wetland areas, with footpaths traversing the site. With appropriate site improvements, these informal uses could be eliminated, minimized, or redirected to less sensitive areas. Interpretive and educational opportunities could highlight the importance of the Peterson Creek wetlands and forest corridors to fish and wildlife habitat in the Cedar River system. The effects of past site use and a list of future restoration efforts could be displayed. Restoration of heavily used areas onsite that are detrimental to natural resources could provide opportunities for public education and involvement within the basin.

Part II - SITE INVENTORY AND ANALYSIS

NATURAL RESOURCES

Topography

Within the larger Peterson Lake Park Natural Area, the lake itself occupies the low-lying, southern half of the site within a broad, low-gradient valley. From SE Pipeline Road and SE Petrovitsky Road a forested slope descends steeply to the south side of the lake. On the northeast side, a 15 to 30 percent slope borders the wetlands surrounding it. More gradual sloping terrain lies northwest of the lake (zero to six percent slopes) in the vicinity of the unnamed, unclassified Tributary 0328A. Steep slopes flank a small area at the far northwest corner of the site *(Figure 3).*

Soils

As expected in areas with a water table at or near the surface, soils in the flat, low-lying southern half of the site are mapped as Tukwila Muck, a hydric soil typical of wetlands. A Ragnar-Indianola association is mapped south of Peterson Lake and consists of about equal parts Ragnar fine sandy loam and Indianola loamy fine sand with two to 15 percent slopes. Alderwood gravelly sandy loam with varying slopes (0 to 6, 6 to 15, and 5 to 30 percent) is mapped north of the lake.

Hydrology

Six streams and tributaries drain into the lake and creek within this site, and excavated ditches cut through extensive scrub-shrub wetlands west of the lake. Peterson Creek is classified as a King County Class 2, salmonid-bearing stream, flowing 2.6 miles from Wetland 14/15 to the Cedar River. On site, the creek flows as a straightened channel on the west side of 196th Avenue SE, then as a channel along the fill base of SE Petrovitsky Road, before flowing into Peterson Lake. This stretch of creek is straight, lacks woody debris, and is sparsely shaded by an overstory of young red alder and willow. Beaver have been active along this portion of the creek. An ecology block weir partially controls the lake's outlet, downstream of which the creek flows for about 0.4 mile in a straightened channel with steep, excavated slopes devoid of quality instream habitat.

The Honey Creek Diversion Ditch flows under 196th Avenue SE and through scrub-shrub and emergent wetlands just north of the water pipeline and then under SE Petrovitsky Road to Peterson Creek. An unnamed, unclassified stream (0328A) flows from Spring Lake to the NW corner of Peterson Lake. Another unclassified tributary (0334) flows through deciduous forest and forested wetlands in the upper portion of the site, through a culvert under the BPA corridor, and into Peterson Lake downstream of the lake *(Figure 3).*

Vegetation

The following general vegetation descriptions correspond to mapped natural resource areas *(Figure 3)* and plant species observed on site *(Table 1).*

[insert Fig. 3]

Table 1: Plant Species Observed at Peterson Lake Park Natural Area

SCIENTIFIC NAME	COMMON NAME
FERNS AND ALLIES	
Athyrium filix-femina	Lady Fern
Equisetum spp.	Horsetail
Polystichum munitum	Sword Fern
Pterdium aquilinum	Bracken Fern
AQUATICS	
Nuphar lutea ssp. *polysepala**	Yellow Pond-lily
Potentilla palustris	Marsh Cinquefoil
Sparganium sp.	Bur-reed
HERBS	
Achlys triphylla	Vanilla-leaf
Claytonia sibirica	Siberian Miner's-Lettuce
Dicentra formosa	Pacific Bleeding Heart
Epilobium angustifolium	Fireweed
Geranium robertianum	**Robert Geranium**
Geum macrophyllum	Large-leaved Avens/Geum
Hypericum perforatum	**Common St. Johnswort**
Lilium columbianum	Tiger Lily
Maianthemum dilatatum	False Lily of the Valley
Myosotis spp.	Forget-me-not
Oenanthe sarmentosa	Water Parsley
Ranunculus repens	**Creeping Buttercup**
Streptopus roseus	Rosy Twistedstalk
Tellima grandiflora	Fringecup
Tiarella trifoliata	Foamflower
Tolmiea menziesii	Piggy-Back Plant
Trifolium pratense	**Red Clover**
Trifolium repens	**White Clover**
Trillium ovatum	Western Trillium
Typha latifolia	Broad-leaved Cattail
Urtica dioica	Stinging Nettle
Veronica americana	American speedwell
*Lysichiton americanum**	Skunk Cabbage
GRASSES	
Anthoxanthum odoratum	**Sweet Vernal Grass**
Dactylis glomerata	**Orchard Grass**
+Phalaris arundinacea	Reed Canary Grass
RUSHES AND SEDGES	
Juncus effusus	Soft Rush
Juncus spp.	Rush
Carex deweyana	Short-scale Sedge
*Carex utriculata**	Beaked Sedge
RUSHES AND SEDGES (continued)	
Carex vesicaria	Inflated Sedge
Carex spp.	Sedge
SHRUBS/SMALL TREES	
Acer circinatum	Vine Maple
Berberis nervosa	Oregon Grape
Cornus stolonifera	Red-Osier Dogwood
Corylus cornuta	Hazelnut
Cytisus scoparius	Scot's Broom
Gaultheria shallon	Salal
Holodiscus discolor	Oceanspray
***Ilex* sp.**	**Holly**
Ledum groenlandicum	Labrador Tea
Lonicera ciliosa	Western Trumpet Honeysuckle
Lonicera involucrata	Twinberry
Oemleria cerasiformis	Indian Plum
Oplopanax horridus	Devil's Club
Physocarpus capitatus	Pacific Ninebark
Ribes sanguineum	Red-flowering Currant
Rosa sp.	Rose
Rubus discolor	**Himalayan Blackberry**
Rubus laciniatus	**Evergreen Blackberry**
Rubus parviflorus	Thimbleberry
Rubus spectabilis	Salmonberry
Rubus ursinus	Trailing Blackberry (Dewberry)
Salix spp.	Willow
Sambucus racemosa	Red Elderberry
Spiraea douglassii	Hardhack
Vaccinium parvifolium	Red Huckleberry
TREES	
Acer macrophyllum	Big Leaf Maple
Alnus rubra	Red Alder
Malus fusca	Crab Apple
Picea sitchensis	Sitka Spruce
*Populus balsamifera var. trichocarpa**	Black Cottonwood
Prunus emarginata	Bittersweet Cherry
Pseudotsuga menziesii	Douglas Fir
Rhamnus purshiana	Cascara
*Salix lucida ssp. lasiandra**	Pacific Willow
Thuja plicata	Western Red Cedar
Tsuga heterophylla	Western Hemlock

Notes:
Bold indicates non-native species.
+ Indicates native status undetermined.
***** Identifies updated plant names. Updated taxonomy follows Hickman (1993). All other nomenclature follows Hitchcock and Cronquist (1978).
Site was visited April-May, 1997. This data is strictly seasonal and limited in nature; other species are expected to occur on this site.

Deciduous forest dominated by red alder covers most of the northern upland area of the site. Western red cedar and western hemlock saplings and young trees occur in the sub-canopy on the west and east edges of this area, with other coniferous species. Vine maple, salmonberry, Indian plum, and red osier dogwood are common in the understory. Herbaceous perennials such as bleeding heart, false lily-of-the-valley, and miner's lettuce, as well as ferns, cover the ground in a thick carpet. Snags and fallen trees are uncommon, but where present consist of red alder in an 8- to 12-inch diameter range. Stumps of old-growth trees support red huckleberry and salal.

Deciduous forested wetlands occur along Peterson Creek west of the lake, in low-lying areas at the lake's outlet to the east, and in low-lying areas associated with Tributary 0328A. Red alder dominates the tree canopy with occasional black cottonwood. The understory consists mainly of crab apple, salmonberry, willow, spiraea, ninebark and twinberry. Skunk cabbage dominates the groundcover in permanently saturated areas while water parsley, lady fern, marsh cinquefoil, forget-me-not, and manna grass occur as associates.

Coniferous forested wetlands occur east of Peterson Lake. Fairly mature western red cedar predominates, with some trees measuring greater than 30 inches in diameter. Red alder occurs on the edges. The understory is sparse to non-existent, consisting mainly of salmonberry. Groundcover species include skunk cabbage, water parsley, false lily-of-the-valley and lady fern. Tributary #0334 flows in a braided channel among a grove of cedars east of the lake. A thin band of Douglas fir and western red cedar occurs along the wetland edge north of the lake, where some of the Douglas fir measure approximately 40 inches in diameter. Snags and fallen trees, important to wildlife, are most abundant along this wetland/upland edge.

Mixed (coniferous and deciduous) forest occur in patches on the west, east, and southern parts of the site. Douglas fir (roughly 18 to 22 inches in diameter) predominates along with western hemlock, western red cedar, red alder, big leaf maple and black cottonwood. Infrequent snags measure roughly 12 to 16 inches in diameter and 30 to 50 feet in height. The understory consists mainly of Oregon grape, western hemlock and western red cedar saplings, vine maple, red huckleberry, cascara saplings, red elderberry, and hazelnut. Sword fern, false lily-of-the-valley, bracken fern, and trailing blackberry form a solid groundcover.

Scrub-shrub and forested wetlands occupy the low-lying land in the southern half of the site, especially west of the lake. Spiraea dominates the shrub layer but willow is also common around the periphery. Several species of rush and sedge occur with marsh cinquefoil and yellow pond-lily clusters in deeper water around the lake edge. Labrador tea occurs with spiraea and salmonberry in a patch of scrub-shrub wetland on the north side of the lake. This latter species association is a remnant of a community type historically more common in King County and western Washington than at present.

Scrub-shrub and emergent wetlands occur in the triangle of low-lying land south of SE Petrovitsky Road and east of 196th Avenue SE. Spiraea thickets interspersed with sedge meadows, cattail stands, soft rush and Pacific cinquefoil occur here, along with creeping buttercup, skunk cabbage, horsetail, and bur-reed in lower abundance. An extensive stand of non-native invasive reed canary grass occurs along an inundated trench in the northern end of this triangle. Beaver channels are common throughout this area, adding topographic diversity.

Non-native, invasive plant species are generally restricted to disturbed corridors near trails, roads, and informal fishing structures. A recently established invasive, Roberts geranium, is common along the northern trail. Two invasive, non-native species, purple loosestrife and white water lily, occur upstream of Peterson Lake in Spring Lake and Lake Desire. Fortunately, neither of these invasive species has been found to date on the Peterson Lake site, though the potential for establishment exists.

A low-stature vegetation community is maintained along the BPA transmission line easement. An assortment of early successional shrub, herbaceous, and grass species is scattered throughout this managed swath and includes red alder, cascara, Douglas fir, and bittersweet cherry saplings. Shrub thickets of Himalayan and evergreen blackberry as well as thimbleberry are interspersed with grasses and stumps covered with red huckleberry and

salal. A wide variety of ruderal herbaceous species (including many non-natives) are present in the clearings, including St. Johnswort , fireweed, bedstraw, red clover, orchard grass, and sweet vernal grass. The southern boundary of SE Pipeline Road is maintained as a cleared, mowed corridor, with grasses and herbaceous perennials common along its length.

Wildlife

A list of species observed on site *(Table 2)* supplements the following generalized fish and wildlife information. Wildlife Habitat Corridors, as identified in the 1996 King County Comprehensive Plan, are shown on this site's Natural Resources map *(Figure 4).*

Fish
Five salmonid species including coho, sockeye and Chinook salmon, steelhead and cutthroat trout are supported within the Peterson Creek system. Chinook and sockeye spawn in the lower reaches, while coho, steelhead, and cutthroat use the entire length for spawning and/or rearing. Juvenile fish surveys conducted in 1996 found coho, cutthroat, and sculpin just downstream of the weir at the outlet of Peterson Lake. This weir and the box culvert downstream are currently fish passable at all flow levels. Fish species expected to occur in Peterson Lake include coho and cutthroat as well as warm water perch, black crappie, large mouth bass, and pumpkinseed.

Amphibians and Reptiles
Amphibian surveys were not performed in the site survey for this wetland. However, tadpoles of non-native, invasive bullfrog, which can have a detrimental effect on native amphibian populations, have been observed. Despite the presence of non-native, predatory fish and amphibian species in Peterson Lake, good habitat for some native amphibian species does exist. Western garter snakes have been observed on site and, based on existing vegetation cover types and location, other reptile species such as northern alligator lizard may also occur.

Birds
Peterson Lake provides high quality habitat for a variety of resident and migratory bird species. The mosaic of deciduous and coniferous forests, willow and spiraea thickets, combined with open water, supports a high diversity of migratory and resident bird species. Migratory waterfowl winter at the lake, and during the breeding season, neo-tropical migrant birds such as flycatchers, warblers, vireos, and grosbeaks use the extensive shrub and forested communities for nesting. Extensive bird surveys have not been conducted during the breeding season.

Mammals
Black-tail deer and coyote are frequent visitors to Peterson Lake. Raccoon, beaver, and river otter are also active along the Peterson Creek system. Mountain beaver burrows are common in deciduous forests north of the lake and small mammals such as shrews, mice, voles, squirrels, and weasels likely inhabit the site as well. Good feeding habitat for bat species exists over open water and scrub-shrub wetlands. If bats do inhabit the site they would utilize any existing roost sites in large snags. Larger species such as fox and black bear likely frequent the site and possibly mountain lion as well. Signs from these species were not observed during field visits, but Peterson Lake and its surrounding forests provide good habitat links to adjacent forested and aquatic systems.

Future Wildlife
Over time, the site's vegetation may naturally change as conifers grow to dominance, but the biological and regional significance of the Natural Area is tied to the condition of the surrounding landscape. This is especially true for wildlife species. Much of the wildlife that use the Natural Area also frequent neighboring lands. Changes in land use on adjacent parcels will likely result in changes to the wildlife species inhabiting the Natural Area.

Table 2: Wildlife Species Observed at Peterson Lake Park Natural Area

SCIENTIFIC NAME	COMMON NAME
MAMMALS	
Aplodontia rufa	Mountain Beaver
Castor canadensis	Beaver
Odocoileus hemionus	Blacktail Deer (Mule Deer)
Procyon lotor	Racoon
BIRDS	
Wading Birds:	
Ardea herodias	Great Blue Heron
Birds of Prey:	
Buteo jamaicensis	Red-tailed Hawk
Nonpasserine Land Birds:	
Selasphorus rufus	Rufous Hummingbird
Passerine Birds:	
Corvus brachyrhynchos	American Crow
Cuanoatta stelleri	Steller's Jay
Parvus atricapilus	Black-capped Chickadee
Troglodytes troglodytes	Winter Wren
Regulus satrapa	Golden-crowned Kinglet
Turdus migratorius	American Robin
Empidonax difficulis	Pacific-slope Flycatcher
Vermiuora celata	Orange-crowned Warbler
Dendroica coronata	Yellow-rumped Warbler
Dendroica petechia	Yellow Warbler
Geothylpis trichas	Yellow Throat
Melospiza melodia	Song Sparrow
Pipilo erythrophthalmus	Rufous-sided Towhee
Pheucticus melanocephalus	Black-headed Grosbeak
FISH	
**Cottus* sp.	Sculpin
****Lepomis gibbosus***	**Pumpkinseed**
****Micropterus salmoides***	**Large Mouth Bass**
**Oncorhynchus clarki*	Cutthroat Trout
**Oncorhynchus kisutch*	Coho Salmon
**Oncorhynchus mykiss*	Steelhead
**Oncorhynchus nerka*	Sockeye Salmon
**Oncorhynchus tshawytscha*	Chinook Salmon
****Perca* sp.**	**Perch**
****Pomoxis nigromaculatus***	**Black Crappie**
AMPHIBIANS	
Rana catesbiana	**Bullfrog**

Notes:

Bold indicates non-native species.

***** Indicates species inventoried by others.

Site was visited April-May, 1997. This data is strictly seasonal and limited in nature; other species are expected to occur on this site.

[insert Fig. 4]

LAND USE

Historic Use

Regional Cultural History

Because it is somewhat isolated from larger lakes, it is unlikely that this area was of significant value for early Native Americans. The lake lies between historic territories of the Duwamish and the Stkamish peoples who hunted, fished, and gathered food in the region for centuries. No archaeological sites of Native peoples have been found near the lake or in the vicinity, nor is there written record of activities. With the arrival of Europeans to the region in the late 1800s, the landscape was soon altered. Once timber had been cleared, the rich soils attracted farmers who began small (40-acre) dairy farms. Different ethnic groups began settling the area, with a number of Danish families in the immediate vicinity. The Peterson Lake Park Natural Area contains no inventoried cultural resources, though it is in the vicinity of two houses of historic significance listed in the King County Historic Resource Inventory. Both homes (c. 1903 and 1904), located along the Pipeline Road to the southwest of the lake, were associated with the site's homesteading activity by the Peterson family in the early part of the 20th century. One of these houses is still visible from the Pipeline Road.

The City of Seattle Water Department's (now Seattle Public Utilities, or SPU) development at Lake Youngs in the late 1800s brought its own changes to this small farming community. Staff for the water department moved to the area and housing was built for the growing number of families. The water department became the principal employer in the area. Roads were built to bring in equipment and laborers, and connected this previously remote area to Maple Valley and its railroad line. Still, in spite of the influx, the region remained largely agricultural for the next few decades. A small, now derelict store near the intersection of Petrovitsky Road and 196th Avenue SE was operated by a Peterson family relative from 1946 until its sale in the 1960s. The low-lying land west of Peterson Lake was hayed as well as grazed by cattle and horses until the 1960s, with pasture extending along the length of the creek and lake. In the early 1970s, SE Petrovitsky Road was extended through these wetlands, resulting in extensive excavation of wetland soil and back-filling with gravel. Power line easements (150-feet wide) were sold by Peterson family members to the BPA in 1956, and power lines crossed Peterson Lake by the early 1960s.

Longtime residents of the area remember many of these changes first-hand. One resident and her family used to collect cascara bark at the lake, which they loaded into gunnysacks on their horses to sell in town. She also remembers tales of a drowning in the lake sometime before the turn of the century. Another neighbor, as a child in the late 1940s, was forbidden to swim in the lake because of the "quicksand" shoreline—cows often became mired in the muck and had to be pulled out by tractor. Safer swimming took place in a shallow pool downstream of the creek's pipe outlet. Here fresh water mussel were found and the creek ran thick with salmon. The driveway to residences along the site's southeast boundary began at what is now the SE Pipeline Road at 196th Avenue SE (in fact, these residences' mailboxes are still at this intersection) and ran eastward along the lakeside. The Peterson family's dock was off this driveway at the far eastern end of the lake, where informal fishing platforms appear today. The weir road is the easternmost remnant of this original driveway.

Water History

At the turn of the century Lake Youngs was known as Swan Lake. In 1928 the Seattle Water Department began diverting the Cedar River to the lake for settling and storage as part of the Seattle water supply system. The lake's eastern margin was considerably altered as dikes were built to increase and secure the capacity of the lake. Dams were built to regulate the water level, including the Honey Creek Dam just west of Peterson Lake. Small drainages that formerly entered Peterson Lake were then diverted away from Lake Youngs to protect water quality. Shady Lake once drained to Lake Youngs via Honey Creek but that and other intermittent streams were diverted into the Honey Creek Diversion Ditch, which runs just south of Peterson Lake. All surface water drainage originating northeast of Lake Youngs enters this ditch and is carried to the Cedar River north of Maple Valley. The primary intake for Seattle's water supply is at Landsburg, where initial treatment occurs, and Lake Youngs acts as a storage reservoir, although it can be bypassed. Maintenance facilities for the bypass are located just west of Peterson Lake.

The Honey Creek Dam was built there to keep water from Lake Youngs from spilling over into the drainage leading to Peterson Lake and to divert drainage water from the east side of the dam to the Cedar River.

The Cedar River Pipeline, which now runs underground along the SE Pipeline Road at the southern portion of the Natural Area, was condemned in fee by the City of Seattle. The section of pipeline adjacent to the site is now referred to as the Lake Youngs Supply Lines 4&5. An easement was acquired over the eastern portion of this site by the former Seattle Water Department for the Honey Creek Diversion Ditch, which includes the right to make improvements to Peterson Creek, and the right to install pipeline blowoff pipes on the property to direct overflow to Peterson Lake. As part of the lines' maintenance, water has been released infrequently through blow-off valves west of Petrovitsky Road and along Peterson Creek. However, in 1992, the above-ground water pipeline was replaced and reconfigured (Supply Line 4 was contained in a 78" wood stave pipe prior to reconfiguration) and the valves east of Petrovitsky Road became obsolete. From the 1950s, the outflow of Peterson Lake was contained in a 52-inch wooden pipe to prevent erosion problems in Peterson Creek below the lake. In 1988, this pipe was removed by SPU and the creek was daylighted. A box culvert was then installed downstream of the weir to enable the property owner vehicular access across Peterson Creek. At the request of the Washington Department of Fisheries, a cement ecology block weir was built at the lake's outlet. The weir raised the outlet of the lake by a foot until one of the blocks was subsequently removed and the drop to the creek reduced.

Impacts to Natural Resources

A remnant of glacial activity during the last Ice Age, Peterson Lake once occupied a somewhat larger area. Surrounding organic soils indicate that over several millennia the lake has been reducing in size. Other lakes in the immediate area as well as small wetlands are also the result of earlier periods of glaciation. The long history of water diversions and substantial hydrologic alteration has contributed to changes in the historic character of wetlands associated with Peterson Lake. Logging activities have also contributed to this change. Soil disturbance resulting from varied logging practices may be partially responsible for the predominance of mixed forest northwest of the lake and deciduous forest on the uplands north and northeast of the lake. For years following the initial timber harvest, the slope north of Peterson Lake was covered with bracken fern before a red alder deciduous forest developed. Other activities such as ditching, farming, and grazing have changed site hydrology and vegetation composition. After agricultural activities were discontinued, spiraea became the dominant shrub cover. Beaver have been active in ditched areas, although their dams have been illegally removed as recently as the spring of 1997. Finally, a patch of Labrador tea-dominated scrub-shrub wetland at the north end of the lake may have been larger prior to this time, though peat accumulations in the system were probably never extensive. This wetland (and many other small bogs and fens) was not included in an inventory of peat resources of Washington State.

Current use

Current Use Patterns

Current site use is characterized by several informal activities: fishing, hiking, dog walking, picnicking, partying, dumping, platform construction, motorized vehicle use, infrequent equestrian use and occasional firearm use. While some users undoubtedly leave little trace of their presence, litter along the shoreline and creek, makeshift fishing platforms, trampled vegetation, campfires, and vehicle-damaged slopes impact the site. Currently, a large cedar log extending into the lake along the southern shoreline supports a modified fishing pier and floating platform. To the east of this platform, social trails along the shoreline lead to three fishing areas with informal structures. The northern edge of the lake is less easily accessible, but social trails extend to floating platforms on the shoreline. Encroachments occur along the northern property line and at the northern boundary of the portion of the site west of 196th Avenue SE. The northern boundary contains a length of privately fenced baseball field, a recently cleared loop road, and fencing along and inside the length of the posted boundary.

Site Access

The Natural Area is easily accessed from several points along 196th Avenue, SE Petrovitsky, and SE Pipeline Road. A social trail from 196th at the northwest corner of the site traverses the upper forest area, crosses the BPA easement and branches off to routes along the easement, and downhill to Peterson Lake and Peterson Creek. Several steep social trails descend to the lake and creek from the SE Pipeline Road , crossing an additional 20-foot strip of SPU land between the road and the Natural Area. Small, non-motorized boats appear occasionally at the lake. Neighbors access the site via smaller trails along shared property boundaries. Peterson Creek along SE Petrovitsky Road is easily accessible. Equestrians and motorcyclists reach the site from 196th Avenue, SE Pipeline Road, and from private properties adjacent to the site, generally traversing the BPA easement, upper forest trail, forested cedar wetlands, and eventually crossing Peterson Creek downstream of the weir. Access to the BPA easement from the northeast is blocked by vegetation and fencing *(Figure 3).*

Parking

Most informal parking occurs along SE Pipeline Road directly above the lake. However, a small vehicle pullout along 196th Avenue at the northwest corner of the Natural Area is located directly across the road from the existing upper forest trail access point.

Utility Easements

Utility easement maintenance forms a part of the current character of the site. Several restrictions and rights are part of BPA's 150-foot transmission line easement. BPA trims and/or cuts hazard trees within its 150-foot wide easement corridor, maintains vegetation to a 15-foot maximum height, and maintains its easement road and culvert. The easement corridor is maintained by a "scatter and toss" method of brushing trees and vegetation, mostly along the easement road, but BPA will cooperate with KC Parks to keep any trail across the easement clear of debris. The lake and wetland area under the powerlines are maintained by hand. In addition, no structures over 10' x 10' may be built within the BPA easement and structures smaller than this must be approved by BPA prior to construction. Finally, transmission line sag may have implications to fishing under the powerlines at the eastern end of the lake.

SPU has reduced the scope and scale of its maintenance activities near the lake outlet along Peterson Creek subsequent to the removal of the Honey Creek Diversion pipe and daylighting of Peterson creek. SPU's activities along the SE Pipeline Road are reduced, though a (conditional) use permit to allow continued roadside parking for the Natural Area should be obtained from SPU. A use permit should also be obtained for the provision of improved footpaths to the lake from SE Pipeline Road.

Part III - SITE MANAGEMENT RECOMMENDATIONS

Land Use Classification/Park Use Areas

Parks and open spaces in the King County Park system are classified according to a three-level system. The first level distinguishes sites as local or regional, the second level specifies the site's primary purpose (natural area, active recreation, passive recreation, multi-use, trail or special purpose), and the third defines park use areas within the site (natural areas, active recreation areas, passive recreation areas, staging areas, and special management areas). Due to the nature of the site and purpose and goals of the Waterways 2000 program, the Peterson Lake site is classified as a *Natural Area* of *local* significance, with *natural areas*, *passive recreation areas,* and *special management areas* within its boundaries. *Natural Areas* support little development and limited public access, with access via footpaths and interpretive and directional signage as necessary. *Passive recreation areas* allow for informal activities such as interpretive programs and passive water access. At this site, *special management areas* would be limited to habitat protection, which discourages public access. There are no staging areas for parking, restrooms, or maintenance facilities within the Natural Area. Park use areas onsite are generally described as follows:

Natural areas: The entire site, excluding the passive recreation areas and special management areas.

Passive Recreation Areas: South side of lake in designated areas as follows, a) viewing platform(s) on south side of lake (if platforms are determined feasible) and b) east-west trail from viewing platform(s) to east end of property.

Special Management Areas: Protected sensitive areas and their buffers including Peterson Lake, wetlands, Peterson Creek, and perennial tributaries. Much of the Peterson Lake Park Natural Area includes sensitive areas. The forested slope to the north of the lake is the largest portion of the natural area that is not a sensitive area.

Using these classifications, planning and design recommendations are detailed in the following pages. General elements are noted on the site management map (*Figure 5*).

Planning Elements and Recommendations

Site Uses

The preservation, protection, and enhancement of fish and wildlife habitat onsite is the primary objective in planning for the Natural Area. The provision of appropriate, low-impact public access is the secondary objective. Following are recommended public uses for the Natural Area (listing of salmonid species under ESA may preclude uses noted with an asterisk (*):

- Nature observation
- Hiking (pets must be on leash) on maintained footpaths only
- Nature interpretation and education
- Photography
- Interpretive programming (wetlands and wildlife)
- *Fishing (Catch and Release Only)
- *Passive water access (non-motorized)

Separation of Uses

In order to conserve resources at the Natural Area and to provide for appropriate public use of the site, emphasis should be placed on redirecting some existing uses in order to minimize impacts to the wetland areas of Peterson Lake and Peterson Creek. Access to the northern shoreline and its associated wetlands should be discouraged. If feasible, an existing footpath along an old driveway south of the lake parallel to the Pipeline Road could be reconfigured so as to be further from the lake and creek, and/or an existing footpath through cedar wetlands to the upper trail north of the creek could be rerouted.

Special Management Areas

Habitat Preservation Areas

The site's most sensitive areas are located within wetland and stream buffers. Public access within wetland and stream buffers should be discouraged. The following general design and planning elements are recommended for the most sensitive portions of the Natural Area:

- Discourage access to the northern portion of lake and its wetlands by removing and revegetating social trails as feasible and not maintaining or constructing additional trails.
- Restore areas damaged by informal uses, including the south side of Peterson Lake and Peterson Creek.
- Do not encourage public access to the forested parcel west of 196th Avenue SE, or to the triangular-shaped wetland bound by SE Petrovitsky Road and 196th Avenue SE.
- Maintain and enhance the condition of wetland and riparian buffers onsite.
- Comply with all regulations and restrictions which may result from ESA listings of salmonids in the management of the Natural Area.

[insert Fig. 5]

Passive Recreation Areas

Peterson Lake Park Natural Area was purchased largely for its conservation significance, but also for its passive recreational and educational opportunities. Appropriately directed public access and appreciation of the resources at the Natural Area will be important for future support of conservation efforts and site stewardship. The size and scope of current public use should be reduced on all portions of the site, discouraging access to the north side of the lake, and allowing reconfigured access to the most easily and continually accessed south side of the lake and creek. Design issues for the Natural Area include footpath location and extent, public use, water access, view platforms and interpretive sign locations.

Internal trails and water access

The lake and its surrounding habitat will continue to attract visitors because of its attractive and accessible location. Site improvements are intended to minimize visitor impacts and direct use away from the site's sensitive resources. Low-impact, pedestrian-only footpaths (rerouting social trails in some areas) are proposed in limited areas on the south side of the lake. The following is a list of footpaths recommended for the site:

- One footpath to the southern shore of the lake, preferably along the BPA easement corridor and branching to floating platform(s) at the lakeshore, if feasible.
- One footpath to Peterson Creek, joined with the lake access footpath, if feasible, and continued to the eastern portion of SE Pipeline Road.
- One footpath north of Peterson Creek, if feasible, joined with the existing upper trail.

The upper portion of the trail which leads from 196th Avenue and traverses the upper forest and the BPA easement, should be maintained as a pedestrian-only footpath. A loop trail could be created at the east end of this upper trail if it is not feasible to reconfigure the footpath from Peterson Creek to the BPA corridor so as to avoid the forested cedar wetlands. If it is not feasible to reconfigure this route, this section of trail between the BPA easement and the south side of Peterson Creek should be removed and revegetated, preventing directed access through the forested cedar wetland and Peterson Creek *(Figure 5)*.

Viewing Platforms/View Areas

Several viewing areas are recommended (if feasible) to provide observation areas and prevent building of fishing structures and trampling of the shoreline. Following are recommended platform areas and view spots:

- One to two floating platforms near or partly within the BPA corridor designed for minimal impact to lakeshore and wildlife.
- Small view/interpretive area at Peterson Creek, subsequent to potential Peterson Creek stream restoration project.

Interpretation

Interpretive opportunities could highlight the importance of the wetland system at Peterson Lake to wildlife habitat and water quality in the Cedar River system. Historic changes to the lake and its habitat environs could be included in this program. Design and installation of interpretive signs would be to KC Parks interpretive standards. The following are potential interpretive locations at the Natural Area:

- SE Pipeline Road—above lake, interpretation of wetland system and historic change
- SE Petrovitsky Road—interpretive sign near existing Waterways 2000 sign
- Peterson Creek—subsequent to stream restoration, interpretation of restoration and role of Peterson Creek in Cedar River system

Parking
The Natural Area contains no suitable staging areas for parking. Informal parking occurs along SE Pipeline Road, and KC Parks should obtain an SPU permit for continued informal parking here. This parking, however, must not create access problems for neighbors or SPU. Informal parking at the pullout on 196th will likely continue if trail access is maintained.

Site-wide Issues

Revegetation/Habitat restoration
In the future, the Natural Area should continue to function as an integral piece of natural habitat within the basin. Restoration activities such as conifer underplantings could encourage the system to progress towards a more natural, conifer-dominated environment, providing adequate shade and a source of nutrients to the stream system. Reestablishment of a coniferous overstory to the red alder-dominated deciduous forest north of the lake, for example, could prevent establishment of a shrub thicket and provide a long-term healthy cover on the site when the red alder canopy eventually phases out. In addition, stream and wetland buffers restored to maximum widths and improved instream habitat could increase the long-term habitat value of the Natural Area for fish and wildlife. Expansion of protected waterways and systems will likely occur as a result of ESA listings, and potentially increase the habitat protected within the vicinity of the Natural Area and other Cedar River basin lands. The following are recommendations for restoration onsite:

- Restore in-channel and riparian habitat along roughly 2000 feet of channelized reach of Peterson Creek downstream of Peterson Lake, utilizing existing KC DNR/Cedar River Legacy funding. Retain culvert or provide alternative stream crossing in restoration design for KC Parks-only purposes.
- Control current and future infestations of non-native and invasive plant species, using existing KC DNR monitoring and removal programs. Monitor access corridors (trails, roads) and lakeshore for weed establishment and remove as feasible (see *Appendix*).
- Enhance natural forest succession with conifer plantings along Peterson Creek and within forested-upland areas, particularly on north side of lake. Improve streamside cover with underplantings of native shrubs along Peterson Creek. Add structural diversity to wetland areas dominated by *Spiraea* with plantings of native shrubs and small trees.
- As an aspect of restoration projects, monitor the survival of restoration plantings and provide necessary maintenance, watering, and replacement.

Boundary Delineation—Survey/Signage/Fencing
Survey and posting of the site was completed in 1998. To assist in long-term monitoring of general site conditions, the following elements are recommended:

- Rectify existing encroachments along northern and western boundaries (road-building and fencing) and monitor for recurrence.
- Install KC Parks signs at appropriate access points.
- Subsequent to restoration projects along Peterson Creek, remove gate, install barriers and revegetate road as reconfigured footpath.

Maintenance/Staffing
The following are maintenance issues at the Natural Area:

- Budget for appropriate Parks maintenance staff to ensure that footpaths and any floating platforms are maintained, garbage is collected, and general property condition monitoring is accomplished.
- Solicit and establish community volunteer stewardship in the maintenance and monitoring of the site.
- Prevent use of herbicides, native plant removal, or removal of downed trees (unless they impact maintained footpaths) onsite.

- Work with BPA to allow vegetation in that corridor to grow within standard heights, allowing the removal of "hazard" trees only as necessary.
- Maintain pedestrian-only footpaths to KC Parks standards.
- Monitor for the occurrence and construction of social trails, structures, and related activities throughout the site, particularly in sensitive areas (lake shoreline, wetlands, creek) and in existing problem areas (weir, southern shoreline).
- Remove social trails and structures as they are built and revegetate as necessary.
- Monitor BPA's long-term maintenance of easement.

Park Furnishings

Park furnishings will be limited at the Natural Area, as distinct from a more traditional park. Only those improvements that serve to preserve and protect natural resources onsite and minimize the impact of public use (such as floating platforms, footpaths and boardwalks if necessary) will be considered.

Site Safety

- Discourage uses that cause unsafe site conditions such as bank erosion, unstable platforms, and access to wetland areas.
- Post applicable safety signage such as "No Swimming" at the lake and "No Shooting" elsewhere on the site.
- Work with neighbors to report all unwanted activities to the local authorities.

Recommended Monitoring

To monitor the long-term health of the Natural Area over time, the following activities are recommended, as feasible:

- Control current and future infestations of non-native and invasive plant species, utilizing existing KC Parks/KC DNR monitoring and removal programs. Monitor access corridors (trails, roads) and lakeshore for weed establishment and remove as feasible (see *Part IV - Appendix*).
- Monitor establishment and spread of non-native and invasive plant species, utilizing existing KC Parks/KC DNR monitoring projects for long-term collection of resource data on fish, amphibians, native plants, and other wildlife species on site.
- Coordinate with existing KC DNR programs to formulate a consistent data collection and training program in order to develop, track and interpret long-term, volunteer data collection onsite.
- Create a list of volunteer projects which could supplement existing site information with feasible monitoring for: site water quality, amphibian species, water flow, rare plants, invasive plants, and litter/dumping. Projects should detail the necessary frequency of such monitoring.

Community Stewardship

- Establish cooperation with neighbors, local landowners, civic and environmental organizations, and local schools. Utilize a variety of programs, such as KC Parks' "Adopt-a-Park", KC Department of Transportation's "Adopt-A-Road", KC DNR's "Habitat Partners", and Rainier Audubon's "Bird-a-thon" to encourage and manage volunteer stewardship efforts. Projects could include invasive weed pulls, litter collection, and monitoring (*see last bullet under "Recommended Monitoring"*).
- Continue KC Parks' blanket "adoption" of KC park lands in Tahoma School District.

Future Acquisitions

The Peterson Lake Park Natural Area is a key property connecting the upper and middle reaches of Peterson Creek and its forested corridor to the Cedar River. Continuing the Waterways 2000 process of working with neighboring property owners and applying a variety of approaches, including fee simple acquisition, purchase of conservation easements, enrollment in the current use taxation programs (PBRS) could add buffers to the Natural Area and

improve linkages between protected areas. Identifying the habitat quality of areas upstream and downstream of the Natural Area as well as the level of threat to them could be used to prioritize future acquisitions. Funding available through the Cedar River Legacy program could continue to be used, as well as new sources. Maintaining and adding to forested corridors connecting Peterson Lake to other conservation and open space lands may help to offset the negative effects of fragmentation that inevitably follow surrounding development. Similarly, maintaining the ecological condition of Peterson Creek from its headwaters to its confluence with the Cedar River may reduce impacts of development to fish and wildlife. In comparison to the thirteen other tributary systems of the lower Cedar River, Peterson Creek's watershed has a headwaters area and mid-reaches that are largely within public ownership, and represent the single best opportunity within a tributary system of the lower Cedar to establish key protected properties and link these areas to one another.

Phasing and Priorities

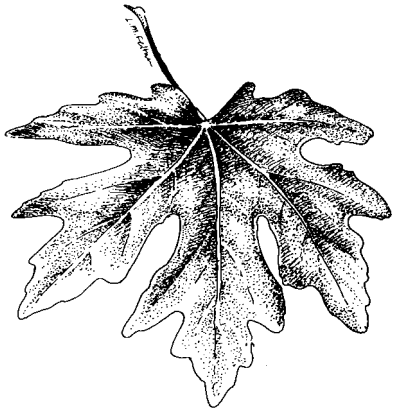
The phasing plan establishes priorities for management activities at the Natural Area. Prioritization is based on providing for public safety and resource protection during implementation and reflect items of short-term (primary) and long-term (secondary) importance. Implementation of recommendations will be funded by annual King County Parks Capital Improvement (CIP) funds, KC DNR funds, and other applicable funding mechanisms. Parks' capital improvements compete countywide for funding during the annual budget adoption process; therefore in any given year, priority actions may not be funded due to more urgent projects. Implementation of work will be managed by KC DCFM as the implementing agency for KC Parks. Other entities such as KC DNR would manage stream restoration and smaller projects subject to permit authority by KC Parks. Implementation will be accomplished by either outside contractors, in-house (KC) crews, or by maintenance and/or operational crews and volunteers.

Primary Priority

- **Lake access—**safety improvements including footpath reconfiguration, safety signage, trash receptacles, and floating platforms and boardwalks as feasible
- **Social trail removal** and **revegetation** in riparian, wetland areas and upland areas
- **KC Parks signage** at access points (4)
- Upper trail improvements including footpath reconfiguration, signage and barriers to illegal access

Secondary Priority

- **Interpretive signage** at lake and/or appropriate locations (2)
- **KC DNR/Cedar River Legacy Peterson Creek restoration** project (KC DNR CIP)
- **Creek access—**improvements (subsequent to creek restoration projects) including reconfiguration and revegetation of road into footpath (linked to lake access if feasible), reconfiguration or revegetation of footpath to BPA corridor, removal of gate, and installation of barriers to illegal access
- Native conifer/shrub underplantings within wetland, riparian and upland areas as appropriate



Estimated Costs of Parks Capital Improvement Projects

Construction Phases (003)			
Primary Priority	**Item Cost**		**Approx. Cost**
Lake Access ***			$34,020.00
floating platforms **	$28,000.00		
boardwalk **	$3,120.00		
trash receptacle (4) **	$1,200.00		
safety signage (2) **	$300.00		
footpath construction *	$1,400.00		
Social Trail Removal & Reveg. *			$5,000.00
KC Parks Signage **			$600.00
		Subtotal	$39,620.00
		Sales Tax (8.2%)	$3,248.84
		Building Permit Fees (2%)	$792.40
		Printing costs	$3,000.00
		Subtotal Construction Costs	$46,661.24
Secondary Priority			
Interpretive Signage **			$6,000.00
Creek Access *			$4,846.00
Native Veg. Underplanting *			$5,000.00
		Subtotal	$15,846.00
		Sales Tax (8.6%)	$1,362.76
		Building Permit Fees (2%)	$316.92
		Printing costs	$3,000.00
		Subtotal Construction Costs	$20,525.68
Total Construction Costs			
Primary Priority			$46,661.24
Secondary Priority			$20,525.68
		Total Construction Costs	**$67,186.92**
Consultant Design (001)			
Basic A/E Fee (12%)			$ 8,062.43
Environmental Checklist			$ 2,500.00
Consultant Selection Advertisement			$ 1,500.00
Biological Assessment			$ 12,500.00
Other Design			2,000.00
Grading Permit			$ 15,000.00
		Total Consultant Design Cost	**$ 41,562.43**
County Force Design (007)			
Other			1,000
		County Force Design Cost	**1,000**
County Force Administration (009)			
Facilities Management Admin.			$ 12,000.00
		County Force Admin. Cost	**$ 12,000.00**
Contingency (005)			
Project Contingency (10% of 001,003,004,007,009)			$ 12,174.93
			$ 12,174.93
Art (006)			
(1% of 001,003,005,007,009)			$ 1,339.24
		Art Cost	**$ 1,339.24**
		Total Project Cost	**$ 135,263.52**

Part IV - Appendix

Table 3: Priority Invasive Plant Species at Peterson Lake Park Natural Area

SCIENTIFIC NAME	COMMON NAME
Hedera helix	English Ivy
Iris pseudocorus	Yellow Iris
Phalaris arundinacea	Reed Canarygrass
Polygonum cuspidatum	Japanese Knotweed
Rubus discolor	Himalayan Blackberry
Rubus laciniatus	Evergreen Blackberry
Solanum dulcamara	Bittersweet Nightshade

Table 4: 1996 Washington State Noxious Weed List/Class A Weeds
Control is mandatory statewide.

SCIENTIFIC NAME	COMMON NAME
Abutilon theophrasti	Velvetleaf
Carduus pycnocephalus	Italian Thistle
Carduus tenuiflorus	Slenderflower Thistle
Centaurea calcitrapa	Purple Starthistle
Centaurea macrocephala	Bighead Knapweed
Centaurea nigrescens	Vochin Knapweed
Crupina vulgaris	Common Crupina
Helianthus ciliaris	Texas Blueweed
Heracleum mantegazzianum	Giant Hogweed
Hibiscus trionum	Venice Mallow
Hieracium pilosella	Mouseear Hawkweed
Hydrilla verticillata	Hydrilla
Isatis tinctoria	Dyers Woad
Mirabilis nyctaginea	Wild Four O'clock
Peganum harmala	Peganum
Proboscidea louisianica	Unicorn-plant
Salvia aethiopis	Mediterranean Sage
Silybum marianum	Milk Thistle
Solanum elaeagnifolium	Silverleaf Nightshade
Solanum rostratum	Buffalobur
Sorghum halepense	Johnsongrass
Spartina patens	Salt Meadow Cordgrass
Zygophyllum fabago	Syrlan Bean-caper

Table 5: 1996 Washington State Noxious Weed List/Class B Weeds
Control is mandatory in all or parts of King County.

SCIENTIFIC NAME	COMMON NAME
Acroptilon repens	Russian Knapweed
Alhagi maurorum	Camelthorn
Amorpha fruticosa	Indigobush
Anchusa arvensis	Annual Bugloss
Anchusa officinalis	Common Bugloss
Cabomba caroliniana	Fanwort
Carduus acanthoides, C. nutans	Plumeless and Musk Thistle
Centaurea biebersteinii, C. diffusa, C. jacea. C. nigra, C. jacea x nigra	Spotted, Diffuse, Brown, Black, & Meadow Knapweed
Cenchrus longispinus	Longspine Sandbur
Centaurea solstitaialis	Yellow Starthistle
Chondrilla juncea	Rush Skeletonweed
Cyperus esculentus	Yellow Nutsedge
Echium vulgare	Blueweed
Euphorbia esula	Leafy Spurge
Hieracium caespitosum	Yellow Hawkweed
Lamium hybridum	Hybrid Deadnettle
Lepidium latifolium	Perennial Pepperweed
Lepyrodiclis holosteoides	Lepyrodiclis
Linaria dalmatica ssp. dalmatica	Dalmatian Toadflax
Lythrum salicaria	Purple Loosestrife
Myriophyllum aquaticum	Parrotfeather
Onopordum acanthium	Scotch Thistle
Picris hieracioides	Hawkweed Oxtongue
Potentilla recta	Sulfur Cinquefoil
Rorippa austriaca	Austrian Fieldcress
Senecio jacobaea	Tansy Ragwort
Sonchus arvensis spp. arvensis	Perennial Sowthistle
Spartina alterniflora, S. anglica	Smooth, Common Cordgrass
Sphaerophysa salsula	Swainsonpea
Torilis arvensis	Hedgeparsley
Tribulus terrestris	Puncturevine
Ulex eropaeus	Gorse

Table 6: 1997 Washington State Noxious Weed List/Class C Weeds Control and containment strongly encouraged.

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
Aegilops cylindrica	Jointed Goatgrass	*Hyoscyamus niger*	Black Henbane
Anthriscus sylvestris	Wild Chervil	*Hypericum perforatum*	Common St. Johnswort
Artemisia absinthium	Absinth Wormwood	*Linaria vulgaris*	Yellow Toadflax
Cardaria pubescens	Hairy Whitetop	*Matricaria perforata*	Scentless Mayweed
Chaenorrhinum minus	Dwarf Snapdragon	*Phalaris arundinacea*	Reed Canarygrass
Cirsium arvense	Canada Thistle	*Polygonum cuspidatum*	Japanese Knotweed
Cirsium vulgare	Bull Thistle	*Secale cereale*	Cereal Rye
Conium maculatum	Poison-hemlock	*Silene latifolia* ssp. *alba*	White Cockle
Convolvulus arvensis	Field Bindweed	Xanthium spinosum	Spiny Cocklebur
Cuscuta approximata	Soothseed Alfalfa Dodder	*Cardaria draba*	Hoary Cress
Cynoglossum officinale	Houndstongue	*Tanacetum vulgare*	Common Tansy
Daucus carota	Wild Carrot	*Solanum dulcamara*	Bitter Nightshade
Eruca vesicaria ssp. *sativa*	Garden Rocket	*Tamarix* spp.	Saltcedar
Gypsopphila paniculata	Babysbreath	*Verbascum thapsus*	Common Mullein
Hemizonia pungens	Spikeweed		